

Energized Study Material of

Informatics Practices XI



By



Mr. Sajad Akbar Rather (MCA/M.Ed)
Teacher BHSS Bomai, Baramulla. (JK)



*A complete energized Study material of
Informatics Practices for Class XI*



Prepared by DSEK and SCERT Kashmir

Copyright © 2020 by DSEK, SCERT Kashmir



Contents

Structure	Page No's
Unit 1: Digital Design	2
Number System	2
Internal storage encoding of characters	9
Basic Logic Gates	9
Unit 2: Computer Fundamentals	11
Evolution of Computers	11
Generations of Computers	14
Classification of Computers	15
Functional Components of a Computer	17
Memory Concepts	21
Unit 3: Software Concepts	27
Basics	27
Operating System	28
Language Processor	29
Utility Softwares	30
Bootling	32
Computer Languages	33
GUI and CUI	33
Unit 4: Graphical User Interface (GUI)	35
Windows	35
Unit 5: Office Automation	44
Basics	44
Microsoft Office	46
Microsoft Word 2007	47
Spreadsheets	101
Presentation Program	116
Unit 6: Program Fundamentals	130
VB Basics	130
Structure of VB Application	131
Variables in VB	134
VB Statements and Expressions	135
VB Operators	136
VB Branching	137
VB Loops	139

Unit 1

Digital Design

Objectives:

In this Chapter you will learn about:

- Number System
- Internal storage encoding of characters
- Basic Logic Gates



NUMBER SYSTEM

In order to work with data, the data must be represented inside the computer. Digital computers represent data by means of an easily identified symbol called a digit.

Each number system has a base also called a Radix. A decimal number system is a system of base 10; binary is a system of base 2; octal is a system of base 8; and hexadecimal is a system of base 16.

Number System	Base	Symbols used
Binary	2	0,1
Octal	8	0,1,2,3,4,5,6,7
Decimal	10	0,1,2,3,4,5,6,7,8,9
Hexadecimal	16	0,1,2,3,4,5,6,7,8,9,A,B,C,D,E,F where A = 10; B = 11; C = 12; D = 13; E = 14; F = 15

Converting a number from one Base to another:

Binary to Decimal:

Method to convert Binary to Decimal:

1. Start at the rightmost bit.
2. Take that bit and multiply by 2^n where n is the current position beginning at 0 and increasing by 1 each time. This represents a power of two.
3. Sum each terms of product until all bits have been used.

Example

Convert the Binary number 101011 to its Decimal equivalent.

$$1 * 2^5 + 0 * 2^4 + 1 * 2^3 + 0 * 2^2 + 1 * 2^1 + 1 * 2^0$$

$$32 + 0 + 8 + 0 + 2 + 1 = (43)_{10}$$

Example

Convert the Binary number 1001 to its Decimal equivalent.

$$1 * 2^3 + 0 * 2^2 + 0 * 2^1 + 1 * 2^0$$

$$8 + 0 + 0 + 1 = (9)_{10}$$

Binary fraction to decimal:

Example

Convert $(11011.101)_2$ to decimal

$$2^4 2^3 2^2 2^1 . 2^0 2^{-1} 2^{-2} 2^{-3}$$

$$1 1 0 1 1 1 0 1$$

$$= (1 \times 2^4) + (1 \times 2^3) + (0 \times 2^2) + (1 \times 2^1) + (1 \times 2^0) + (1 \times 2^{-1}) + (0 \times 2^{-2}) + (1 \times 2^{-3})$$

$$= 16 + 8 + 0 + 2 + 1 + 0.5 + 0 + 0.125$$

$$= (27.625)_{10}$$

Decimal to Binary:

Method to convert a Decimal number into its Binary equivalent:

1. Divide the decimal number by 2.
2. Take the remainder and record it on the side.
3. Divide the quotient by 2.
4. REPEAT UNTIL the decimal number cannot be divided further.
5. Record the remainders in reverse order and you get the resultant binary number.

Example

Convert the Decimal number 125 into its Binary equivalent.

Quotient	Reminder
$125 / 2 = 62$	1
$62 / 2 = 31$	0
$31 / 2 = 15$	1
$15 / 2 = 7$	1
$7 / 2 = 3$	1
$3 / 2 = 1$	1
$1 / 2 = 0$	1

Answer: $(1111101)_2$

Converting Decimal fraction to Binary:

Convert $(0.75)_{10}$ to binary

Multiply the given fraction by 2. Keep the integer in the product as it is and multiply the new fraction in the product by 2. Continue the process till the required number of decimal places or till you get zero in the fraction part. Record the integers in the products from top to bottom.

Given fraction 0.75

Multiply 0.75 by 2 1.50

Multiply 0.50 by 2 1.00

Reading the integers from top to bottom 0.75 in decimal number system is 0.11 in binary number system.

Example

Convert $(105.15)_{10}$ to binary

Let us convert 105 first.

$(105)_{10} = (1101001)_2$

Let us convert $(0.15)_{10}$

Multiply 0.15 by 2 0.30

Multiply 0.30 by 2 0.60

Multiply 0.60 by 2 1.20

Multiply 0.20 by 2 0.40

Multiply 0.40 by 2 0.80

Multiply 0.80 by 2 1.60

Reading the integers from top to bottom $(0.15)_{10} = (0.001001)_2$

Final result $(105.15)_{10} = (1101001.001001)_2$

Decimal to Octal:

The method to convert a decimal number into its octal equivalent:

1. Divide the decimal number by 8.
2. Take the remainder and record it on the side.
3. Divide the quotient by 8.
4. REPEAT UNTIL the decimal number cannot be divided further.
5. Record the remainders in reverse order and you get the resultant binary

Example

Convert the Decimal number 125 into its Octal equivalent.

$125 / 8 = 15 \quad 5$

$15 / 8 = 1 \quad 7$

$1 / 8 = 0 \quad 1$

Answer: $(175)_8$

Converting Decimal fraction to Octal:

Convert $(0.75)_{10}$ to Octal

Multiply the given fraction by 8. Keep the integer in the product as it is and multiply the new fraction in the product by 8. Continue the process and read the integers in the products from top to bottom.

Given fraction 0.75

Multiply 0.75 by 8 6.00

Reading the integers from top to bottom 0.75 in decimal number system is 0.6 in octal number system.

Octal to Decimal:

Method to convert Octal to Decimal:

1. Start at the rightmost bit.
2. Take that bit and multiply by 8^n where n is the current position beginning at 0 and increasing by 1 each time. This represents the power of 8.
3. Sum each of the product terms until all bits have been used.

Example

Convert the Octal number 321 to its Decimal equivalent.

$$3 * 8^2 + 2 * 8^1 + 1 * 8^0$$

$$192 + 16 + 1 = (209)_{10}$$

Octal fraction to decimal:

Example

Convert $(23.25)_8$ to decimal

$$\begin{array}{cccc} 8^1 & 8^0 & . & 8^{-1} & 8^{-2} \\ 2 & 3 & & 2 & 5 \end{array}$$

$$= (2 \times 8^1) + (3 \times 8^0) + (2 \times 8^{-1}) + (5 \times 8^{-2})$$

$$= 16 + 3 + 0.25 + 0.07812$$

$$= (19.32812)_{10}$$

Decimal to Hexadecimal:

Method to convert a Decimal number into its Hexadecimal equivalent:

1. Divide the decimal number by 16.
2. Take the remainder and record it on the side.
3. REPEAT UNTIL the decimal number cannot be divided further.
4. Record the remainders in reverse order and you get the equivalent hexadecimal number.

Example

Convert the Decimal number 300 into its hexadecimal equivalent.

$$300 / 16 = 18 \qquad 12\text{-(C)}$$

$$18 / 16 = 1 \quad 2$$

$$1 / 16 = 0 \quad 1$$

Answer: (12C)₁₆

Converting Decimal fraction to Hexadecimal:

Example

Convert (0.75)₁₀ to hexadecimal

Multiply the given fraction by 16. Keep the integer in the product as it is and multiply the new fraction in the product by 16. Continue the process and read the integers in the products from top to bottom.

Given fraction 0.75

Multiply 0.75 by 16 12.00 - C

Reading the integers from top to bottom 0.75 in decimal number system is 0C in Hexadecimal number system.

Hexadecimal to Decimal:

Method to convert Hexadecimal to Decimal:

1. Start at the rightmost bit.
2. Take that bit and multiply by 16ⁿ where n is the current position beginning at 0 and increasing by 1 each time. This represents a power of 16.
3. Sum each terms of product until all bits have been used.

Example

Convert the Hexadecimal number AB to its Decimal equivalent.

$$= A * 16^1 + B * 16^0$$

$$= 10 * 16^1 + 11 * 16^0$$

$$= 160 + 11 = (171)_{10}$$

Hexadecimal fraction to decimal:

Example

Convert (1E.8C)₁₆ to decimal

$$16^1 \quad 16^0 \quad . \quad 16^{-1} \quad 16^{-2}$$

$$1 \quad E \quad \quad 8 \quad C$$

$$= (1 \times 16^1) + (14 \times 16^0) + (8 \times 16^{-1}) + (12 \times 16^{-2})$$

$$= 16 + 14 + 0.5 + 0.04688$$

$$= (30.54688)_{10}$$

Binary to Hexadecimal:

The hexadecimal number system uses the digits 0 to 9 and A, B, C, D, E, F.

Method to convert a Binary number to its Hexadecimal equivalent is:

We take a binary number in groups of 4 and use the appropriate hexadecimal digit in its place. We begin at the rightmost 4 bits. If we are not able to form a group of

four, insert 0s to the left until we get all groups of 4 bits each. Write the hexadecimal equivalent of each group. Repeat the steps until all groups have been converted.

Example

Convert the binary number 1000101 to its Hexadecimal equivalent.

0100 0101 Note that we needed to insert a 0 to the left of 100.

Answer: (45)₁₆

In case of a fractional binary number form groups of four bits on each side of decimal point. Then replace each group by its corresponding hexadecimal number.

Example

Convert (11100.1010)₂ to hexadecimal equivalent.

0001 1100 . 1010

1 C . A

Answer : (1C.A)₁₆

Hexadecimal to Binary:

Method to convert a Hexadecimal number to its Binary equivalent is:

Convert each digit of Hexadecimal Number to its binary equivalent and write them in 4 bits. Then, combine each 4 bit binary number and that is the resulting answer.

Example

Convert the Hexadecimal number (10AF)₁₆ to its Binary equivalent.

1 0 A F
0001 | 0000 | 1010 | 1111

Answer: (0001000010101111)₂

Example

Convert the Hexadecimal number (A2F)₁₆ to its Binary equivalent.

A 2 F
1010 | 0010 | 1111

Answer: (1010 0010 1111)₂

Binary to Octal and Octal to Binary:

To convert Binary to Octal, as the octal system is a power of two (2^3), we can take the bits into groups of 3 and represent each group as an octal digit. The steps are the same for the binary to hexadecimal conversions except we are dealing with the octal base now.

To convert from octal to binary, we simply represent each octal digit in its three bit binary form.

Example

Convert the Octal number (742)₈ to its Binary equivalent.

7 | 4 | 2
111 | 100 | 010

Answer: (111100010)₂

Hexadecimal to Octal and Octal to Hexadecimal:

To convert Hexadecimal to Octal, Convert each digit of Hexadecimal Number to its binary equivalent and write them in 4 bits. Then, combine each 3 bit binary number and that is converted into octal.

Example

Convert the Hexadecimal number (A42)₁₆ to its Octal equivalent.

A | 4 | 2
1010 | 0100 | 0010
101 | 001 | 000 | 010

Answer: (5102)₈

To convert Octal to hexadecimal, convert each digit of Octal Number to its binary equivalent and write them in 3 bits. Then, combine each 4 bit binary number and that is converted into hexadecimal.

Example

Convert the Octal number (762)₈ to its hexadecimal equivalent.

7 | 6 | 2
101 | 110 | 010
0001 | 0111 | 0010

Answer: (172)₁₆

The following table summarizes the number representation in decimal, binary, octal and hexadecimal number system:

Decimal	Binary	Hexadecimal	Octal
0	0	0	0
1	1	1	1
2	10	2	2
3	11	3	3
4	100	4	4
5	101	5	5
6	110	6	6
7	111	7	7
8	1000	8	10
9	1001	9	11
10	1010	A	12
11	1011	B	13
12	1100	C	14
13	1101	D	15
14	1110	E	16
15	1111	F	17
16	10000	10	20

INTERNAL STORAGE ENCODING OF CHARACTERS:

ASCII(American standard code for information interchange):

ASCII code is most widely used alphanumeric code used in computers. It is a 7- bit code, and so it has $2^7 = 128$ possible code groups. It represents all of the standard keyboard characters as well as control functions such as Return & Linefeed functions.

ISCII(Indian standard code for information interchange):

To use the Indian language on computers, ISCII codes are used. It is an 8-bit code capable of coding 256 characters. ISCII code retains all ASCII characters and offers coding for Indian scripts also.

Unicode:

It is a universal coding standard which provides a unique number for every character, no matter what the platform, no matter what the program, no matter what the language. Unicode version 3.1 represented 94,140 characters.

BASIC LOGIC GATES

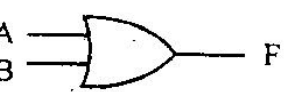
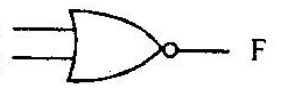
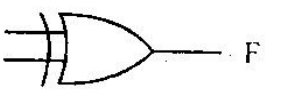
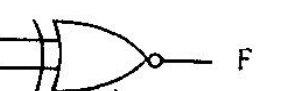
Logic Gates:

A gate is simply an electronic circuit, which operates on one or more signals to produce an output signal. Gates are digital circuits because the input and output signals are either low (0) or high (1). Gates also called logic circuits.

This logic circuit diagram can be composed of basic gates AND, OR and NOT or advance gates, NAND and NOR, etc.

Logic circuits that perform logical operations such as AND, OR and NOT are called gates. A gate is block of hardware that produces a logic 0 or a logic 1 output, in response to the binary signal(s) applied to it as input.

Let's look at the symbols used to represent digital logic gates

Name	Graphic Symbol	Algebraic function	Truth Table															
NOT		$F = \bar{A}$ or $F = A$	<table><tr><th>A</th><th>F</th></tr><tr><td>0</td><td>1</td></tr><tr><td>1</td><td>0</td></tr></table>	A	F	0	1	1	0									
A	F																	
0	1																	
1	0																	
AND		$F = A \cdot B$ or $F = AB$	<table><tr><th>A</th><th>B</th><th>F</th></tr><tr><td>0</td><td>0</td><td>0</td></tr><tr><td>0</td><td>1</td><td>0</td></tr><tr><td>1</td><td>0</td><td>0</td></tr><tr><td>1</td><td>1</td><td>1</td></tr></table>	A	B	F	0	0	0	0	1	0	1	0	0	1	1	1
A	B	F																
0	0	0																
0	1	0																
1	0	0																
1	1	1																
OR		$F = A + B$	<table><tr><th>A</th><th>B</th><th>F</th></tr><tr><td>0</td><td>0</td><td>0</td></tr><tr><td>0</td><td>1</td><td>1</td></tr><tr><td>1</td><td>0</td><td>1</td></tr><tr><td>1</td><td>1</td><td>1</td></tr></table>	A	B	F	0	0	0	0	1	1	1	0	1	1	1	1
A	B	F																
0	0	0																
0	1	1																
1	0	1																
1	1	1																
NAND		$F = \overline{A \cdot B}$	<table><tr><th>A</th><th>B</th><th>F</th></tr><tr><td>0</td><td>0</td><td>1</td></tr><tr><td>0</td><td>1</td><td>1</td></tr><tr><td>1</td><td>0</td><td>1</td></tr><tr><td>1</td><td>1</td><td>0</td></tr></table>	A	B	F	0	0	1	0	1	1	1	0	1	1	1	0
A	B	F																
0	0	1																
0	1	1																
1	0	1																
1	1	0																
NOR		$F = \overline{A + B}$	<table><tr><th>A</th><th>B</th><th>F</th></tr><tr><td>0</td><td>0</td><td>1</td></tr><tr><td>0</td><td>1</td><td>0</td></tr><tr><td>1</td><td>0</td><td>0</td></tr><tr><td>1</td><td>1</td><td>0</td></tr></table>	A	B	F	0	0	1	0	1	0	1	0	0	1	1	0
A	B	F																
0	0	1																
0	1	0																
1	0	0																
1	1	0																
Exclusive-OR (XOR)		$F = A\bar{B} + \bar{A}B$ $F = A \oplus B$	<table><tr><th>A</th><th>B</th><th>F</th></tr><tr><td>0</td><td>0</td><td>0</td></tr><tr><td>0</td><td>1</td><td>1</td></tr><tr><td>1</td><td>0</td><td>1</td></tr><tr><td>1</td><td>1</td><td>0</td></tr></table>	A	B	F	0	0	0	0	1	1	1	0	1	1	1	0
A	B	F																
0	0	0																
0	1	1																
1	0	1																
1	1	0																
Exclusive-NOR (XNOR)		$F = \overline{A \oplus B}$	<table><tr><th>A</th><th>B</th><th>F</th></tr><tr><td>0</td><td>0</td><td>1</td></tr><tr><td>0</td><td>1</td><td>0</td></tr><tr><td>1</td><td>0</td><td>0</td></tr><tr><td>1</td><td>1</td><td>1</td></tr></table>	A	B	F	0	0	1	0	1	0	1	0	0	1	1	1
A	B	F																
0	0	1																
0	1	0																
1	0	0																
1	1	1																

Unit 2

Computer Fundamentals

Objectives:

In this Chapter you will learn about:

- Basics of Computer
- Evolution of Computers
- Generations of Computers
- Classification of Computers
- Functional Components of a Computer
- Memory Concepts



What is Computer?

Computer is an advanced electronic device that takes raw data as input from the user and processes these data under the control of set of instructions (called program) and gives the result (output) and saves output for the future use. It can process both numerical and non-numerical (arithmetic and logical) calculations.

A computer has four functions:

1. Input
2. Processing
3. Output
4. Storage

1. Input: Input is the raw information entered into a computer from the input devices. It is the collection of letters, numbers, images etc.

2. Process:

Process is the operation of data as per given instruction. It is totally internal process of the computer system.

3. Output:

Output is the processed data given by computer after data processing. Output is also called as Result. We can save these results in the storage devices for the future use.

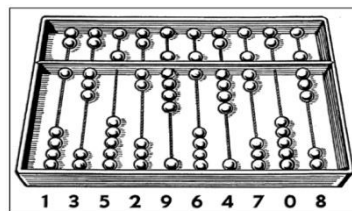
Evolution of Computers:

The growth of computer industry started with the need for performing fast calculations. The manual method of computing was slow and prone to errors. So

attempts were made to develop faster calculating devices. The journey that started from the first calculating device i.e. Abacus has led us today to extremely high speed calculating devices. Let us first have a look at some early calculating devices and then we will explore various generations of computer.

Abacus:

Abacus was discovered by the Mesopotamians in around 3000 BC. An abacus consisted of beads on movable rods divided into two parts. Addition and multiplication of numbers was done by using the place value of digits of the numbers and position of beads in an abacus.



Pascaline:

Blaise Pascal, a French mathematician invented an adding machine in 1642 that was made up of gears and was used for adding numbers quickly. This machine was also called Pascaline and was capable of addition and subtraction along with carry-transfer capability. It worked on clockwork mechanism principle. It consisted of various numbered toothed wheels having unique position values. The addition and subtraction operations was performed by controlled rotation of these wheels.



Leibnitz's Calculator:

In 1673 Gottfried Leibnitz, a German mathematician extended the capabilities of the adding machine invented by Pascal to perform multiplication and division as well. The multiplication was done through repeated addition of numbers using a stepped cylinder each with nine teeth of varying lengths.

Jacquard's Loom:

In order to make the cotton weaving process automatic, Joseph Jaquard devised punch cards and used them to control looms in 1801. The entire operation was

under a program's control. Through this historic invention, the concept of storing and retrieving information started.

Difference engine and Analytical Engine:

Charles Babbage, an English mathematician developed a machine called Difference Engine in 1822 which could calculate various mathematical functions, do polynomial evaluation by finite difference and theoretically could also solve differential equations. Thereafter in 1833, he designed the Analytical Engine which later on proved to be the basis of modern computer. This machine could perform all the four arithmetic operations as well as comparison. It included the concept of central processor, memory storage and input-output devices. Even the stored information could be modified. Although the analytical engine was never built that time but Babbage established the basic principles on which today's modern computers work.

Both these great inventions earned him the title of “**Father of Modern Computers**”.

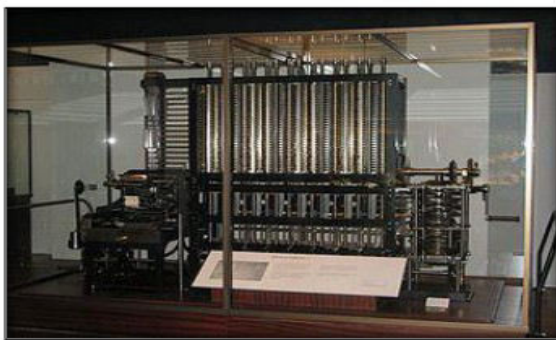


Fig: Difference Engine and Analytical engine

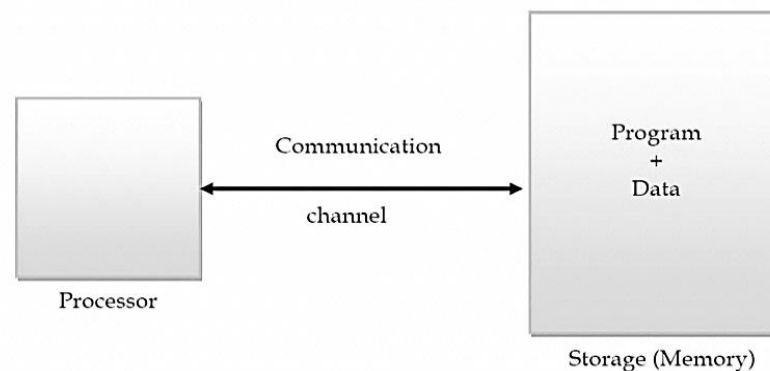
Mark 1:

In 1944 Prof Howard Aiken in collaboration with IBM constructed an electromechanical computer named Mark 1 which could multiply two 10 digit numbers in 5 seconds. This machine was based on the concept of Babbage's Analytical engine and was the first operational general purpose computer which could execute preprogrammed instructions automatically without any human intervention.

Basic Architecture Of The Von Neumann Computer:

In 1945, Dr. John Von Neumann proposed the concept of a stored program computer. As per this concept the program and data could be stored in the same memory unit. According to Von Neumann architecture, the processor executes

instructions stored in the memory of the computer. Since there is only one communication channel, the processor at a time can either fetch data or an instruction. That means at one point of time either the data or an instruction can be picked (fetched) from the storage unit for execution by the processor. Hence execution takes place in sequential manner. This limitation of Von Neumann Computer is known as Von Neumann bottleneck. EDVAC (Electronic Discrete Variable Automatic Computer) was the first stored program computer developed in 1952. After the invention of first electronic computer ENIAC (Electronic Numerical Integrator and Calculator) in 1946, the computer technology improved tremendously and at very fast pace.



Generation of Computers:

Growth in the computer industry is determined by the development in technology. Each phase/generation of computer development is characterized by one or more hardware/software developments that distinctly improved the performance of the computers of that generation. Based on various stages of development, computers can be divided into different generations.

First Generation (1940-56):

The first generation computers used vacuum tubes & machine language was used for giving the instructions. These computers were large in size & their programming was difficult task. The electricity consumption was very high. Some computers of this generation are ENIAC, EDVAC, EDSAC & UNIVAC-1.

Second Generation (1956-63):

In 2nd generation computers, vacuum tubes were replaced by transistors. They required only 1/10 of power required by tubes. This generation computers generated less heat & were reliable. The first operating system developed in this generation.

The Third Generation (1964-71):

The 3rd generation computers replaced transistors with Integrated circuit known as chip. From Small scale integrated circuits which had 10 transistors per chip, technology developed to MSI circuits with 100 transistors per chip. These computers were smaller, faster & more reliable. High level languages invented in this generation.

The fourth Generation (1972- present):

LSI & VLSI were used in this generation. As a result microprocessors came into existence. The computers using this technology known to be Micro Computer. High capacity hard disk were invented. There is great development in data communication.

The Fifth Generation (Present & Beyond):

Fifth generation computing devices, based on artificial intelligence, are still in development, though there are some applications, such as voice recognition, that are being used today. The use of parallel processing and superconductors is helping to make artificial intelligence a reality. Quantum computation and molecular and nanotechnology will radically change the face of computers in years to come.

Classification of Computer:

- **On the basis of working principle**

a) Analog Computer:

An analog computer is a form of computer that uses continuous physical phenomena such as electrical, mechanical, or hydraulic quantities to model the problem being solved.

Eg: Thermometer, Speedometer, Petrol pump indicator, Multimeter

b) Digital Computer:

A computer that performs calculations and logical operations with quantities represented as digits, usually in the binary number system.

c) Hybrid Computer (Analog + Digital):

A combination of computers those are capable of inputting and outputting in both digital and analog signals. A hybrid computer system setup offers a cost effective method of performing complex simulations. The instruments used in medical science lies in this category.

- **On the basis of Size**

a) Super Computer

The fastest type of computer. Super Computers are very expensive and are employed for specialized applications that require immense amounts of mathematical calculations. For example, weather forecasting requires a supercomputer. Other uses of supercomputers include animated graphics, fluid dynamic calculations, nuclear energy research, and petroleum exploration. PARAM, Pace & Flosolver are the supercomputer made in India.

b) Mainframe Computer:

A very large and expensive computer capable of supporting hundreds, or even thousands, of users simultaneously. In the hierarchy that starts with a simple microprocessor (in watches, for example) at the bottom and moves to supercomputers at the top, mainframes are just below supercomputers. In some ways, mainframes are more powerful than supercomputers because they support more simultaneous programs. But supercomputers can execute a single program faster than a mainframe.

c) Mini Computer:

A mid-sized computer. In size and power, minicomputers lie between workstations and mainframes. In the past decade, the distinction between large minicomputers and small mainframes has blurred, however, as has the distinction between small minicomputers and workstations. But in general, a minicomputer is a multiprocessing system capable of supporting from 4 to about 200 users simultaneously. Generally, servers are comes in this category.

d) Micro Computer:

- i. Desktop Computer:** a personal or micro-mini computer sufficient to fit on a desk.
- ii. Laptop Computer:** a portable computer complete with an integrated screen and keyboard. It is generally smaller in size than a desktop computer and larger than a notebook computer.
- iii. Palmtop Computer/Digital Diary /Notebook /PDAs:** a hand-sized computer. Palmtops have no keyboard but the screen serves both as an input and output device.

e) Workstations:

A terminal or desktop computer in a network. In this context, workstation is just a generic term for a user's machine (client machine) in contrast to a "server" or "mainframe."

Computer - Data and Information:

We all know what a computer is? It is an electronic device that processes the input

according to the set of instructions provided to it and gives the desired output at a very fast rate. Computers are very versatile as they do lot of different tasks such as storing data, weather forecasting, booking airline, railway or movie tickets and even playing games.

Data:

It is the term used for raw facts and figures. For example, **102, -3, 'Javeed', 'C'** are data. Definition of information should start from next line as given in the word file. In composed file it is starting from the same line immediately after the definition of data.

Information:

Data represented in useful and meaningful form is information. In simple words we can say that data is the raw material that is processed to give meaningful, ordered or structured information. For example **Javeed is 30 years old**. This is information about **Javeed** and conveys some meaning. This conversion of data to information is called data processing.

FUNCTIONAL COMPONENTS OF A COMPUTER:

Input Unit:

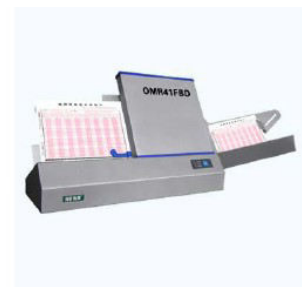
Those devices which help to enter data into computer system. e.g. Keyboard, Mouse, Touchscreen, Barcode Reader, Scanner, MICR, OMR etc.



Bar code Reader



MICR used in Bank



OMR

Central Processing Unit (CPU):

The main component to make a computer operate is the computer chip or microprocessor. This is referred to as the Central Processing Unit (CPU) and is housed in the computer case. Together, they are also called the CPU. It performs arithmetic and logic operations. The CPU (Central Processing Unit) is the device that interprets and executes instructions.



Processor

Arithmetic and Logic Unit (ALU):

The ALU, as its name suggests performs mathematical calculations and takes logical decisions. Arithmetic calculations include addition, subtraction, multiplication and division. Logical decisions involve comparison of two data items to see which one is larger or smaller or equal.

Control Unit:

The Control unit coordinates and controls the data flow in and out of CPU and also controls all the operations of ALU, memory registers and also input/output units. It is also responsible for carrying out all the instructions stored in the program. It decodes the fetched instruction, interprets (understands) it and sends control signals to input/output devices until the required operation is done properly by ALU and memory.

CPU Registers:

A register is a temporary unit of memory in the CPU. These receive data/information and then this data/information is held in them as per the requirement. Registers can be of different sizes(16 bit , 32 bit , 64 bit and so on) and each register inside the CPU has a specific function like storing data, storing an instruction, storing address of a location in memory etc. The user registers can be used by an assembly language programmer for storing operands, intermediate results etc. Accumulator (ACC) is the main register in the ALU and contains one of the operands of an operation to be performed in the ALU.

Memory:

It facilitates the remembrance power to computer system. It refers to the physical devices used to store programs (sequences of instructions) or data (e.g. program state information) on a temporary or permanent basis for use in a computer or other digital electronic device. The term primary memory is used for the information in

physical systems which are fast (i.e. RAM), as a distinction from secondary memory, which are physical devices for program and data storage which are slow to access but offer higher memory capacity. Primary memory stored on secondary memory is called virtual memory. Primary Memory can be categorized as Volatile Memory & Non-Volatile Memory.

- Volatile memory(RAM):

RAM means Random Access Memory (Read/ Write Memory). It's known as Volatile Memory. Volatile memory is computer memory that requires power to maintain the stored information. Most modern semiconductor volatile memory is either Static RAM or dynamic RAM.

SRAM retains its contents as long as the power is connected and is easy to interface to but uses six transistors per bit.

Dynamic RAM is more complicated to interface to and control and needs regular refresh cycles to prevent its contents being lost. However, DRAM uses only one transistor and a capacitor per bit, allowing it to reach much higher densities and, with more bits on a memory chip, be much cheaper per bit. SRAM is not worthwhile for desktop system memory, where DRAM dominates, but is used for their cache memories.

- Non Volatile Memory (ROM):

ROM means Read Only Memory. Non-volatile memory is computer memory that can retain the stored information even when not powered. Examples of non-volatile memory are flash memory and ROM/PROM/EPROM/EEPROM memory (used for firmware such as boot programs).

Cache Memory:

Cache memory is random access memory (RAM) that a computer microprocessor can access more quickly than it can access regular RAM. As the microprocessor processes data, it looks first in the cache memory and if it finds the data there (from a previous reading of data), it does not have to do the more time-consuming reading of data from larger memory. It is of two types- L1 cache is on the same chip as the microprocessor. L2 is usually a separate static RAM (SRAM) chip.

Secondary Memory:

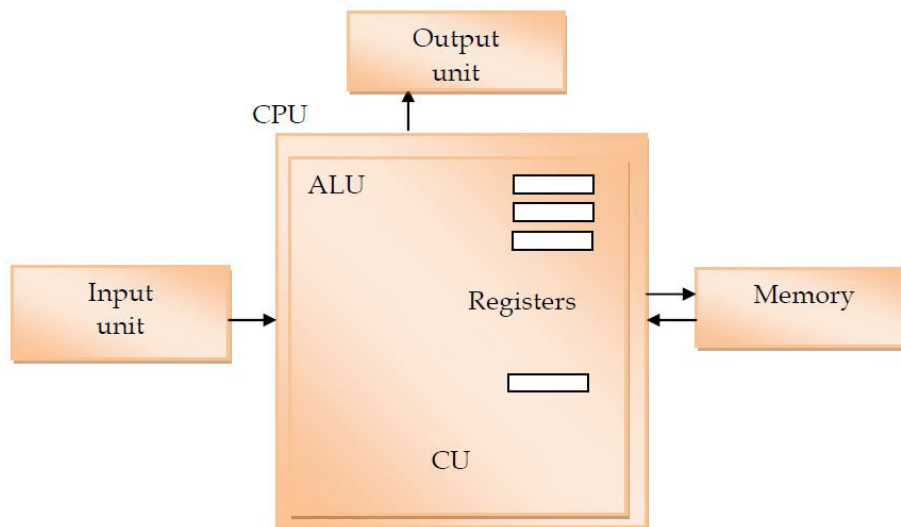
- A. Hard Disk (Local Disk)
- B. Optical Disks: CD-R, CD-RW, DVD-R, DVD-RW
- C. Pen Drive
- D. Floppy Disks
- E. Memory Cards

F. External Hard Disk

G. Blue Ray Disk

Output Unit:

Those devices which help to display the processed information. Eg. Monitor, Printer, Plotter, Projector



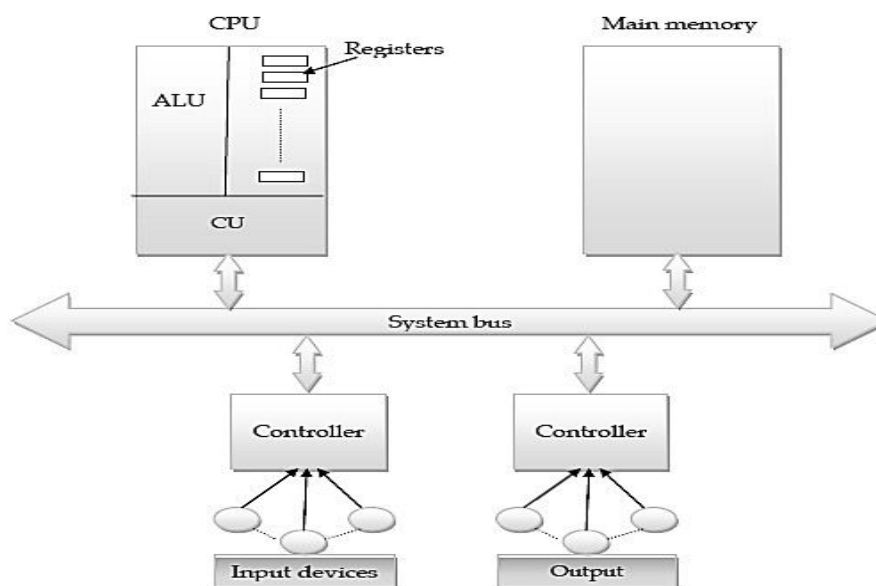
Functional Units of a Computer

Interconnection between Functional Components:

The interconnection between the functional components of a computer can be done in many ways. In microcomputers we generally see a Common Bus Architecture as shown in the figure below. As we have seen before that a computer consists of input unit that takes input, a CPU that processes the input and an output unit that produces output. All these devices communicate with each other through a common bus. A bus is a transmission path (set of conducting wires) over which data or information in the form of electric signals, is passed from one component to another in a computer. The bus can be of three types – **Address bus, Data bus and**

Control Bus.

The address bus carries the address location of the data or instruction. The data bus carries data from one component to another and the control bus carries the control signals. As shown in the figure below, the system bus is the common communication path that carries signals to/from CPU, main memory and input/output devices. The input/output devices communicate with the system bus through the controller circuit. This controller circuit helps to manage various input/output devices attached to the computer.



MEMORY CONCEPTS

Memory is one of the most important components of a computer system as it stores data and instructions. Every memory chip contains thousands of memory locations. In the computer, the data is stored in the form of bits and bytes. A bit is the smallest storage unit of memory. A nibble is a collection of 4 bits. Eight bits combined together to form a single byte, which in turn represents a single character. Other units of memory are KB (Kilobyte), MB (Megabyte), GB (Gigabyte), TB (Terabytes), PB (Petabyte). Every higher unit is equal to 2^{10} of the previous unit. The following table shows various units of computer memory:

Memory Unit	In equivalent Bits/Bytes
1 Nibble	4 bits e,g 0000 or 1101 or 1111 etc
1 byte	8 bits e,g 00000000 or 10101011 (any combination)
1 KB	2^{10} bytes = 1024 bytes
1 MB	2^{10} KB = 1024 KB
1 GB	2^{10} MB = 1024 MB
1 TB	2^{10} GB = 1024 GB
1 PB	2^{10} TB = 1024 TB
1 ZB (Zeta Byte)	2^{10} PB = 1024 PB

The computer memories can be divided into following categories:

1. Primary Memory
2. Secondary memory
3. Cache Memory

1. Primary Memory:

Primary memory or main memory is a Metal Oxide Semiconductor (MOS) memory used for storing program and data during the execution of the program. It is directly accessible to CPU. Primary Memory can be categorized as Volatile Memory & Non-Volatile Memory.

- **Volatile memory (RAM)**

RAM means Random Access Memory (Read/ Write Memory). Its known as Volatile Memory. Volatile memory is computer memory that requires power to maintain the stored information. Most modern semiconductor volatile memory is either Static RAM or dynamic RAM.

SRAM retains its contents as long as the power is connected and is easy to interface to but uses six transistors per bit.



Dynamic RAM is more complicated to interface to and control and needs regular refresh cycles to prevent its contents being lost. However, DRAM uses only one transistor and a capacitor per bit, allowing it to reach much higher densities and, with more bits on a memory chip, be much cheaper per bit. SRAM is not worthwhile for desktop system memory, where DRAM dominates, but is used for their cache memories.

- **Non Volatile Memory (ROM)**

ROM means Read Only Memory. Non-volatile memory is computer memory that can retain the stored information even when not powered. It is divided into following types:

- ✓ **Programmable Read Only Memory (PROM):** This type of ROM can be programmed even after its manufacture using a PROM programmer circuit. But once a PROM is programmed, it becomes just like ROM i.e. it cannot be changed.
- ✓ **Erasable Programmable Read Only Memory (EPROM):** In this type of ROM, the contents can be erased and the memory can be reprogrammed. To erase the data, an EPROM is exposed to ultraviolet light and then it can be reprogrammed using a PROM programmer

circuit. When the EPROM is in use, then it behaves like a ROM, that means the information can only be read.

- ✓ **Electrically Erasable Programmable Read Only Memory (EEPROM):** The contents of this type of ROM can be erased and then reprogrammed using electric signals. This makes it an excellent back up for RAM whose contents are lost when the power is switched off. When the power is returned, the contents of EEPROM are copied back into the RAM and the computer continues working without any data loss. Nowadays RAMs and EEPROMs are integrated in a single chip.



2. Secondary Memory:

The major limitation of primary memory is that it has limited storage capacity and is volatile. To overcome this limitation we have secondary memory storage devices. This type of memory is also called external memory. It refers to the various storage media on which a computer can store data and programs. It is an additional storage, not part of the main computer.

The Secondary storage media can be fixed or removable. Fixed Storage media is an internal storage medium like hard disk that is fixed inside the computer. Removable storage media is a data storage medium that is portable and can be taken outside the computer.

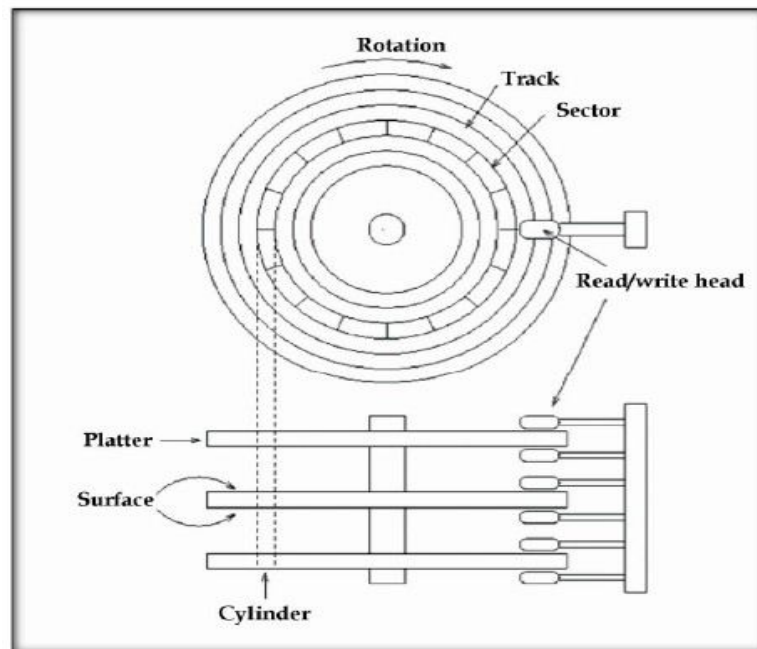
The Secondary memory can be divided into following categories:

1. Hard Disk
2. CD/DVD Drive
3. Pen Drive
4. Blue Ray Disk
5. Magnetic Tap
6. Floppy Disk

1. Hard Disk:

A hard disk consists of one or more circular disks called platters which are mounted on a common spindle. Each surface of a platter is coated with a magnetic material. Both surfaces of each disk are capable of storing data except the top and

bottom disk where only the inner surface is used. The information is recorded on the surface of the rotating disk by magnetic read/write heads. These heads are joined to a common arm known as access arm. This arm moves over the surface of the rotating disk as shown in the figure below.



Information is recorded on each of these disks in the form of concentric circles called tracks which are further divided into sectors. Hard drives however, are not very portable and are primarily used internally in a computer system. But external hard disks are also available as a substitute for portable storage. Today the hard disks have the storage capacity of several gigabytes to terabytes.



2. CD/DVD Drive:

On an optical storage media information is stored and read using a laser beam. The data is stored as a spiral pattern of pits and ridges denoting binary 0 and binary 1. Examples of optical media are CDs, DVDs etc.

Compact Disk: A compact disk or CD can store approximately 650 to 700 megabytes (MB) of data. We must have a CD drive in our computer to read them. The bits (0 and 1) are encoded as transitions between raised ridges and etched pits, which are lined up in a spiral like pattern. This pattern is then stamped into a 1.2-mm clear polycarbonate disc (a CD), which is then covered with a super thin coating of reflective metal (usually aluminum or gold) and a label.

To read the data, an infrared laser is beamed through the CD's polycarbonate substrate. The wavelength of light that bounces off the mirror-like reflective backing is then measured. A pit scatters the light and the ridge reflects the light. Since pits and ridges pass different amounts of light, the fluctuations in the reflected beam are then translated back into the original ones and zeros.

DVD: It stands for Digital Versatile Disk or Digital Video Disk. It looks just like a CD and use a similar technology as that of the CDs discussed above but employ a shorter wave length red laser that permits a narrower beam. This allows tracks to be spaced closely enough to store data that is more than six times the CD's 700MB capacity. It is a significant advancement in portable storage technology. DVDs consist of two half thickness (0.6-mm) CD-like discs glued back-to-back. This protects the delicate reflective coating as it is on the inside of the disc. Also it makes possible to have double sided DVDs—where data can be stored on each half disc. A DVD holds 4.7 GB to 17 GB of data. That means a complete movie can be stored on one side of a DVD. Like CDs DVDs also come in three varieties –

- DVD- ROM
- DVD- R
- DVD-RW



CD



DVD

3. Pen Drive:

Pen Drives or Thumb drives or Flash drives are the recently emerged portable storage media. It is an EEPROM based flash memory which can be repeatedly erased and written using electric signals. This memory is coupled with a USB connector through which it can be plugged into the computer. They have a capacity smaller than a hard disk but greater than a CD



4. Blue Ray Disk:

Blu-ray (not Blue-ray) also known as Blu-ray Disc (BD), is the name of a new optical disc format. The format offers more than five times the storage capacity of traditional DVDs and can hold up to 25GB on a single-layer disc and 50GB on a dual-layer disc. While current optical disc technologies such as DVD, DVD±R, DVD±RW, and DVD-RAM rely on a red laser to read and write data, the new format uses a blue-violet laser instead, hence the name Blu-ray.



5. Magnetic Tape:

Examples of magnetic storage media are hard disks, floppy disks and magnetic tapes. Magnetic media is coated with a magnetic sensitive layer and this layer is magnetized in clockwise or anticlockwise directions, which then are interpreted as binary 1s and 0s at reading.

6. Floppy Disk (Diskette):

A floppy disk is a flexible disk made up of mylar with a magnetic coating on it. It is packaged inside a protective plastic envelope. These were one of the oldest type of portable storage devices that could store up to 1.44 MB of data but now they are no longer in use.

3. Cache Memory:

Cache memory is random access memory (RAM) that a computer microprocessor can access more quickly than it can access regular RAM. As the microprocessor processes data, it looks first in the cache memory and if it finds the data there (from a previous reading of data), it does not have to do the more time-consuming reading of data from larger memory. It is of two types-

L1 cache is on the same chip as the microprocessor.

L2 is usually a separate static RAM (SRAM) chip.

Unit 3

Software Concepts

Objectives:

In this Chapter you will learn about:

- Basics
- Operating System
- Language Processor
- Utility Softwares
- Booting
- Computer Languages
- GUI and CUI



Software:

Software, simply are the computer programs. The instructions given to the computer in the form of a program is called Software. Software is the set of programs, which are used for different purposes. All the programs used in computer to perform specific task is called Software.

Types of software:

1. System software:

- **Operating System Software:** DOS, Windows XP, Windows Vista, Unix/Linux, MAC/OS X etc.
- **Utility Software:** Windows Explorer (File/Folder Management), Compression Tool, Anti-Virus Utilities, Disk Defragmentation, Disk Clean, BackUp, WinZip, WinRAR etc...
- Language Processors Compiler, Interpreter and Assembler

2. Application software:

- **Package Software:** Ms. Office 2003, Ms. Office 2007, Macromedia (Dreamweaver, Flash, Freehand), Adobe (PageMaker, PhotoShop)
- **Tailored or Custom Software:** School Management system, Inventory Management System, Payroll system, financial system etc.

Operating System:

An Operating system is the most important system software. It is a set of programs that control and supervise the hardware of a computer and also provide services to

application software, programmers and users. It manages all hardware and software, input, output and processing activities within the computer system, the flow of information to and from the processor, sets priorities for handling different tasks, and so on. Without operating system a computer cannot do anything useful. When a computer is switched on, the operating system is the first program that is loaded onto its memory. A user cannot communicate directly with the computer hardware, so the operating system acts as an interface between the user and the computer hardware. Some of the popular operating systems used in personal computers are DOS, Windows, Unix, Linux, Solaris, etc.

An operating system can be a Single User or a Multiuser operating system. A single user operating system allows only one user to work at any time but a multiuser operating system allows two or more users to use a powerful computer at the same time. For example Windows 7 is a single user operating system while Linux is a multiuser operating system.

Need for an Operating System:

Operating system provides a platform, on top of which, other programs, called application programs can run. As discussed before, it acts as an interface between the computer and the user. It is designed in such a manner that it operates, controls and executes various applications on the computer. It also allows the computer to manage its own resources such as memory, monitor, keyboard, printer etc.

Our choice of operating system, therefore, depends to a great extent on the CPU and the other attached devices and the applications we want to run. The operating system controls the various system hardware and software resources and allocates them to the users or programs as per their requirement.

Functions of operating System:

- Processor Management
- Memory Management
- File Management
- Device Management

Types of Operating System:

- **Real-time Operating System:**

It is a multitasking operating system that aims at executing real-time applications. Example of Use: e.g. control of nuclear power plants, oil refining, chemical processing and traffic control systems, air

- **Single User Systems:**

Provides a platform for only one user at a time. They are popularly associated with Desk Top operating system which run on standalone systems where no user accounts are required. Example: DOS.

- **Multi User Systems:**

Provides regulated access for a number of users by maintaining a database of known users. Refers to computer systems that support two or more simultaneous users. Another term for multi-user is time sharing. Ex: All mainframes are multi-user systems. Example: Unix

- **Multi-tasking and Single-tasking Operating Systems:**

When a single program is allowed to run at a time, the system is grouped under the single-tasking system category, while in case the operating system allows for execution of multiple tasks at a time, it is classified as a multi-tasking operating system.

- **Distributed Operating System:**

An operating system that manages a group of independent computers and makes them appear to be a single computer is known as a distributed operating system. Distributed computations are carried out on more than one machine. When computers in a group work in cooperation, they make a distributed system.

LANGUAGE PROCESSORS:

Since a computer hardware is capable of understanding only machine level instructions, So it is necessary to convert the HLL into Machine Level Language. There are three Language processors:

- **Compiler:**

It is translator which converts the HLL language into machine language in one go. A Source program in High Level Language get converted into Object Program in Machine Level Language.

- **Interpreter:**

It is a translator which converts the HLL language into machine language line by line. It takes one statement of HLL and converts it into machine code which is immediately executed. It eliminate the need of separate compilation/run. However, It is slow in processing as compare to compiler.

- **Assembler:**

The Assembler is used to translate the program written in Assembly language into machine code. The input of Assembler is a source program that contains assembly language instructions. The output generated by assembler is the object code or machine code understandable by the computer.

UTILITY SOFTWARES

A utility software is one which provides certain tasks that help in proper maintenance of the computer. The job of utility programs is to keep the computer system running smoothly. Nowadays many utility softwares are part of the operating system itself. Even if there is no utility software on your computer, the computer works but with the right kind of utility software loaded, the computer becomes more reliable and even its processing speed increases. Some of the commonly use utility softwares are antivirus, Disk defragmenter, backup, compression etc.

Antivirus:

An antivirus is utility software which detects and removes computer viruses. If the software is not able to remove the virus, it is neutralized. The antivirus keeps a watch on the functioning of the computer system. If a virus is found it may alert the user, flag the infected program or kill the virus. Some of the common types of viruses are:

- **Boot Sector Virus:**

A boot sector virus displaces the boot record and copies itself to the boot sector i.e. where the program to boot the machine is stored. So first the virus is loaded on to the main memory and then the operating system. Whenever a new disk is inserted the virus copies itself to the new disk. The antivirus overwrites the correct boot record on the infected boot sector and also cleans the bad sectors.

- **File Virus:**

A file virus generally attacks executable files. They can attach to various locations of the original file, replace code, fill in open spaces in the code, or create companion files to work with an executable file. Most of the file viruses are memory resident and wait in the memory until the user runs another program. While another program is running, the virus replicates.

- **Macro Virus:**

This virus infects an important file called normal.dot of MS Word. As soon as the application is opened the virus gets activated. It damages the formatting of documents and even may not allow editing or saving of documents.

- **Trojan Horse:**

It is a code generally hidden in games or spreadsheets. Since they are hidden, the program seems to function as the user wants but actually it is destroying the program. A Trojan horse does not require a host program to embed itself. It is a complete program. Its main objective is to cause harm to the data. They can create bad sectors on the disk, destroy file allocation tables and cause the system to hang.

- **Worm:**

Worm is a program capable of replicating itself on a computer network. A worm also does not require a host as it is a self-contained program. They generally travel from one computer to another across communication links on a network. They generally disrupt routine services.

Disk Defragmenter:

The memory is used in small chunks randomly. Sometimes when a memory chunk of appropriate size is not available, the operating system breaks or fragments the files resulting in slower access to files. A disk defragmenter scans the hard disk for fragmented files and brings all the fragments together.

Backup Utility:

This utility is used to create the copy of the complete or partial data stored in a disk or CD on any other disk. In case the hard disk crashes or some other system failure occurs, the files can be restored using backup software.

Compression Utility:

This utility is used to compress large files. Compression is useful because it helps reduce resources usage and the file transmission on the network becomes easier.

Disk Cleaner:

This utility scans for file that have not been accessed/used since long. Such files might be occupying huge amount of memory space. In that case the Disk Cleaner utility prompts the user to delete such files so as to create more space on the disk. If the files are important, the user might take a backup before deleting them.

File Management Tools:

This utility helps the user in storing, indexing, searching and sorting files and folders on the system. The most commonly used tool is the Windows Explorer and Google Desktop.

Commonly Used Operating Systems:

Some of the commonly used operating systems are discussed below:

1. Windows: Microsoft launched Windows 1.0 operating system in 1985 and since then Windows has ruled the world's software market. It is a GUI (Graphic User Interface) and various versions of Windows have been launched like Windows 95, Windows 98, Win NT, Windows XP, Windows 7 and the latest being Windows 8.

2. Linux: Linux is a free and open software which means it is freely available for use and since its source code is also available so anybody can use it, modify it and redistribute it. It can be downloaded from www.linux.org. It is a very popular operating system used and supported by many companies. The defining component of this operating system is the Linux kernel.

3. BOSS (Bharat Operating System Solutions): This is an Indian distribution of GNU/Linux. It consists of Linux operating system kernel, office application suite, Bharateeya OO, Internet browser (Firefox), multimedia applications and file sharing.

4. UNIX: It is a multitasking, multiuser operating system originally developed in 1969 at Bell Labs. It was one of the first operating systems developed in a high level language, namely C. Due to its portability, flexibility and power, UNIX is widely being used in a networked environment. Today, "UNIX" and "Single UNIX Specification" interface are owned and trademarked by The Open Group. There are many different varieties of UNIX, although they share common similarities, the most popular being GNU/Linux and Mac OS X.

5. Solaris: It is a free Unix based operating system introduced by Sun Microsystems in 1992. It is now also known as Oracle Solaris. Solaris is registered as compliant with Single UNIX Specification. It is quite scalable and is used on virtual machines.

BOOTING:

The process of loading the system files of the operating system from the disk into the computer memory to complete the circuitry requirement of the computer system is called booting.

Types of Booting:

There are two types of booting:

- **Cold Booting:**

If the computer is in off state and we boot the computer by pressing the power switch “ON” from the CPU box then it is called as cold booting.

- **Warm Booting:**

If the computer is already ‘ON’ and we restart it by pressing the “RESET” button from the CPU box or CTRL, ALT and DEL key simultaneously from the keyboard then it is called warm booting.

COMPUTER LANGUAGE

Algorithm is a step-by-step process of solving a well-defined computational problem. In practice, in order to solve any complex real life problems, first we have to define the problem and then, design algorithm to solve it. Then this algorithm is written in a language so that computer are able to execute it, this is called **Computer Language**.

Computer Programming Language can be divided into two categories:

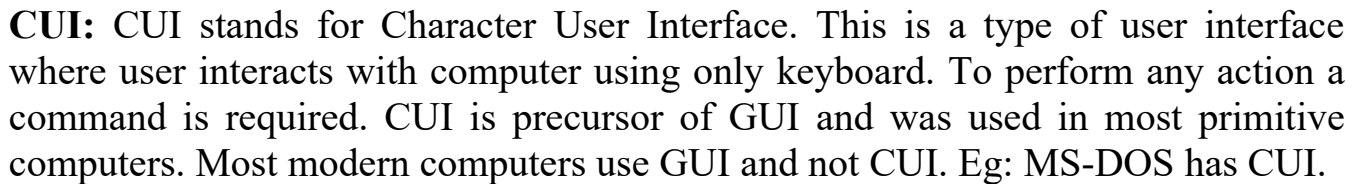
1. **Low Level Languages Or Machine Oriented Languages:** The language whose design is governed by the circuitry and the structure of the machine is known as the Machine Language. This language is difficult to learn and use. It is specific to a given computer and is different for different computers i.e these languages are machine dependent. It includes **Binary Language and Assemble Language**
2. **High Level Languages Or Problem Oriented Languages:** these languages are particularly oriented towards describing the procedures for solving the problem in a concise, precise and unambiguous manner. Every high level language follows a precise set of rules. They are developed to allow application programs to be run on a variety of computers. These languages are machine independent. It include FORTRAN, BASIC, PASCAL, C, C++ etc.

GUI and CUI

GUI and CUI are two types of User Interfaces. GUI stands for Graphical User Interface while CUI stands for Character User Interface.

User Interface : User Interface comprises of everything the user can use to interact with the computer. It is basically the means by which the user and computer system can interact using input and output devices.

GUI: GUI stands for Graphical User Interface. This is a type of user interface where user interacts with the computer using graphics. Graphics include icons,



Graphical User Interface (GUI)

34

In this Chapter you will learn about:

- Windows
- Desktop
- Taskbar
- Operating Windows OS



WINDOWS

- An operating system with a graphical user interface (GUI).
- Graphical User Interface (GUI) is a user interface based on graphics (icons and pictures and menus) instead of text; uses a mouse as well as a keyboard as an input device)

Versions

- ✓ Windows 98
- ✓ Windows Me
- ✓ Windows NT
- ✓ Windows 2000
- ✓ Windows XP
- ✓ Windows Server 2003
- ✓ Windows Vista
- ✓ Windows 7
- ✓ Windows 8
- ✓ Windows 8.1
- ✓ Windows 10

Desktop and its elements:

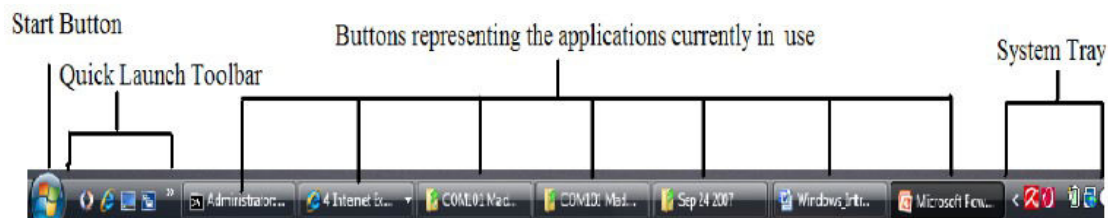
- In Windows operating system the basic working platform is the desktop.
- It is also the opening screen of the Windows operating system.



- The desktop contains: – Taskbar and Icons
 - **Taskbar**

Taskbar is usually a narrow strip present at the bottom of the screen.
WINDOWS Xp Taskbar

Windows Vista Taskbar:



Icons

- Icons are small pictures/images representing applications.
- Each icon has a label telling the name of the application it represents.

Example: Computer

- lists the contents of floppy disk, CD-ROM drive, and mapped network drives



Network

- locates shared resources on the network to which the computer is connected.



Recycle Bin

- stores deleted files, folders, graphics, and Web pages until you empty the bin.



Internet Explorer

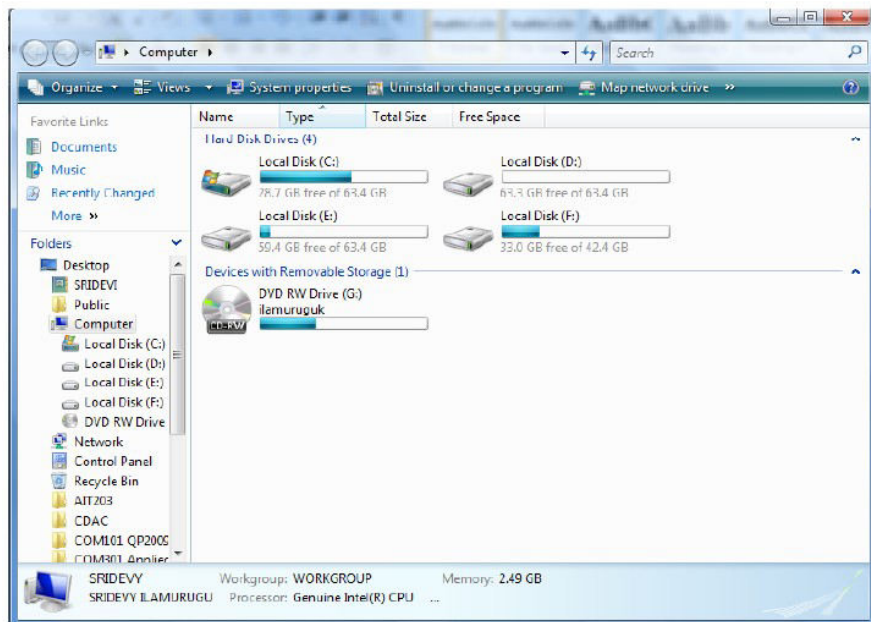
- opens the browser internet exp



Windows Explorer

Windows Explorer is a file manager application used to view and manage drives, folders, and files. Windows Explorer can be opened by clicking on

Start > My Computer or using the short cut key Windows + E while in Windows Xp Start > Computer or using the short cut key Windows + E while in Windows Vista.



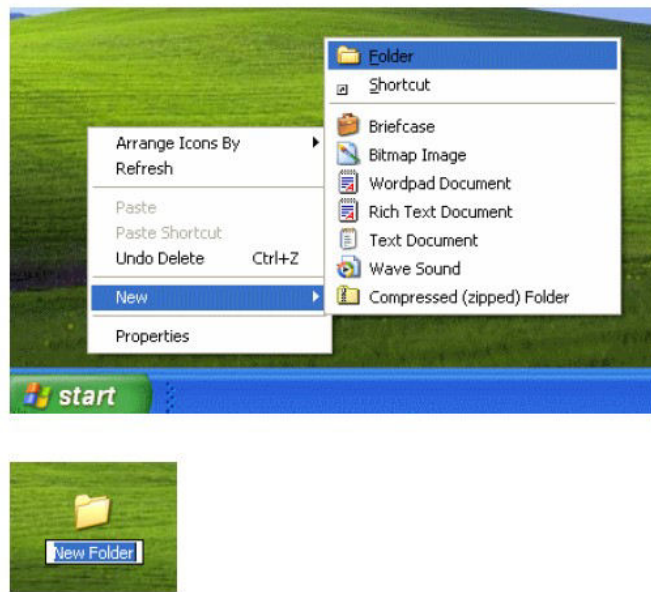
Working with files and folders:

Folders are the basic organizational building blocks of any computer system. Without folders it would be virtually impossible to keep track of all the files that are found on even the smallest system. New folders can be created just about anywhere, but three methods are shown below.

To create a folder

New Folder On Desktop - Right click anywhere on an open area of the desktop. Select New and then click Folder. A new folder with the default name New Folder will be created on the desktop. Either accept the default name New Folder (bad

idea) by hitting the enter key or type a new name for the folder (good idea) and then hit enter on the keyboard.

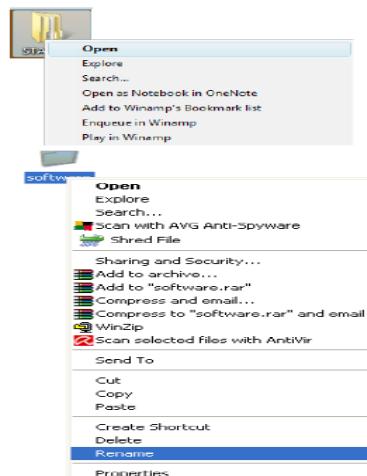


To open a folder

- double click the folder with mouse or
- right click the folder and click open tab from the right context menu.

To Rename a folder

- Locate and s
- Right click t
- Select renam

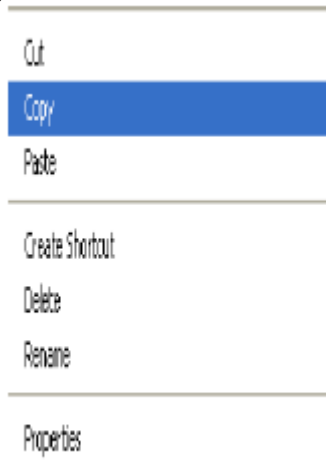


imed.

To Copy and Paste a folder

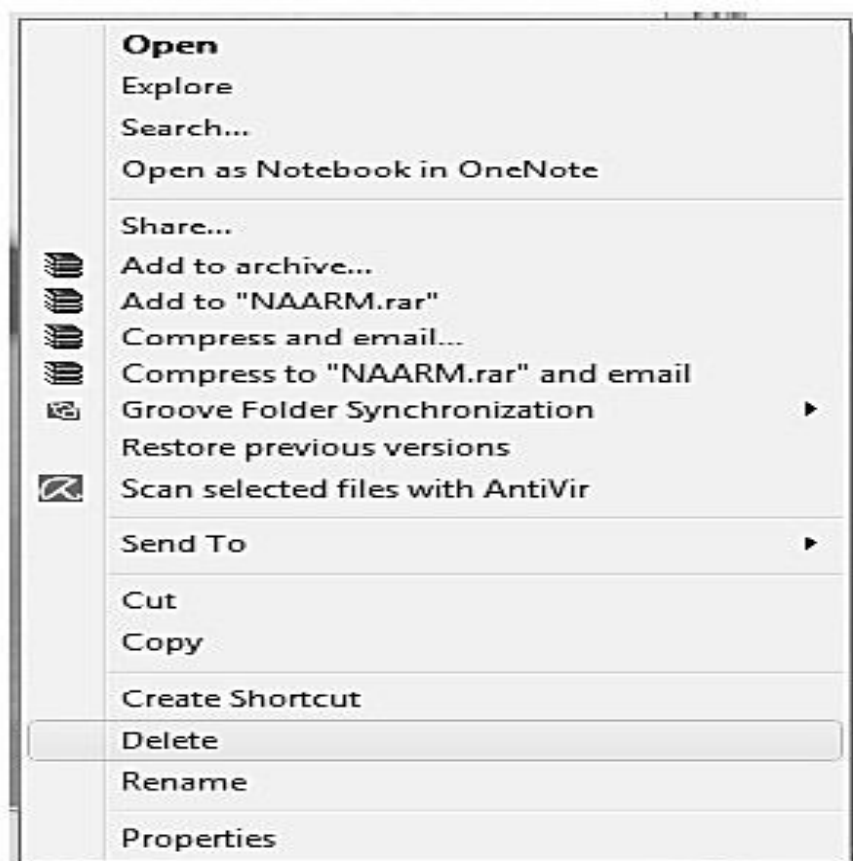
- Locate and select the folder you want to copy.
- Choose copy

- Choose the Destination location to copy the folder
- Choose paste



To delete a folder

- Locate and select the folder you want to delete.
- Choose delete.

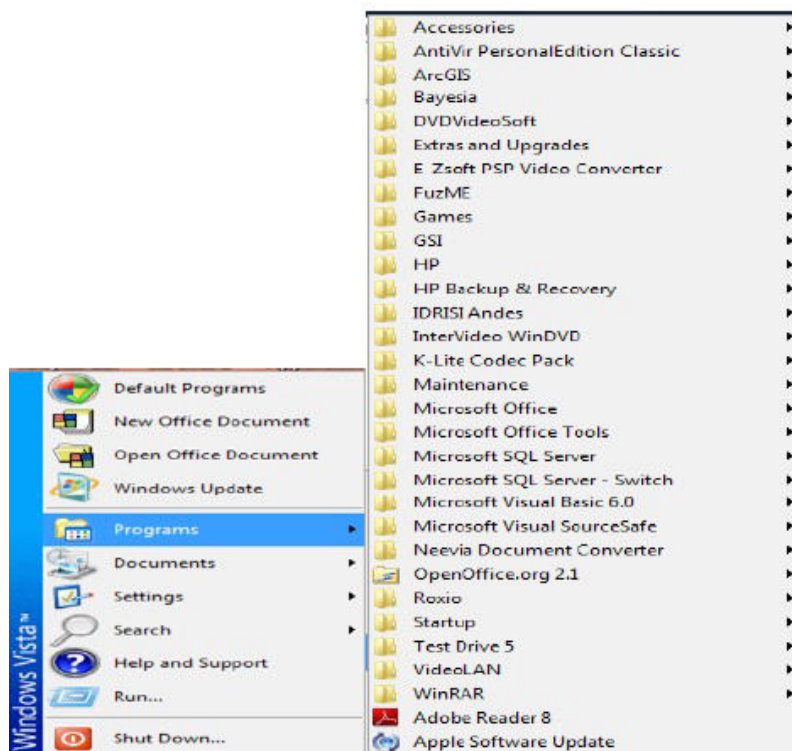


- The deleted file is moved to the Recycle bin.
- If you want the deleted file back you can open the recycle bin folder and restore the deleted file.

- If you want file to be completely deleted without getting stored in the Recycle Bin then choose the file and Press Shift + Del keys in the keyboard. This will erase the file even without storing the file in the Recycle Bin.
- Once you delete the file with Shift + Del combination keys it is not possible for us to restore the file again.

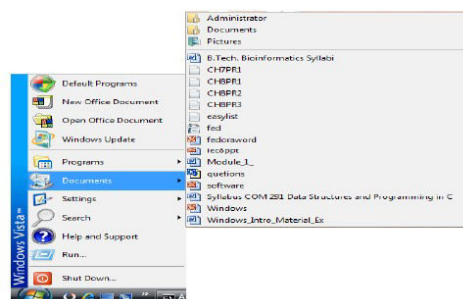
Opening a program file

Click Start->Programs->Select the program and double click



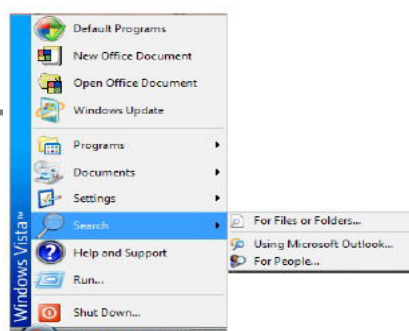
Locating Most Recent Files

Click Start->Documents



Finding Files

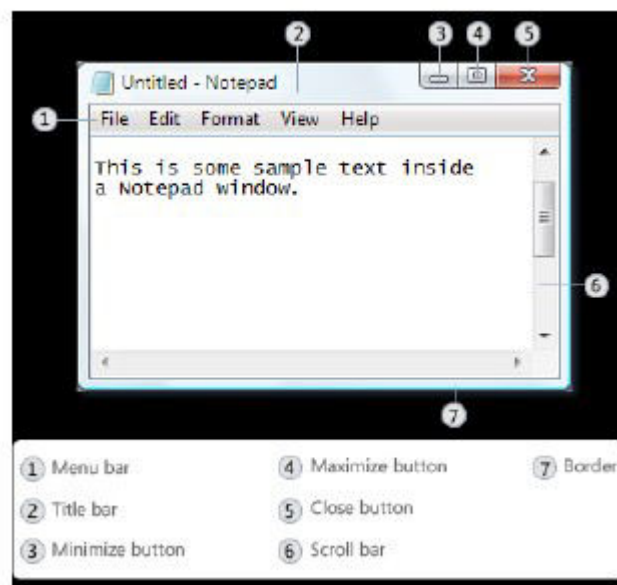
Click Start-> Search



Anatomy of a Window

- ✓ A rectangular area on the desktop that is used by an application is called a Window.

Although the contents of every window are different, all windows share some things in common. For one thing, windows always appear on the desktop—the main work area of your screen. In addition, most windows have the same basic parts:



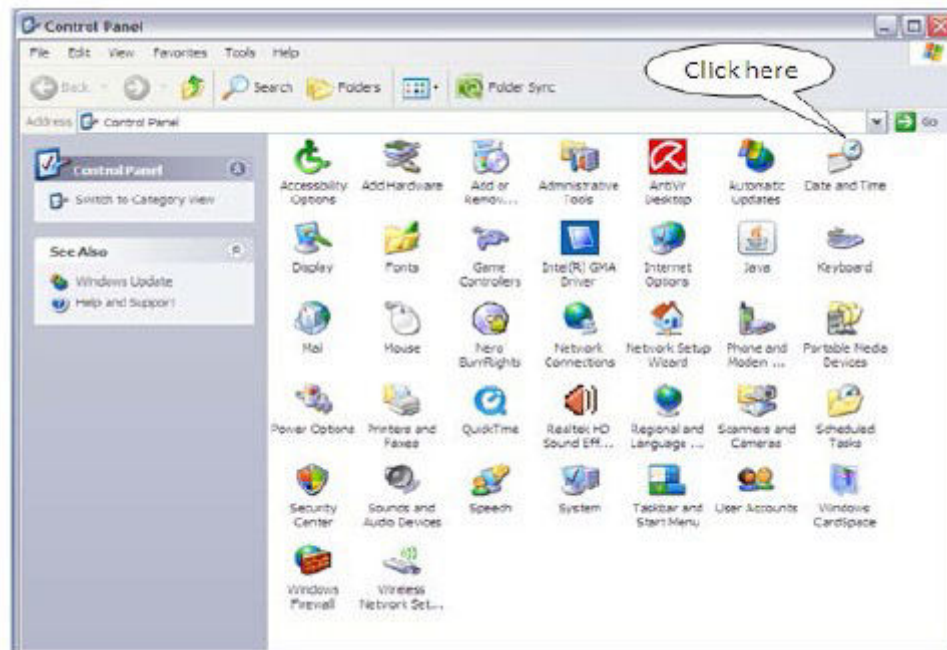
- ✓ Title bar. Displays the name of the document and program (or the folder name if you're working in a folder).
- ✓ Minimize, Maximize, and Close buttons. These buttons hide the window, enlarge it to fill the whole screen, and close it, respectively (more details on these shortly).
- ✓ Menu bar. Contains items that you can click to make choices in a program.
- ✓ Scroll bar. Lets you scroll the contents of the window to see information that is currently out of view.
- ✓ Borders and corners. You can drag these with your mouse pointer to change the size of the window.

Setting Time and Date

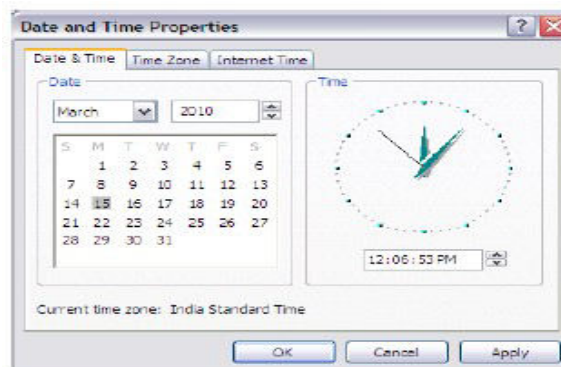


1. Click Start, and then click Control Panel.

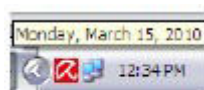
2. Click Date and Time icon in the Control Panel Window.



3. Set the current time and date with the help of the Date and Time properties window as shown below. Then click Apply in the bottom right corner of the Date and Time properties window.



4. Check the date and time that is set in the system tray as shown below



Starting Windows

1. Switch on the power supply.
2. Switch on the CPU and Monitor.
3. Windows XP splash screen will be displayed as shown below:



Shutting Down

- Click Start Button → Choose Turn Off Computer option



Unit 5

Office Automation

Objectives:

In this Chapter you will learn about:

- Basics
- Microsoft Office
- Microsoft Word 2007
- Microsoft Excel 2007
- Microsoft Powerpoint 2007



Office Automation:

The term 'office automation' refers to a combination of computer hardware, software, and network connection, made available to simplify and automate a variety of office operations, such as inventory management, facility management, accounting, email, and word processing. It is used to digitally create, store, manipulate, retrieve, and relay office information and data, needed for performing the basic tasks and goals.

Office automation makes it possible for business organizations to improve their productivity and recognize easier ways to do business in profits. Started primarily as data processing and word processing tool, office automation now includes more sophisticated and complex tasks like integrating front office and back-end systems. There are different types of automation, which can be used in different business industries across the globe covering almost all field of life. Office automation systems help in optimizing the existing office procedures by saving time, money and human efforts.

Advantages of using Office Automation System

1. **Data Storage and Manipulation:** Data storage includes important and confidential office documents and records. Office automation system includes data applications, which are used to create or edit a document, file, spreadsheet or an image. There are various types of word processing and desktop presentation packages available, which allow creating or editing textual data. Similarly, you can find dedicated applications for editing spreadsheets and images.
2. **Data Management:** Data management is one of the major components of office automation system that offers strategic advantages by simplifying the management of stored data and information. Large business organizations can monitor and control various projects and activities within the office through an electronic management system. Program schedules, tickler or reminder systems, and task management are some of the features, which

empower businesses to have an eye on all business processes without any hassle.

3. **Data Exchange:** Exchange of stored or manipulated data and information is also an important component of an office automation system. Sending files or exchanging data or information between one or more than one member of an organization has become possible with an electronic transfer application. Through a network connection, all data and information, including text documents, presentations, spreadsheets, images, and videos can be sent in real-time within a few seconds. Illustrating the collaborative nature of an office automation system, this would allow your employees to collaborate in real-time and enhance their productivity.
4. **Accuracy:** Yes, it's true! Computer systems and other machines are as effective as a human brain. Once the bugs are removed from a program or an application, it can help you in getting 100% accuracy in the day-to-day business processes. The software programs are more reliable than the human, who actually made it. Implementing an advanced business automation software reduces the probability of errors.
5. **Save Time and Resources:** Office automation empowers businesses to save both time and money(the chief resources a man possesses). It simplifies and automates those complex tasks, which earlier required a dedicated resource and a great amount of time. For example, with the introduction of the latest computer technologies and network communications, businesses are now not constricted by geographical limitations. And hence, they can easily save both time and money spent on traveling. Another great example is the digital storage, which eliminates the need of preserving hard copies and hence, saving paper and nature as well.
6. **Reduced Costs:** Since every business process is now automated, you don't need to invest much on hiring new resources for taking care of those tasks, which can be easily executed using an office automation system. Through the use of prompts, automated phone menus and directed calls, the need for employees to be dedicated to answer the phones has been reduced, and in some cases, eliminated. As we know that time saved is money saved, your business enterprise can easily save huge by automating various complex business processes.

Some Best Office software available other than Microsoft Office

1. FreeOffice
2. LibreOffice
3. WPS Office
4. iWork

5. Calira
6. OfficeSuite
7. Polaris Office
8. OnlyOffice
9. Word Perfect
10. Apache OpenOffice

Out of all the different components, the Microsoft Office is the most common and widely used application all throughout the world. You can easily open the application on both Windows and Mac Operating Systems

In computing, an *office* suite is a collection of *software* usually containing a word processor, spreadsheet and a presentation *program*, access, outlook and much more....

Microsoft Office, or simply Office, was first announced by Bill Gates on August 1, 1988, at COMDEX in Las Vegas. Initially a marketing term for an office suite (bundled set of productivity applications), the first version of Office contained Microsoft Word, Microsoft Excel, and Microsoft PowerPoint. Over the years, Office applications have grown substantially closer with shared features such as a common spell checker, OLE data integration and Visual Basic for Applications scripting language. Microsoft also positions Office as a development platform for line-of-business software under the Office Business Applications brand. On July 10, 2012, Softpedia reported that Office was being used by over a billion people worldwide.

Office is produced in several versions targeted towards different end-users and computing environments. The original, and most widely used version, is the desktop version, available for PCs running the Windows and macOS operating systems. Office in a browser, previously known as Office Online, is a version of the software that runs within a web browser, while Microsoft also maintains Office apps for Android and iOS.

Since Office 2013, Microsoft has promoted Office 365 as the primary means of obtaining Microsoft Office: it allows use of the software and other services on a subscription business model, and users receive free feature updates to the software for the lifetime of the subscription, including new features and cloud computing integration that are not necessarily included in the "on-premises" releases of Office sold under conventional license terms. In 2017, revenue from Office 365 overtook conventional license sales.

The current on-premises, desktop version of Office is Office 2019, released on September 24, 2018.

Now in MS Office we are going to cover here only three tools i.e MS Word, MS Excel and MS Power point and make you understand the basic usage of these tools.

Word Processing:

History of Word Processing

The earliest word processors were standalone machines similar to electric typewriters that debuted in the 1960s. The great advantage of these early machines over using a typewriter was that you could make changes without retyping the entire document. Over time, the devices acquired more advanced features, such as the ability to save documents on a disk, elaborate formatting options, and spell-checking.

While there are still some standalone word processors in use today, word processing began to move to personal computers in the 1980s. In the early days of the PC, a word processor called WordPerfect became one of the most widely used applications of any kind. Over time, however, What You See Is What You Get (WYSIWYG) word processors that showed users exactly what would print on their final documents became more popular. One of those WYSISWG word processors, Microsoft Word, became dominant in the 1990s.

Image: *The first version of Microsoft Word was developed in 1981. The current version is Microsoft Word 19 (released in 2019).*

With the advent of cloud computing in the 2000s, word processing changed again. The cloud allowed users to do their word processing via a browser-based application. While these cloud-based word processors lacked the advanced functionality of software installed on a device, they allowed users to store their documents in a remote data center and access them from any Internet-connected PC or mobile device. They also made it easier for geographically separated teams of people to work together on the same document. Many users found that cloud-based word processors offered enough features to meet their needs, as well as greater convenience, mobility, and collaboration support.

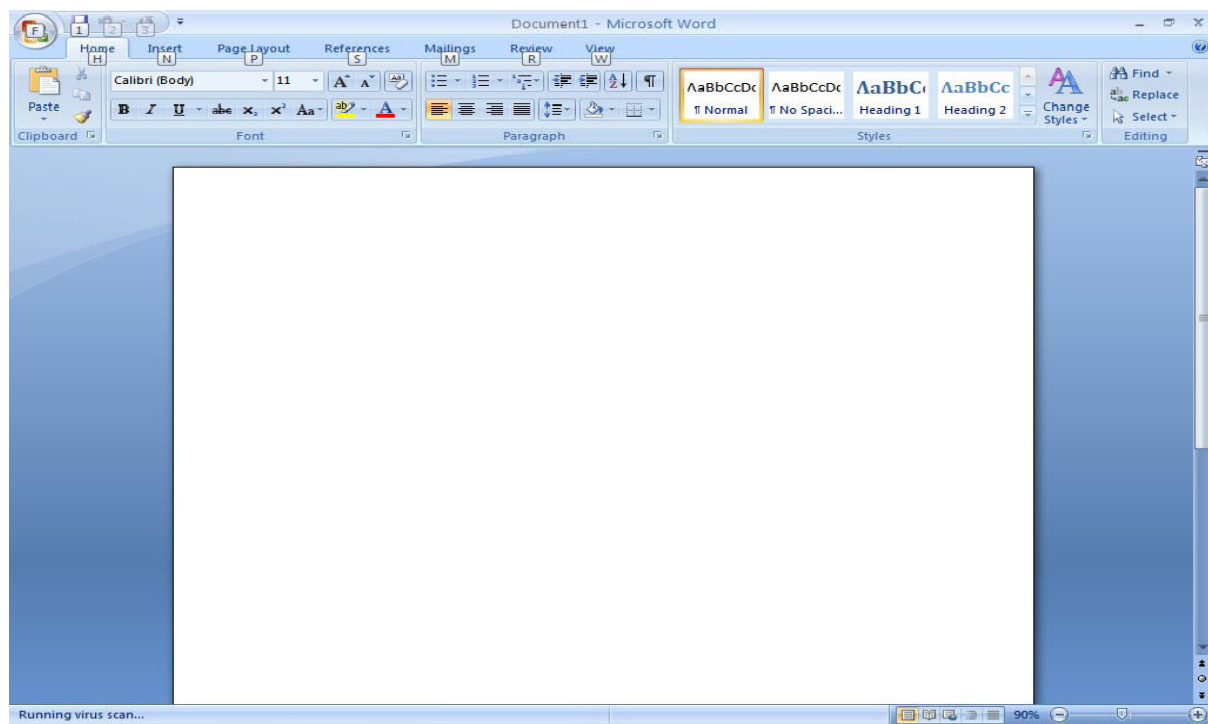
A word processor is software or a device that allows users to create, edit, and print documents. It enables you to write text, store it electronically, display it on a screen, manipulate and print it.

Of all computer applications, word processing is the most common. Today, most word processors are delivered either as a cloud service or as software that users can install on a PC or mobile device.

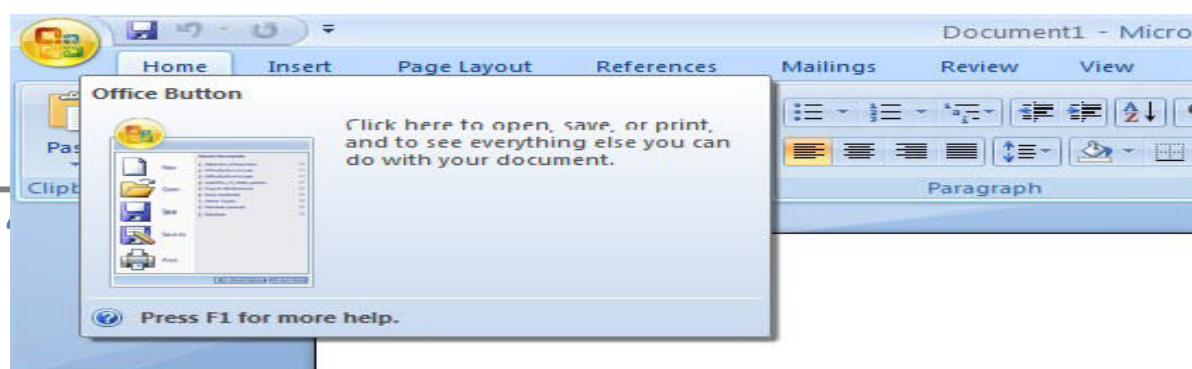
We are taking here MS Word 2007 and show you the basic functions and operations pictorially.

Starting Microsoft Word 2007

- To start Microsoft Word 2007 click on the Start icon, at the bottom left of your screen and you will see a popup menu.
- Click on All programs. Another menu level is displayed and you can select Microsoft Office. Finally select Microsoft Office Word 2007.
- Once you click on the Microsoft Word option this will load the Microsoft Word program from your hard disk into main memory and you will be able to see use the program. When the Microsoft Word 2007 program loads, your screen will look something like this.

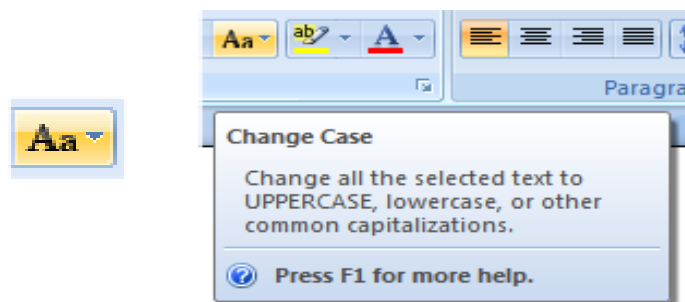


- You will find that if you move the mouse pointer over items at the top of the screen a help popup is displayed explaining the function of each item. Try moving the mouse pointer over the big circular icon at the top-left of your screen. Do not click on this circle; just leave the mouse pointer over it for a short time. You will see the following popup.

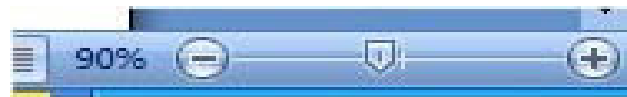


As you can see Microsoft Word is telling you what the function of this circular button is.

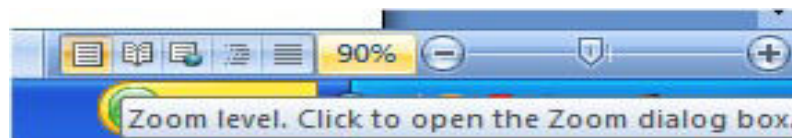
- Try moving the mouse pointer over the Change Case icon and you will see information about this icon, as illustrated below.



- Experiment with moving the mouse pointer over other icons and you will get information about what they do.
- This trick also works for other parts of the screen. In the bottom right of the screen you will see the following control.



Try moving the mouse pointer over it. You will find that if you move the mouse pointer over the number (90% in the illustration shown, but this may be different on your computer), that you get more detailed information displayed.



This help from the MS Word by moving mouse pointer over the icons is called tool tip and is most useful for beginners.

The levels of command organization

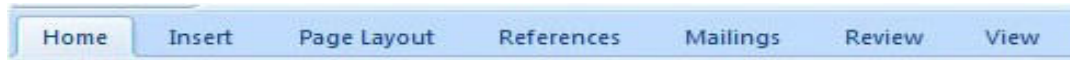
A complete energized Study material of Informatics Practices for Class XI

- The Microsoft Word 2007 screen is made up of different levels of organization.

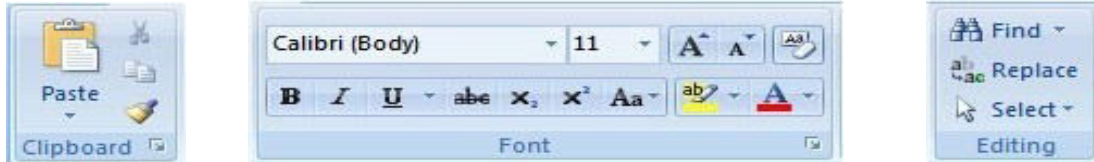
Office Button



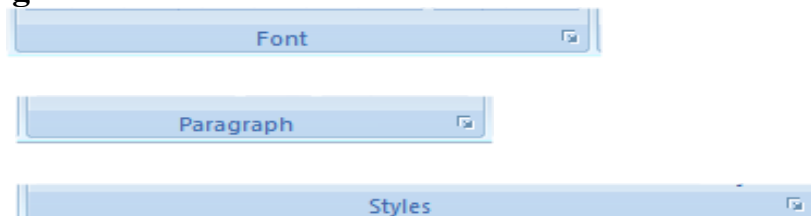
Tabs



Groups

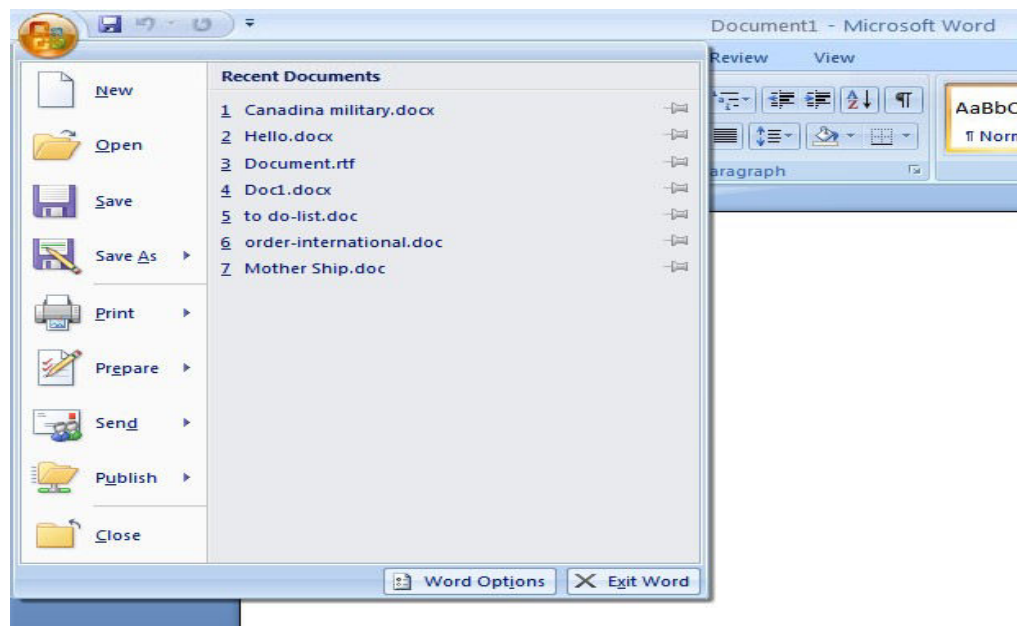


Dialog Box Launcher Buttons



The Office Button:

- Clicking on the Office Button will display the following.



- Within the dialog box displayed are common commands such as Open (for opening a Microsoft Word document stored on your hard disk), Save (for saving a Microsoft Word document to your hard disk) and Print (for printing a Microsoft Word document). We will use these commands shortly. For now just remember what is available when you click on the Office Button.

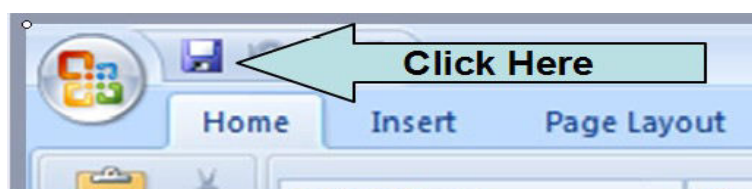
Using the default Microsoft Word document:

- When you first start Microsoft Word, it automatically creates a new Microsoft Word document for you. This is like a piece of blank paper on to which you can start typing.
- Type your name.
- Press the Enter key a few times. As you can see this drops you down a line each time you press the Enter key.
- Type in the following text.

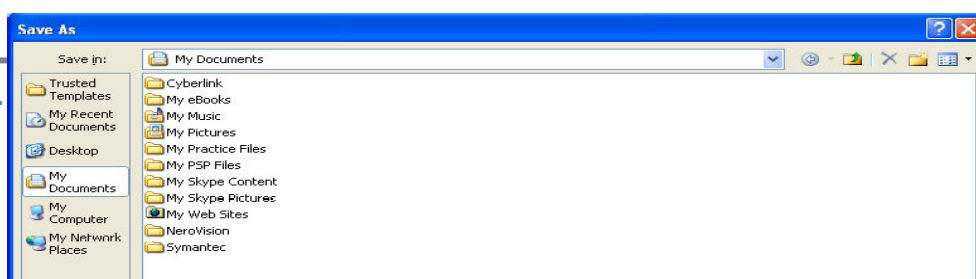
There will be a meeting tomorrow at 11 am in room one to discuss the introduction of our new range of products. Please can everyone attend and bring samples and details of prices.

Saving Microsoft Word documents:

- You have typed in some text but this has not been saved. If your computer lost power now then everything you have just typed in could be lost. Saving your Microsoft Word document to disk means that the information will be safely stored as a file on your hard disk and then at a later date you can reopen this file from your hard disk.
- To save your file, click on the Save icon (next to the Microsoft Office button)



- This will display the Save As dialog box as illustrated.



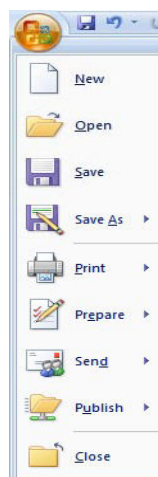
TIP: By default the Microsoft Word document will be saved into a folder called My Documents (if using Windows XP) or Documents (if using Windows Vista). If you wanted to change the folder in which the file is saved you would click on the down arrow to the right of the Save in section of the dialog box and navigate to the required folder.

By default Microsoft Word will attempt to create a file name taken from the text at the start of the document.

- Click on the Save button and the document will be saved to disk as a file using the file name suggested by Microsoft Word (probably your name).

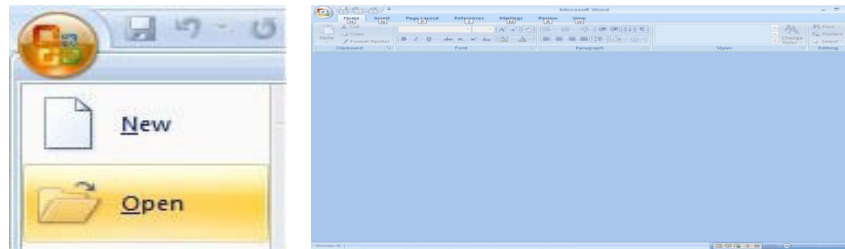
Opening and closing documents:

- Now that you have saved your document, you can close the file. To do this click on the Microsoft Office button and select the Close command.



The screen will now look like this. As you can see, most of the commands are now grayed out as they will not be available until you create a new document or open an existing document.

- To open a document, click on the Office Button and select the Open command.



This will display the Open dialog box. Within this dialog box select the file that you saved and click on the Open button. Your file will be copied from your hard disk into your computer memory. You will now see your document displayed on the screen again.

Saving your file using a different filename:

- Sometimes you might want to save different versions of a document. Once you have opened the document that you typed in earlier, click on the page at the end of your text and press the Enter key a few times to insert a few empty lines. Type in the following text:

Please also inform the rest of your team that they need to attend this meeting.

- If we were to click on the Save icon that we originally used to save the document, it would overwrite the old version of the file with the contents of the amended document. To save the file using a different file name, click on the Microsoft Office button and from the menu displayed, click on the Save As command. This will display the Save As dialogbox.

Use the file name:

Important Meeting

Then save the file by clicking on the Save button.

You now have two versions of this file saved to your hard disk.

- Close the document before continuing.

Creating a new document:

- Once Microsoft Word is displayed on your screen you can create a new document by pressing Ctrl+N. This document will use the default Microsoft Word template and be displayed on your screen. Try this now. Once the empty document is displayed, type in your name and save the document using the file name My New Document. Close the document.

Closing Microsoft Word:

- To close the Microsoft Word program, click on the Microsoft Office button and then click on the Exit Word command. If there are any unsaved documents, Microsoft Word will always ask if you want to save these documents prior to closing.

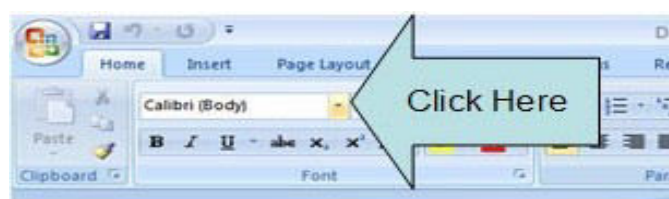
Text Formatting

What is text formatting?

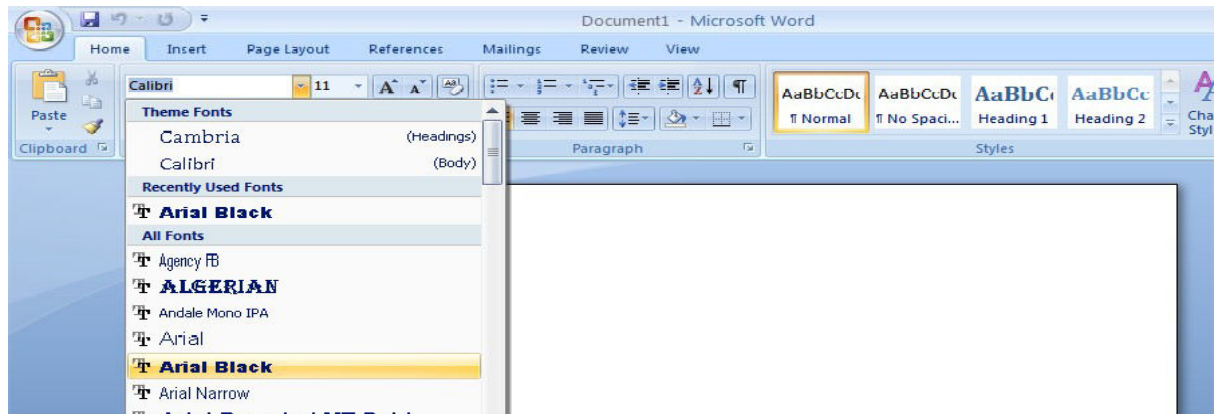
- You can format a document at different levels within Microsoft Word. The most basic level is called text formatting. This relates to formatting characters and words within a document and covers the font type, font size, font colour and font attributes such as bold italic or under lining.

Font type:

- Open a document called Text formatting.
- By default Microsoft Word 2007 uses a font called Calibri.
- Make sure that the Home tab is displayed.
- Select the paragraph starting with the text FONT TYPE within your document (by quickly clicking three times within the paragraph) and experiment with applying different font types. To do this, make sure that the Home tab is selected, and then click on the down arrow, to the right of the text within the Font control.



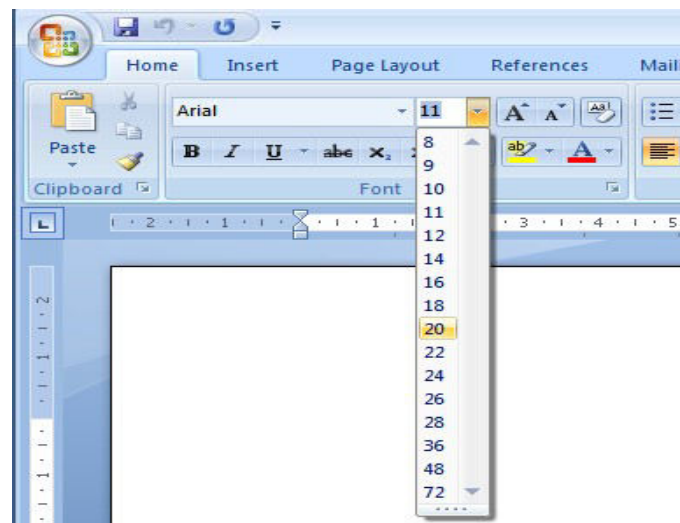
- You will be able to select a different font from the drop down list supplied.



- Experiment with formatting your paragraphs using different fonts. You can also experiment with applying different font types to individual words or sentences.

Font size:

- The font size refers to the height of the text. Below 8 pt font size text is almost unreadable, so try and use a font size that is easy to read on the screen and also easy to read when printed.



- Make sure that the Home tab is displayed. Select the paragraph starting with FONT SIZE. Click on the down arrow to the right of the Font Size control to display a drop down from which you can select the required font size. Set the font size to 20.

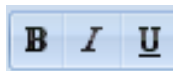
Bold, italic or underline:

- You can add emphasis to parts of your text by displaying them in Bold, Italic or Underlined, or in a combination of these attributes. Select a word within

the paragraph relating to bold, italic or underline.

TIP: To select a word, double click on the word.

- To format the selected word as bold, italic or underlined, click on the icons displayed on the Home tab.



TIP: You can combine these attributes by clicking on the Bold icon and then the Italic icon.

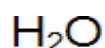
- To remove this formatting from a word, Select the word and re-click on the
- Bold, Italic or Underline icon.
- Experiment with applying this formatting to words or entire paragraphs.

Subscript and superscript:

- Sometimes you need to display a character above or below the normal text line. Superscript refers to characters displayed above the normal line. An example would be the famous Einstein equation below.

$$E=MC^2$$

Subscript refers to text displayed below the normal line of text. An example would be the chemical formula for water.



- Within the paragraph relating to subscript and superscript, select the 2 within Einstein's equation. To format this as superscript, click on the Superscript icon in the Font section of the Home tab.



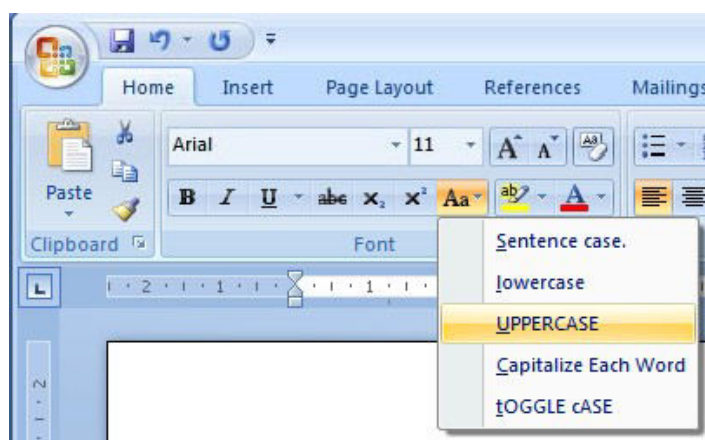
- Select the 2 within the formula for water. To format this as subscript, click on the Subscript icon in the Font section of the Home tab



Case changing:

- This feature allows you to select a portion of text and then change the capitalization within that text. For instance you could select a heading within your document and format it to display as all upper case letters.
- It is also very useful if you have accidentally pressed the Caps Lock key and have then typed in text with the capitalized appearing reversed. This feature allows you to correct this mistake without having to delete the text and start again!

Select the entire the paragraph relating to case changing. Within the Font section of the Home tab click on the Change Case icon. This will display a drop down list of options. Click on the UPPERCASE command.



- Experiment with applying the other case change options to this paragraph.

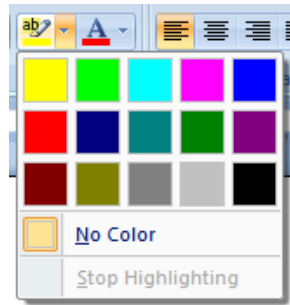
Highlighting:

- The highlighting feature is great if you are reviewing a document and is used in the same fashion as you would use a pen highlighter on a printed copy. You can change the highlighting colour but if you intend to print the document in black and white, do not use a very dark highlighting colour, as you may find the highlighted words are blacked out and unreadable.
- Within the paragraph relating to highlighting, select some text and then click on the Text Highlight Color icon (located in the Font section of the Home tab). This will apply highlighting to the selected text.



- To change the highlighting colour click on the down arrow to the right of this icon. You can click on one of these colours to change the highlighting colour

the next time you apply highlighting.

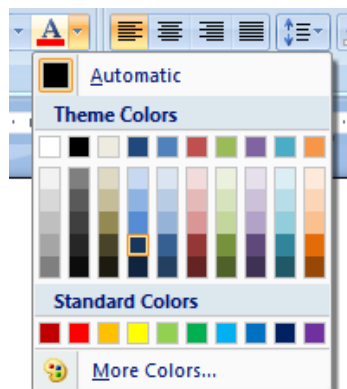


- Select another portion of text and try applying a different highlight colour.

TIP: To remove highlighting from highlighted text, select the text and then click on the **down arrow** to the right of the **Highlight** icon. Select **No Color**.

Font colour:

- You can apply different colours to your text which can add impact to your documents .



- Within the paragraph relating to Font Colour, select some text and then click on the Font Color icon. This will apply colour to the selected text.

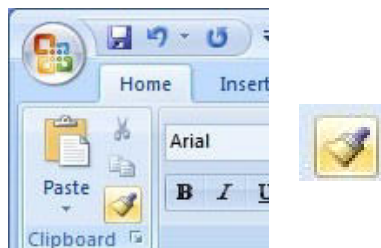


- Experiment with applying different font colours to different words within the paragraph.

Copying text formatting:

Format Painter:

- This feature allows you to pick up the formatting that has been applied to one portion of text and apply that formatting to another portion of text.
- Click within the paragraph relating to 'Copying text formatting'. Click on the Format Painter icon (displayed on the Home tab within the Clipboard section).



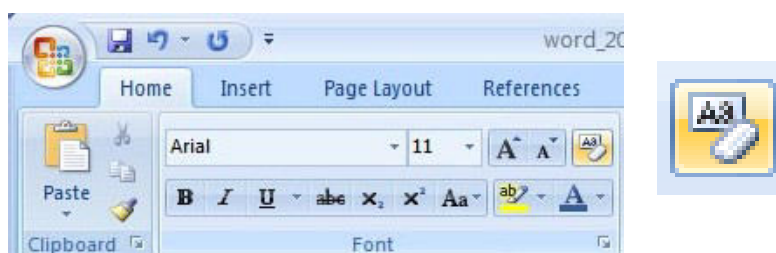
You will notice that the shape of your mouse pointer has changed.

- Move the mouse pointer to the start of a different paragraph within the document and while pressing the mouse key down drag to the end of that paragraph and then release the mouse button. The formatting contained within the original paragraph is now copied to the second paragraph. The mouse pointer now displays its original shape.

TIP: If you double click over a paragraph that you want to copy text formatting from, then the mouse pointer changes shape until you press the Esc key. This means that you can copy formatting to more than one portion of text at a time.

Removing formatting:

- This feature can be very useful if you get yourself into a mess with your formatting, or if you receive a document from someone else that has been 'over formatted'.
- Select a portion of text and apply formatting such as bold, italic and underlining.
- Click on the Clear Formatting icon. The formatting is removed.



Copying text within a document:

- Select the first paragraph. Press Ctrl+C. This copies the selected text into the Clipboard.
- Click at the end of the document.
- Press the Enter key to insert a space.
- Press Ctrl+V. This pastes the text from the Clipboard to the current position of the 'Insertion point'.
- IP: The 'Insertion Point' is indicated by the flashing, vertical cursor.
- Click on the Undo icon to reverse this action.

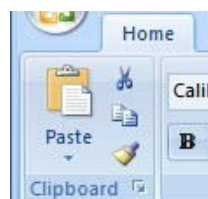
Moving (cutting) text within a document:

- Select the first paragraph. Press Ctrl+X. This cuts (i.e. moves) the selected text onto the Clipboard.
- Click at the end of the document.
- Press the Enter key to insert a space.
- Press Ctrl+V. This pastes the text from the Clipboard to the current position of the Insertion point.
- Click on the Undo icon to reverse this action.
- Save your changes and close the document.

The Clipboard

Using the Clipboard:

- When using Microsoft Word you will find the Cut, Copy and Paste icons under the Home tab.

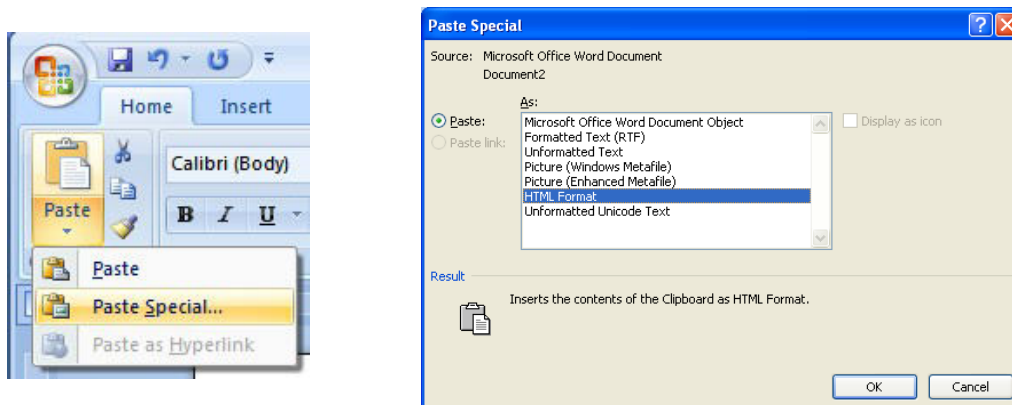


- You can also use the normal Microsoft Windows short cuts:

Cut	Ctrl+X
Copy	Ctrl+C
Paste	Ctrl+V

- You will notice that there is a down arrow under the Paste command. Clicking on this will display more options, such as the Paste Special option,

which, when clicked on, will allow you more control on how items in the Clipboard are pasted into a document.



The Office Clipboard:

- Open a document called Office Clipboard. This document contains a few items that you can copy into the Office Clipboard.
- If you click on the Clipboard dialog box launcher, you will see the
- Microsoft Office Clipboard pane.



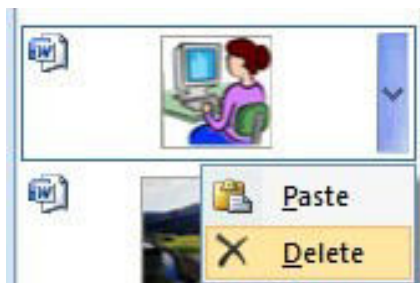
- Select all the text and press Ctrl+C to copy the text to the Clipboard. You should see a representation of this copied text displayed in the Microsoft Office Clipboard pane.
- Select the first graphic within the document and press Ctrl+C to copy the graphic to the Clipboard. You will see the graphic displayed within the Microsoft Office Clipboard pane.
- Repeat this for the other graphics within the document.
- Scroll down to an empty part of the document. Click where you would like to insert a copy of an item that is stored on your Clipboard. Click on that item within the Microsoft Office Clipboard pane. The item will be displayed. Experiment with pasting both text and pictures.

Removing items from the Office Clipboard:

- Select an item within the Office Clipboard, as displayed within the Microsoft

Office Clipboard pane. Right click on the item and from the popup menu displayed, select the Delete command. Try this now for a few items displayed within the Microsoft Office Clipboardpane.

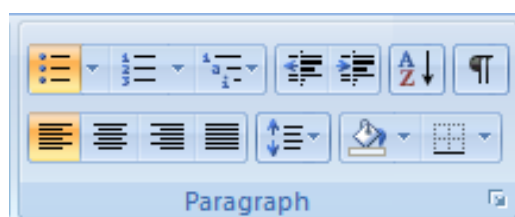
- Save your changes and close the document.



Paragraph Formatting

What is paragraph formatting?

- Paragraph formatting includes items such as alignment and indenting as well as numbering and bulleting of lists. If you click on the Home tab, you will see a paragraph section within the Ribbon.



TIP: To select a paragraph triple click within the paragraph.

Paragraph marks:

- To insert a paragraph mark, press the Enter key. This inserts a single paragraph mark. Often you will insert two paragraph marks to end one paragraph and insert a space on the screen before starting the next paragraph mark.
- To remove a paragraph mark, click at the end of a paragraph and press the
- Del (Delete) key.

TIP: To see a paragraph mark, click on the Show/Hide icon and you will see the paragraph break as illustrated below. This makes it easier to identify and then remove the paragraph break.

- Open a document called Paragraph Formatting. Click on the Show/Hide icon and you will be able to see the paragraph marks within the document. Click

A paragraph break looks like this when you click on the Show/Hide icon
Remember to re-click on the icon to stop the display of non-printing characters

at the end of a paragraph and press the Enter key. You will see a new paragraph mark displayed. Press the Backspace key to delete this paragraph mark.

Soft paragraph (line break) marks:

- When you press the Enter key you insert a paragraph mark. If you press the Shift+Enter keys you insert a soft paragraph mark, which is also known as a line break.
- The visual effect is often the same, but when you insert a line break, then the text after the line break (up to the next paragraph mark) will be treated as a single paragraph.
- To remove a soft paragraph mark, click at the end of a line break and press the Del (Delete) key.

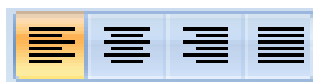
TIP: To see the line break, click on the Show/Hide icon and you will see the line break as illustrated below. This makes it easier to identify and then remove the line break.

A line break looks like this when you click on the Show/Hide icon
Remember to re-click on the icon to stop the display of non-printing characters

- Click at the end of a sentence within a paragraph. Insert a soft paragraph line break. Insert another soft paragraph line break and notice that this type of mark looks different from a paragraph mark. Delete the two soft paragraph line breaks.
- Click on the Show/Hide icon so that the marks are no longer visible.

Aligning text:

- Text can be aligned to the left or to the right. It can also be centered or justified. If you justify text, Microsoft Word inserts extra spaces into the lines of text so that the left and right edges of the text line up vertically, and you do not see a ragged edge down the right side of the text.
- Click within a paragraph. Experiment with using the alignment icons displayed within the Home tab.



Indenting paragraphs

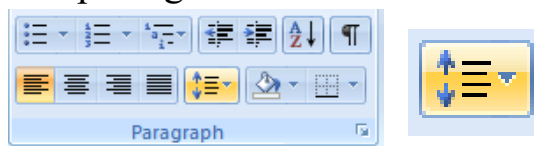
- It is easy to indent a paragraph. You would normally indent a paragraph from the left by a specified amount, but you can also indent from the right. You may wish to format your text using hanging indents, as illustrated below.
- Click within a paragraph that is aligned to the left. Experiment with using the Increase Indent and the Decrease Indent icons displayed within the Home tab.



- Click within another paragraph that is aligned to the left.

Applying single or double line spacing within paragraphs:

- Within a paragraph you can adjust the spacing between the lines of that paragraph.
- Click within a paragraph. On the Home tab, within the Paragraph section, click on the Line Spacing icon.

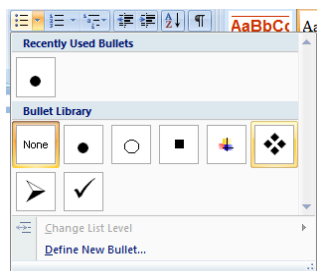


Applying bullets to a list:

- You can easily format a list to display using bullet points. Scroll down your document and you will find a list of first names. Select the list of first names by clicking in front of the first name and then while pressing the mouse button, drag the mouse pointer to the end of the last name in the list.
- Click on the Bullets icon (located within the Paragraph section of the Home tab). The list will then be displayed as a bulleted list.

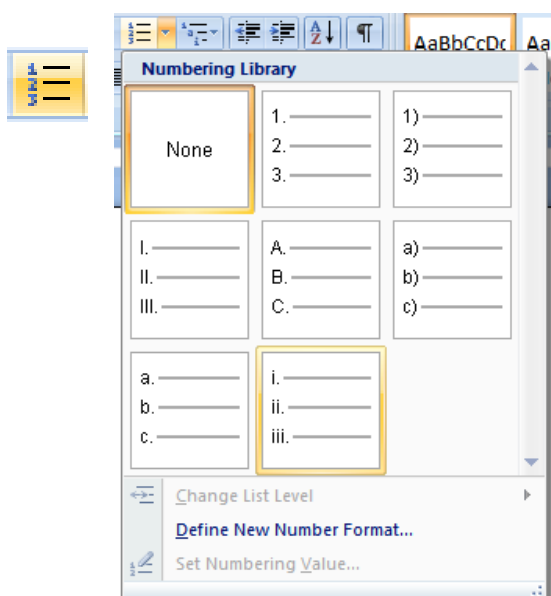


TIP: If you have time, click on the down arrow to the right of the bullets icon. This will display a drop down menu allowing you to use different types of bullets.



Numbering a list:

- Microsoft Word can automatically number a list for you. Select the list of second names.
- Click on the Numbering icon (located within the Paragraph section of the Home tab). The list will then be displayed as a numbered list.



NOTE: If you add a name to the end of your list it will automatically be assigned the next sequential number. If you delete a name within the list then the whole list will be automatically renumbered. Experiment with adding deleting items within the list.

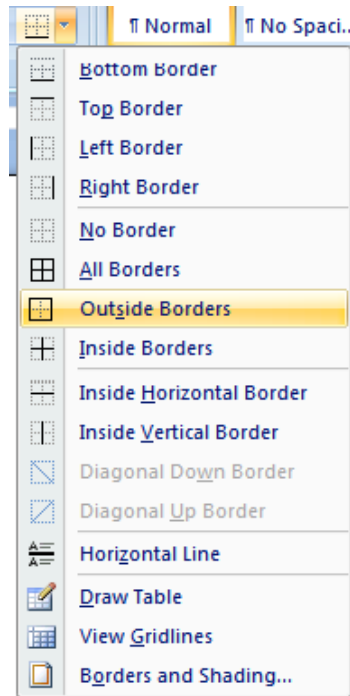
Adding borders and shading

You can display a border around a paragraph to add more impact to that paragraph. You can also add shading. To emphasize a paragraph you could reverse the normal colour display, so that text within that paragraph is displayed as white text on a black background.

Adding a border:

Open a document called Borders and shading.

- Click within the header (containing the words Computer Memory).
- Within the Paragraph section on the Home tab, click on the Down arrow to the right of the Border icon. This will display a drop down list from which you can select the type of border you wish to apply. In this case select the Outside Borders command.



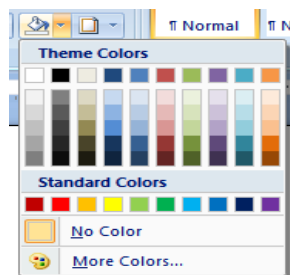
A border will be applied around this paragraph.

Computer Memory

- Click within the next paragraph. Apply a bottom border to this paragraph. Click on the Undo icon to remove this border. Experiment with applying some of the other border types (after each time click on the Undo icon).

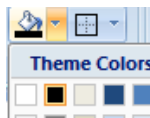
Adding shading:

- Click within a paragraph.
- Within the Paragraph section on the Home tab, click on the Down arrow to the right of the Shading icon. This will display a drop down list from which you can select the colour of the shading you wish to apply.



- Click on the Undo button and apply a different colour of shading.

TIP: Try applying Black shading.



As you are applying black shading to be used as a background for black text, you might expect the text to become invisible (i.e. black text on a black background). In fact Microsoft Word automatically reverses the text colour in this case so that you see white text on a black background.

Read Only Memory (ROM) as the name suggests is a special type of memory chip which holds software which can be read but not written to. A good example is the ROM-BIOS chip, which contains read-only software. Often network cards and video cards also contain ROM chips.

The 'Read Only Memory Basic Input Output System' chip is a chip located on the computer's system (mother) board, which contains software. This software performs a variety of tasks. When you first switch on the computer the ROM-BIOS software performs a self-diagnostic to check that the computer is working OK. This software then loads your operating system from the disk into the RAM.

Most modern computers are actually supplied with a flash BIOS rather than a ROM-BIOS. This chip contains exactly the same type of in-built software, but has the advantage that the software on the chip can be upgraded. This upgrade is achieved by simply running a small program supplied by the computer manufacturer.

Applying borders to selected text

- You can apply borders and shading to an entire paragraph. However if you select a word or portion of text within a paragraph, then you can apply border and shading to just the selected text. Try experimenting with selecting words or sentences within your document and apply border and shading effect.
- Save your changes and close the document.

Finding and replacing text

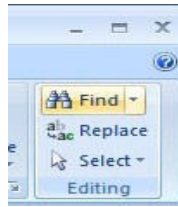
- Sometimes documents can be very long and you may need to search that document for a particular word or phrase. You can use the built-in search feature to do this for you. If you need to find a particular word or phrase and replace this item with alternative text, then you can use the search and replace feature.

WARNING: Using the search and replace feature sounds great, but you need to be careful. I always make a backup copy of a document before using this feature as it is very easy to get it horribly wrong. Many words have within them smaller words. The word WARNING for instance has the words WAR and WARN within it, and if you replaced the word WAR with something else, then the first three letters of the word WARNING will also be replaced.

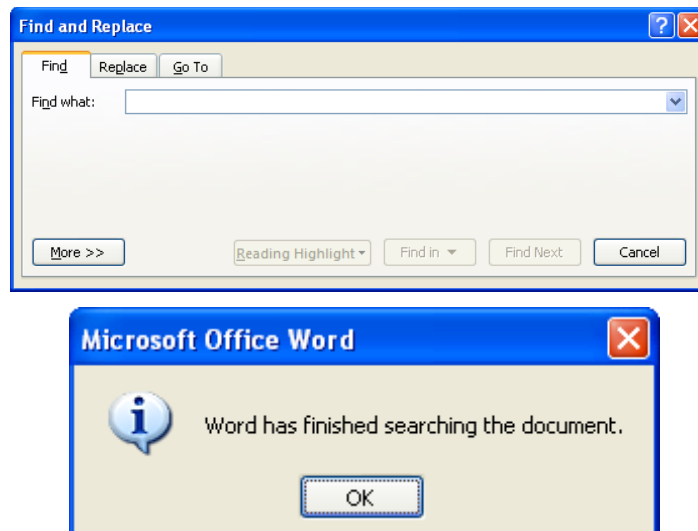
There are ways to stop Microsoft Word from doing this, but you must be careful!

Finding text:

- Open a document called Searching and replacing.
- Click on the Find button, located within the Editing section of the Home tab.



This will display the Find dialog box.



- Within the Find what section type in the text you wish to search for, in this case type in the word Internet. Click on the Find Next button. The next occurrence of the word Internet will be found and highlighted within the document. Keep clicking on the Find Next button to find more occurrences of the word. When there are no more instances of the text to be found you will see the following dialogbox.

Close the Find dialogbox.

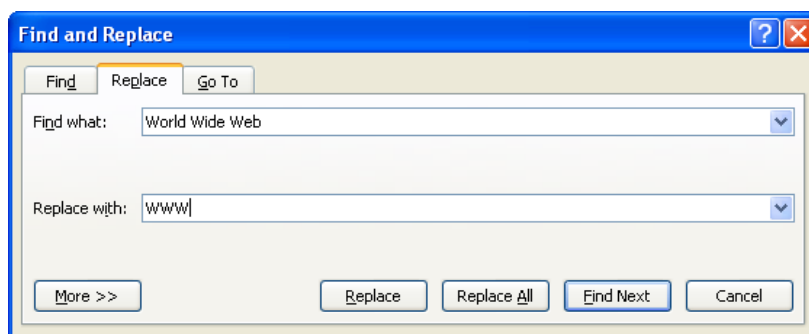
TIP: An easy way to display the Find dialog box is to press Ctrl+F.

Replacing text:

- Click on the Replace button, located within the Editing section of the Home tab.



- This will display the Replace dialog box. In this case we will replace the text
- World Wide Web with WWW, as illustrated.



Click on the **Find Next** button. The next instance of the text will be selected. Click on the **Replace** button. In the same way replace all instances of the text World Wide Web with WWW.

TIP: To display the Replace display box, press Ctrl+H.

- Save your changes and close the document.

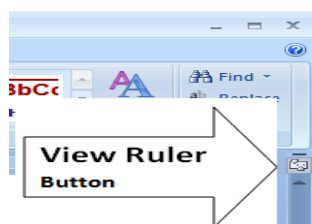
Tabs:

Tab stops

- In early versions of Microsoft Word, using 'Tab Stops' was a vital method for formatting particular items within a Microsoft Word document. Tabs were commonly used for displaying columns of data, with each column of data being separated from the next column by a tab space.
- As newer versions of Microsoft Word have been released over the years the use of tab stops within a document has lessened, as Microsoft Word will now automatically insert tab spaces into document elements such as a 'table of contents'. Microsoft Word 2007 also has many pre-designed pages available to you such as customizable front pages which again makes the need to manually insert tab stops less important than it used to be in earlier versions of Microsoft Word.
- When you create a new, blank document, by default the Ruler does not contain tab stops.

Setting and removing tabs

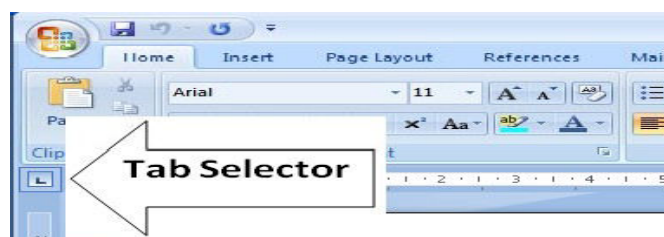
- Before manually inserting tabs stops, you should display the Microsoft Word Ruler. This Ruler allows you to easily insert tab stops. If the Ruler is not displayed click on the View Ruler button (displayed at the top of your vertical scrollbar).



- If clicking on this button removes the display of the Ruler, click on it again and the Ruler will be displayed again across the top of your document.



- You can set the tab type by repeatedly clicking the tab selector (displayed at the left edge of the ruler) until it displays the required tab type.
- You can click along the ruler at the location you wish to insert the tab.



Tab types include:



Left Tab stop:

This sets the starting location of text which will display to the right as you type text into this tab stop location.



Centre Tab stop:

This sets the position used for the middle of the text, which will Centre on this tab stop as you type in text.



Right Tab stop:

This sets the right end for your text and when you enter text at this tab stop text will move to the left.



Decimal Tabs stop:

This is used to align numbers around a decimal point.



Bar Tab stop:

This displays a vertical bar at the tab stop location.

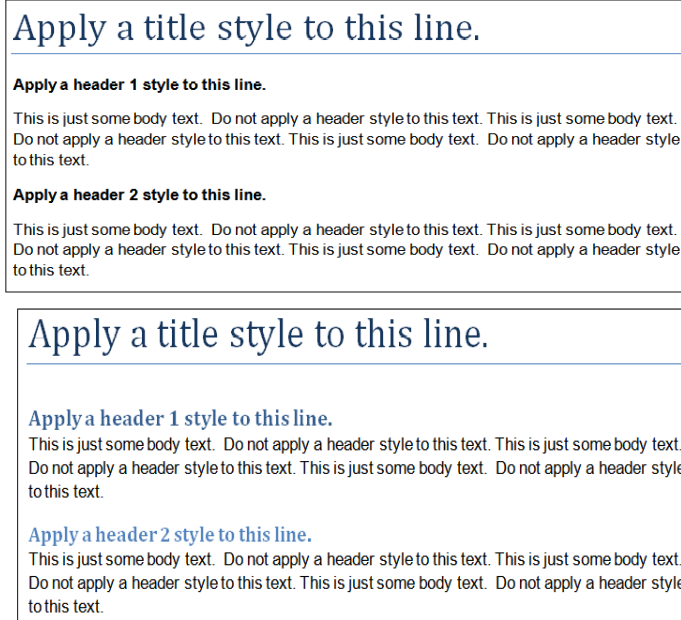
Styles

Applying styles to a word, line or a paragraph:

- Open a document called Applying styles.
- Select the first line to which you wish to apply a style.
- Click on the down arrow to the right of the Style box. The Style List box will display Microsoft Word styles which can be applied to part of a document. Select the Title style and it will be applied to the selected text.



- Your document will now look like this.



- Apply Header 1 and Header 2 styles as directed within your document, which should now look like this.
- If you have time, try experimenting with applying other styles to the body text.

- Save your changes and close your document.

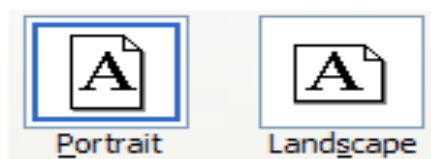
Page Formatting:

What is page formatting?

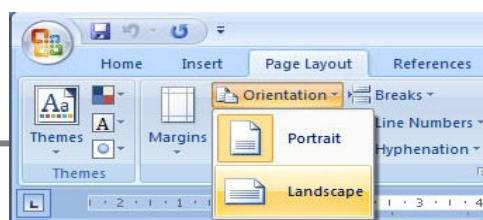
Page formatting relates to formatting that normally affects the whole page, such as page orientation. The page is either Portrait or Landscape orientated. It also includes items such as page size and margins.

Page orientation and paper size:

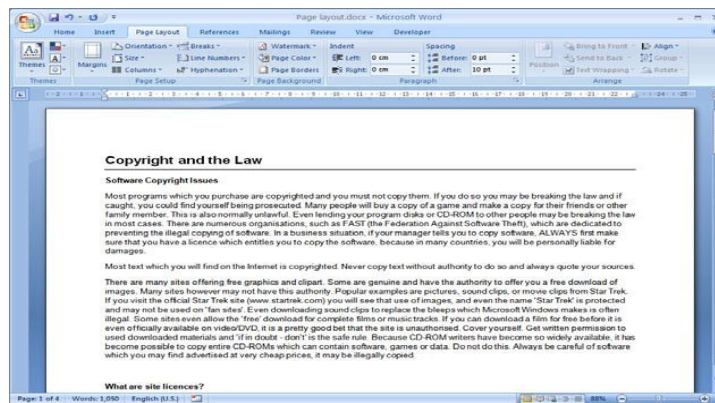
- Normally your Microsoft Word document will be displayed in Portrait page orientation, which is like looking at a photograph, where the long edge is the vertical line. You may change to Landscape orientation for certain types of documents such as notices.



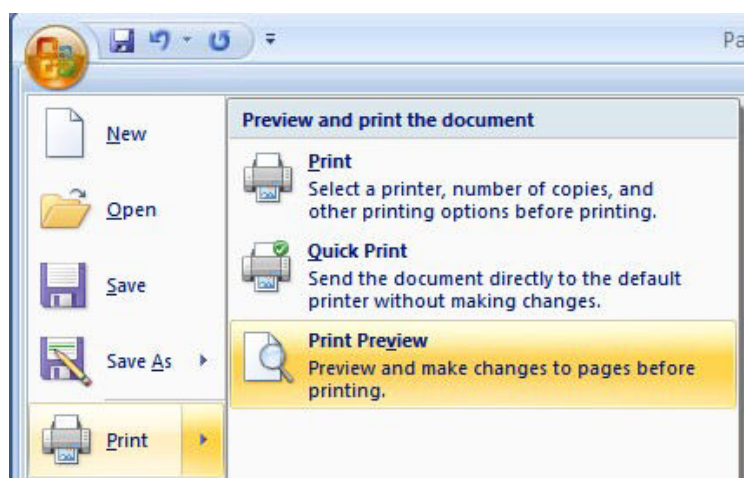
- The physical size of the paper used within printers varies from country to country. In the United States the normal paper size is called 'Letter' size and the dimensions are measured in inches. A 'Letter' sized paper is shorter but wider than 'A4' sized paper.
- In Europe and many other places the paper size used within computer printers is normally called A4 sized paper. This may be measured in inches or centimeters (depending on the country). A4 sized paper is longer and slightly narrower than 'letter' sized paper.
- Open a document called Page layout. Click on the Page Layout tab.
- Within the Page Setup section click on the Orientation button. A drop down list allows you to select either Portrait or Landscape page orientation. Select Landscape.



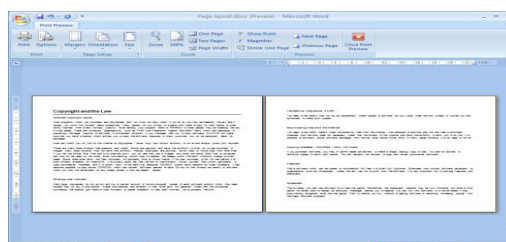
- Your document will now look something like this.



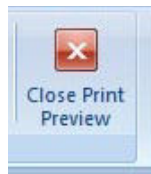
- To see the effect better, click on the Microsoft Office button and click on the arrow next to the Print option. From the submenu displayed select the Print Preview command.



- This will display the document in Print Preview view.



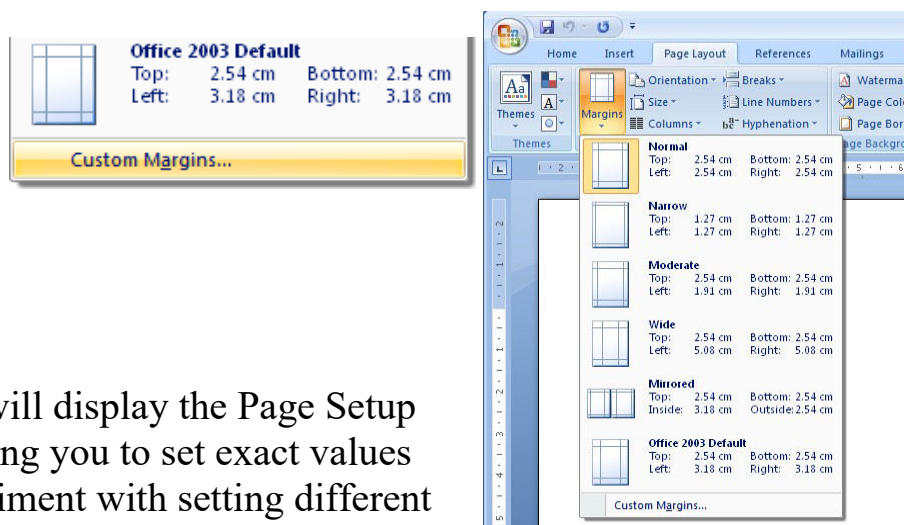
- Click on the Close Print Preview button to return to Print Layout view.



- Reset the page orientation back to Portrait orientation.

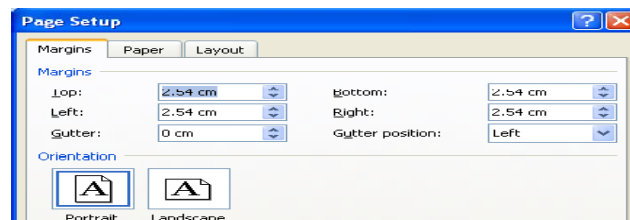
Page margins:

- Your document has a top, bottom, left and right margin. This is the space between the edge of your text and the edge of your page. Each margin may be increased or decreased. Be careful not to decrease it too much or you may have problems printing the documents.
- To modify your page margins, click on the Page Layout tab. From the Page Setup section, click on the Margins button. A list of preset options is displayed, as illustrated.
- Experiment with applying these different preset margin options.
- To create your own custom margins, click on the Custom Margins command displayed at the bottom of the Margins drop down list.

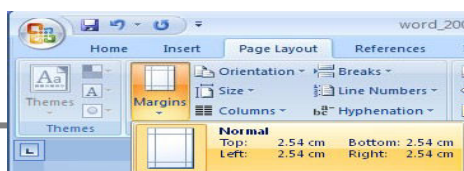


This will display the Page Setup allowing you to set exact values
Experiment with setting different

dialog box,
for the margins.
margins values.



- Before continuing, reset the margins to the Microsoft Word default values by clicking on the Margins button and selecting the Normal margin command.

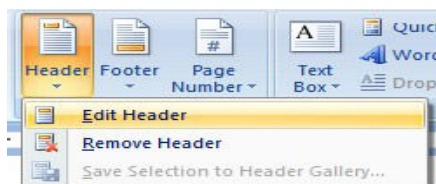


Page Breaks:

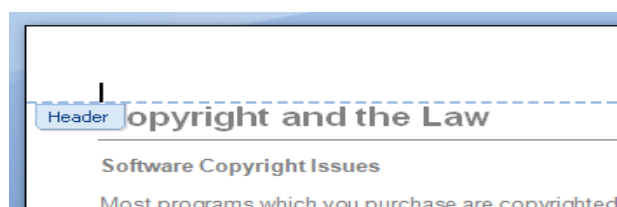
- When you start typing into a document, the text normally starts at the top-left of the page and as you type more words they are displayed on the line moving towards the right of the page. When the words you are typing reach the right side of the screen they automatically drop down to the next line. If you continue typing you eventually fill that page, at which point Microsoft Word automatically moves on to the next page. These automatic page breaks that are inserted by Microsoft Word are called 'soft' page breaks. Sometimes you wish to force Microsoft Word to leave a blank area displayed at the bottom of one page and the next text to be displayed on a new page. To do this you need to insert a manual page break (sometimes called a hard page break).
- Insert a few page breaks into your document. To do this click at the point you wish to insert the page break and then press Ctrl+Enter.

Headers and footers:

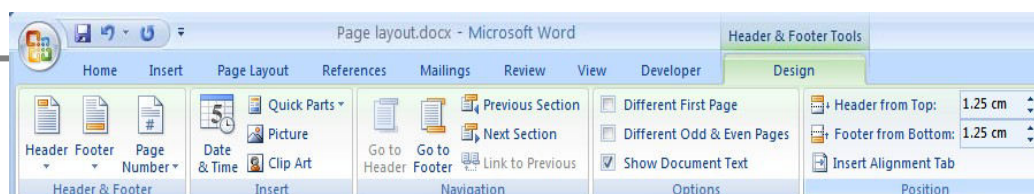
- If you are planning to print a document, it is a good idea to add a footer or header to the document, especially if it is a long document.
- Click on the Insert tab and from the Header and Footer section click on the Header icon. A drop down list is displayed. Select the Edit Header command.



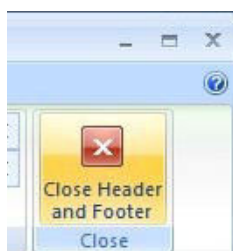
- The header area will be displayed on screen as illustrated.



- Type in your header text. In this case type in your name.
- If you look closely you will see that a special header and footer ribbon is displayed. This ribbon displays related commands to enhance your header or footer.



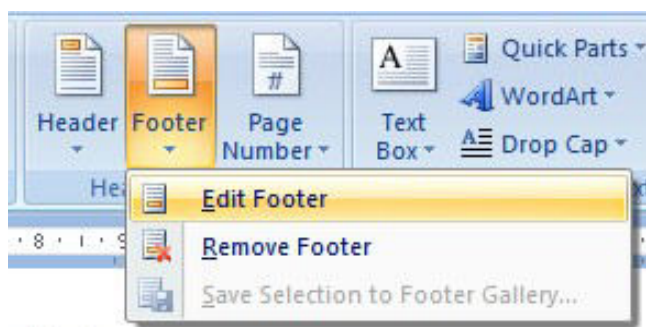
- Click on the Close Header and Footer icon.



- You can see your header displayed at the top of your page.



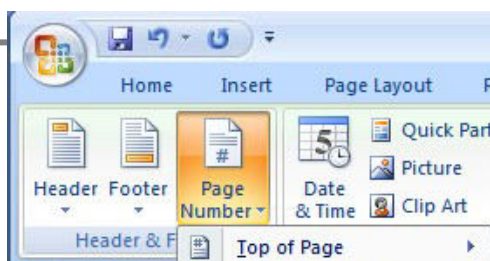
- To insert a footer, click on the Footer icon and select the Edit Footer command.



- Type in the following text as your footer and then close the Header and Footer ribbon.

Page numbering:

- You can insert automatic page numbering into a document header or footer. As this is inserted as a field when you modify the number of pages within the document the page numbering is also updated on each page.
- Click on the Insert tab and from the Header and Footer section click on the Header icon. A drop down list is displayed, select the Edit Header command. You should see your name displayed as the header.
- Click just after your name and press the Tab key twice.
- Click on the Page Number button and then select Current Position.

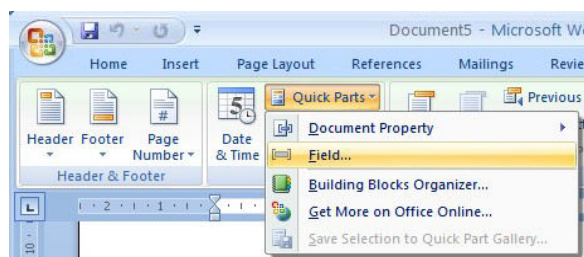


- Select Plain Number from the Page Number gallery.

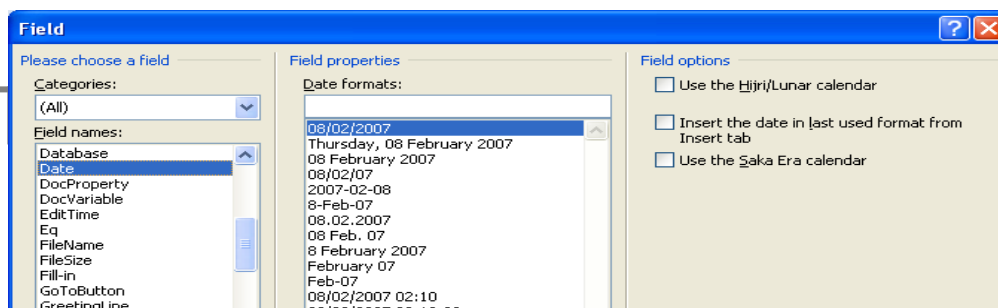
The page number should be inserted into your document. Close the Header and Footer ribbon.

Header and footer fields:

- Microsoft Word fields are easy to insert and can be automatically updated. For instance you could insert the date within the header of a document and arrange it so that each time you reprinted the document, the current date was displayed. This would mean that if you printed the document each month, then the correct month would be displayed within the header.
- Click on the Insert tab, and from the Header and Footer section click on the Footer icon. A drop down list is displayed, select the Edit Footer command. You should see your footer text. Click at the end of the footer text. Press the Tab key twice.
- Click on the Quick Parts button. From the drop down list displayed select the Field command.



This will display the Field dialog box. This allows you insert a wide range of fields. In this case select Date, as illustrated.



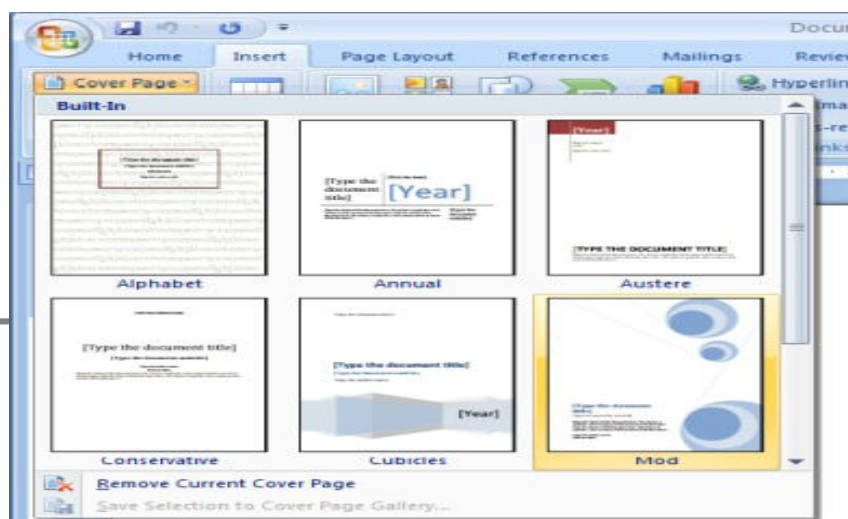
- Click on the OK button.
- Close the Header and Footer Ribbon and you will see your footer displayed at the bottom of each page.



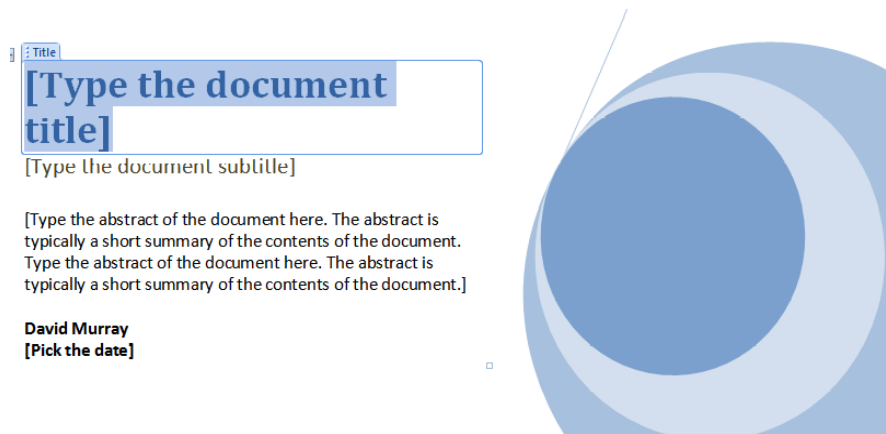
- If you have time, have a brief look at some of the other fields that you can insert into your header or footer. The Filename field is particularly useful as if you insert this into a header or footer and then save your document this field will record the file name. You will find with a little experimentation that this field can also include the folder storage location on your hard disk.

Cover pages:

- This feature was introduced in Microsoft Word 2007. It inserts a professional looking front cover page into your document.
- Open a document called Cover page. Click at the start of the document. Click on the Insert tab and then click on the Cover Page button (within the Pages section).
- This will display a drop down from which you can select a cover page type. In this case select the Mod type.



- Once you select a cover page type you will see the following.



- Click on the [Type the document title] and then enter a title, such as 'About Computers'.
- You can also insert a subtitle and abstract.
- Click on the [Pick the date] control to insert today's date.
- View the document in Print Preview view. To do this click on the Office Button. Click on the arrow to the right of the Print command, and then select the Print Preview command.
- When you have finished previewing your document, click on the Close Print Preview icon and you will display the document in Print Layout view.
- Save your changes and close the file.

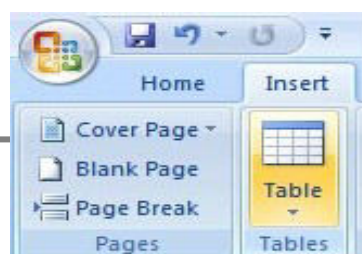
Tables:

Using Tables:

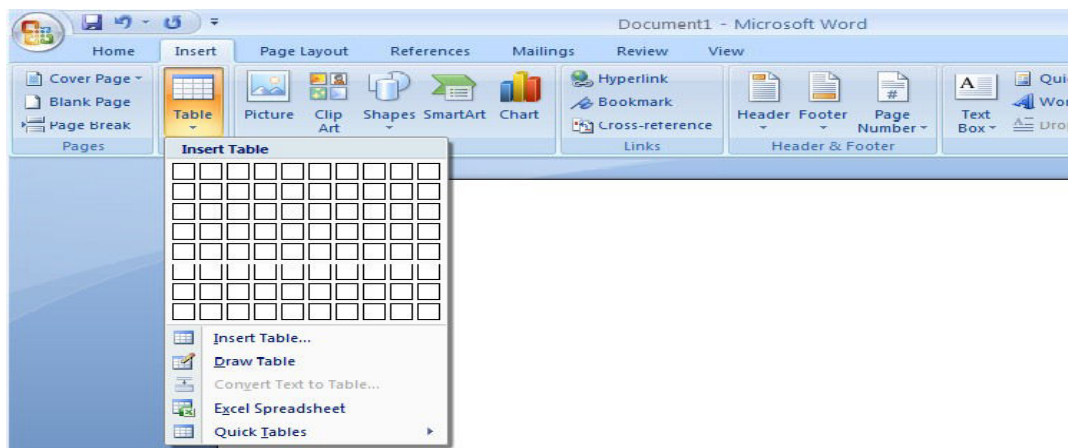
You can insert a table into your document. Each cell within the table can display text or a graphic. Each cell or the entire table can be formatted as required.

Inserting a table:

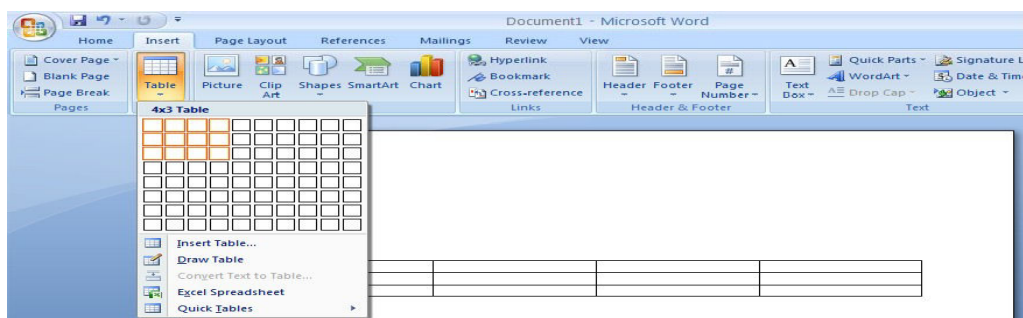
- Open a document called Tables. Read the instructions within this document. We are going to insert a table containing 4 columns and 3 rows.
- Display the Insert tab and you will see the Tables group displayed as illustrated.



- Clicking on the table will display the following.



- If you move the mouse pointer over the cells displayed in the drop down you will see that a preview version of the table is displayed within your document.

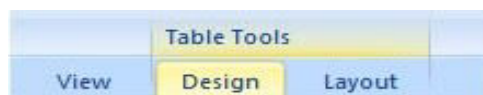


- Click when you see a 4x3 Table displayed (in the area immediately above the cell drop down). The table will be inserted into the document, as illustrated.

- Notice that the display at the top of your screen has changed. As you are within the table you have just selected, Microsoft Word automatically displays commands and options related to modifying and formatting your table.



- Click outside your table and the table will display its original commands. Re-clicking within the table will again display Table related commands. If you do not see the table commands displayed you will notice that there is a Table Tools option displayed at the top of your page (above the normal tabs). Click on this to display your table related commands.



Navigating within a table:

- Click within the first cell in the table. Type in the name of the town or city in which you live.
- To move to the next cell press the Tab key (or click within the cell using the mouse pointer). Type in the name of another town or city. Carry on in a similar fashion until all the cells contain the name of a town or city.
- Try pressing Shift+Tab. As you will see this moves you to the previous cell.

Selecting and editing text within a table:

- Click within the first cell. Double click on the word within this cell and change the word to your first name. Navigate to the second cell and overwrite the contents with your second name. You can edit the text within a cell rather than replace the entire text by selecting the part of the text you wish to edit and then typing in your changes.

Selecting cells, rows, columns or the entire table:

- It is important to know how to select elements within your table. Practice these selection techniques using the table you have created.

To select a cell:

- Move the mouse pointer to the left side of the cell you want to select. The mouse pointer will change to the shape of a small solid black arrow pointing upwards and to the right. Click when you see the pointer change to this shape and the cell will be selected.

To select a row:

- Move the mouse pointer to the left of the row you want to select. When the mouse pointer changes to the shape of an arrow, click once and the row will be selected.

To select multiple rows which are next to each other:

- Move the mouse pointer to the left of the first row you want to select. When the mouse pointer changes to the shape of an arrow, click once and the row will be selected. Hold down the Shift key and then click on the last row of the block of cells you wish to select.

To select multiple rows which are not connected to each other:

- Move the mouse pointer to the left of the first row you want to select. When the mouse pointer changes to the shape of an arrow, click once and the row will be selected. Hold down the **Ctrl** key while clicking to select other rows.

To select a column:

- Move the mouse pointer to the area just above the column you want to select. When the mouse pointer changes to the shape of a small, black, down-pointing arrow, click once and the column will be selected.

To select multiple columns which are next to each other:

- Move the mouse pointer to the area just above the first column you want to select. When the mouse pointer changes to the shape of a small, black, down-pointing arrow, click once and the column will be selected. While holding down the Shift key, click above the column at the end of the block of columns that you want to select.

To select multiple columns which are not next to each other:

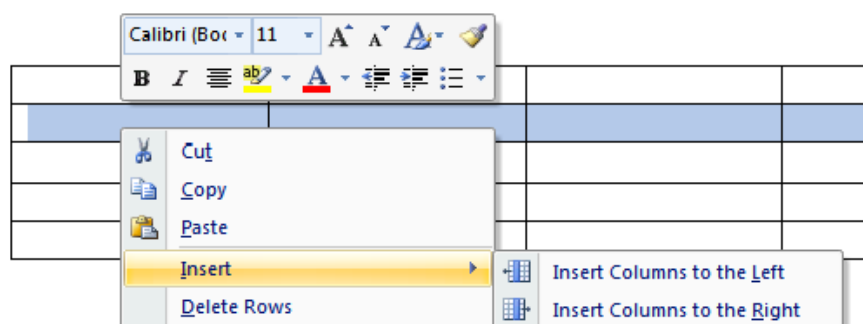
- Move the mouse pointer to the area just above the first column you want to select. When the mouse pointer changes to the shape of a small, black, down-pointing arrow, click once and the column will be selected. While holding down the Ctrl key, click above the other columns that you wish to select. Release the Ctrl key when you have finished selecting columns.

To select the entire table:

- Click within the last cell of the table. While holding the mouse key down, move to the first cell within the table. When you release the mouse button the entire table will be selected.

Inserting and deleting rows and columns:

- Once you have created a table it is very easy to insert or delete new rows or columns.
- To insert a row.
- Select the second row within your table and right-click over the selected row. You will see a popup menu displayed. Click on the Insert command and you will see a submenu displayed, as illustrated. You can insert a row above or below the row you selected. In this case insert a row below the selected row.

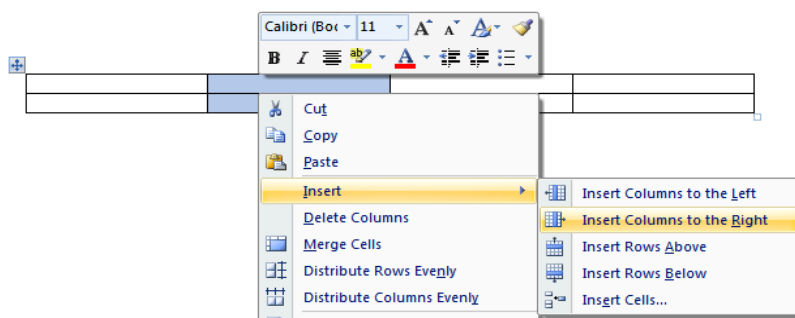


To delete a row:

- Select the first row within your table and right click over the selected row. From the popup menu displayed select the Delete Rows command. Use the Undo icon (towards the top-left of your screen) to undo this deletion.

To insert a column:

- Select the second column within your table and right-click over the selected column. You will see a popup menu displayed. Click on the Insert command and you will see a submenu displayed, as illustrated. You can insert a column to the left or to the right of the column you selected. In this case insert a column to the right of the selected column.



To delete a column:

- Select the second column within your table and right click over the selected column. From the popup menu displayed select the Delete Columns command. Use the Undo icon (towards the top-left of your screen) to undo this deletion.

Modifying column width or row height:

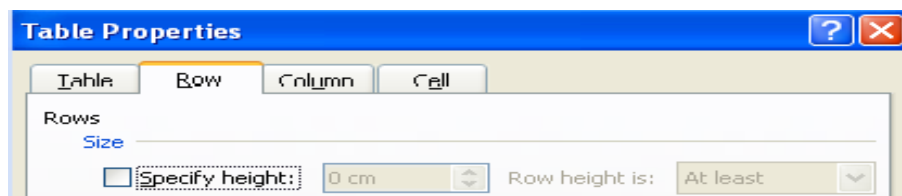
- It is easy to reduce or increase row heights. You can also make columns wider or narrower. You can use 'drag and drop' techniques using the mouse or you can set exact heights or widths using the Table Properties dialog box.

Using the mouse to adjust column width or row height:

- Move the mouse pointer within the table until it is over the vertical edge of one of the columns. The shape of the mouse pointer changes to a shape made up of two small vertical lines with arrows pointing out horizontally.
- When the mouse pointer changes, depress the mouse button and move the mouse to the left or right as required. When you release the mouse button the width of the column will be altered.
- You can use the same technique to adjust the row height, but this time move the mouse pointer to the horizontal edge of any row, and then drag and drop the edge as required.
- Experiment with adjusting row heights and columns widths using this method.

Adjusting column width or row height using exact measurements:

- Select the row (or rows) that you wish to change the height of. Right click over the selected row(s) and from the popup menu displayed select the Table Properties command. This will display the Table Properties dialog box. Select the Row tab within this dialog box, as illustrated.



Click on the Specify height check box. Use the Up or Down controls to set the



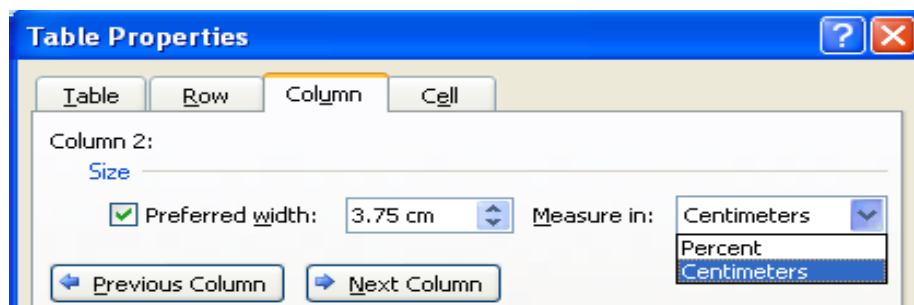
exact row height and then in the 'Row height is' section, select 'Exactly'.

NOTE: You can use the Previous Row and Next Row button to set each row in the table to a different height as required. When you have finished



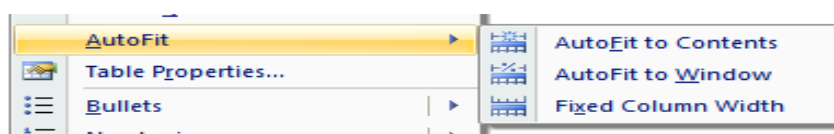
click on the **OK** button to close the dialog box.

You can set exact column widths using the same method, but you need to select the Column tab within the dialog box. You can use the Previous Column and Next Column buttons to adjust each column width within the table.



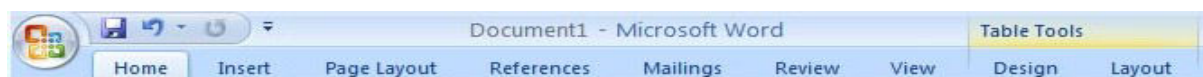
Modifying the table width:

Right click on the table and from the popup menu displayed select the AutoFit command. You can select options as required to automatically resize the table.



Modifying cell borders

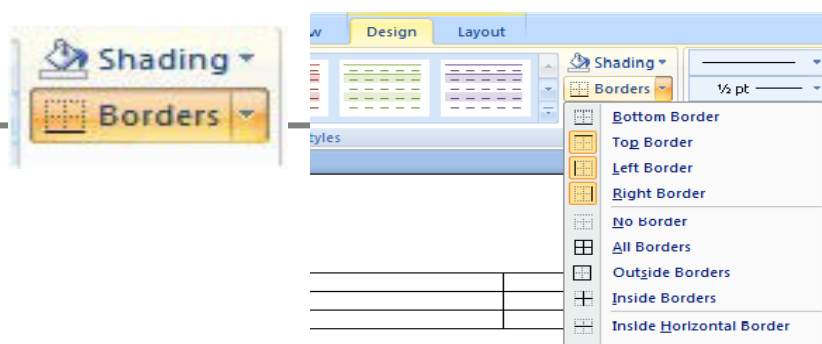
- Click within the table. You will see the Table Tools tab displayed above the normal tabs.

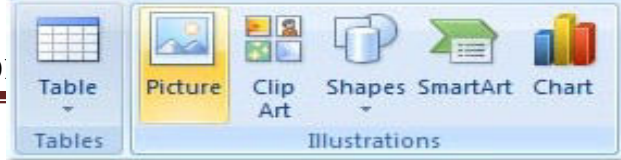


- Click on the Table Tools tab and you will see the following tools displayed.



- Select the cell, row(s) or column(s) that you wish to adjust the border style of and then click on the down arrow to the right of the Borders control (You will find this under the Design tab).





You can select the required border type from the drop down list.

Adding shading to cells:



- Select the cell, row(s) or column(s) that you wish to adjust the border style of and then click on the down arrow to the right of the Shading control. (You will find this under the Design tab).

You can select the required shading type from the drop down list.

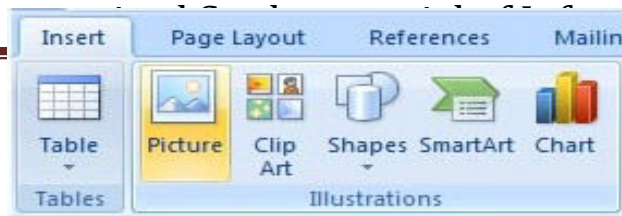
Graphics:

Using graphics within Microsoft Word:

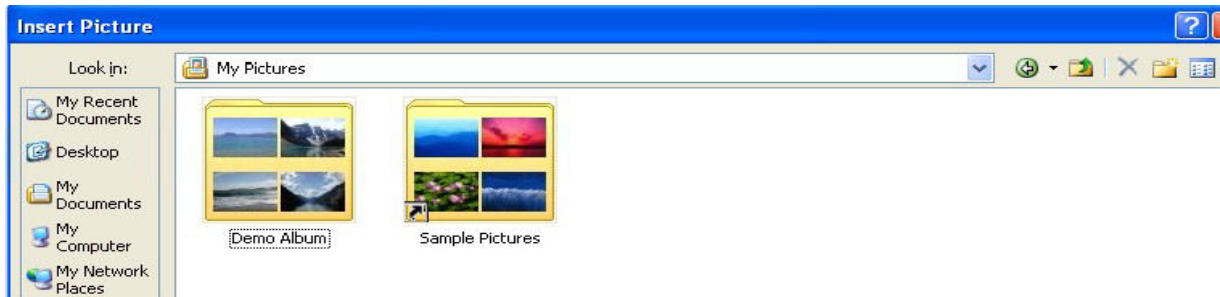
- Microsoft Word has a range of graphic formats that can be inserted into a document, including Pictures, ClipArt, Shapes, SmartArt and Charts.

Inserting Pictures:

- Click on the **Insert** tab and then click on the **Pictures** icon.



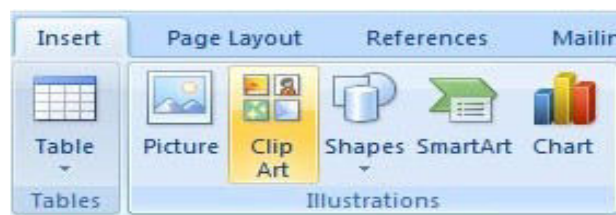
This will display the Insert Picture dialog box.



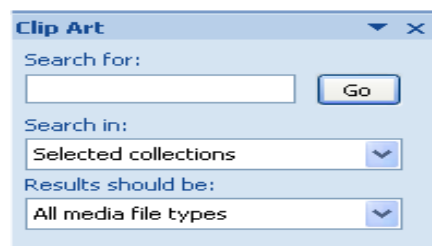
You should see a folder called '**Sample Pictures**'. Double click on this folder to view the contents and then insert one of these pictures into your document.

Inserting Clip Art:

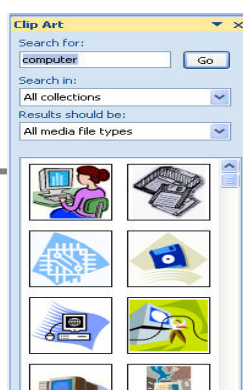
- Click on the Insert tab and then click on the Clip Art icon.



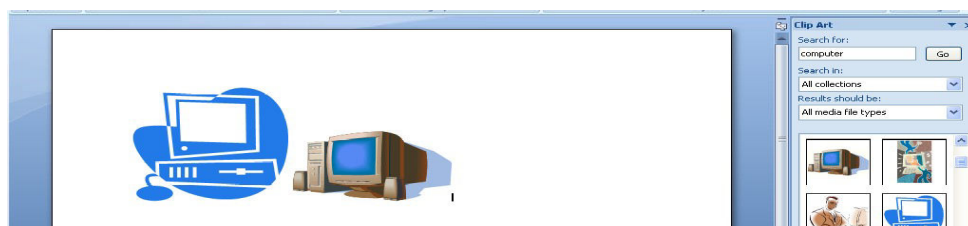
- This will display the Clip Art pane down the right hand side of the screen.



- Within the 'Search for' section type in a keyword that describes the type of clip art you are looking for. In this case type in the word computer, and then click on the Go button.

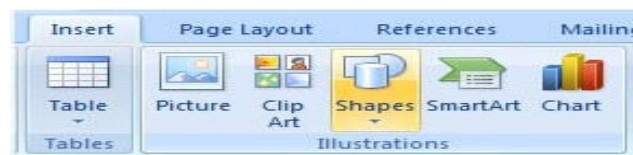


- After a short delay the clip art images will be displayed down the right side of your screen. You will need to use the scroll bars to review all the images that are available.
- To insert a clip art item all you have to do is to click on the thumbprint image. You can insert as many clip art images as you like.

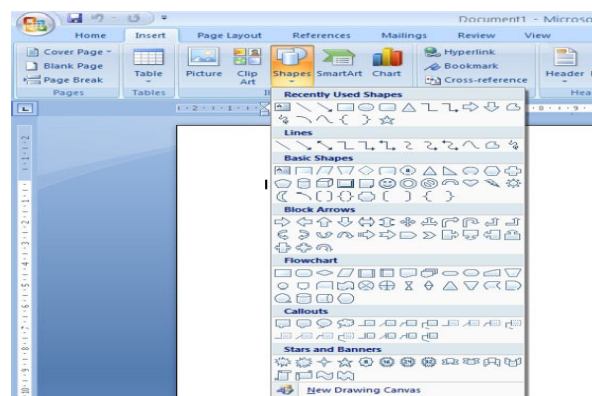


Inserting Shapes:

- Create a new document and save the document as a file called My Shapes. Click on the Insert tab and then click on the Shapes icon.

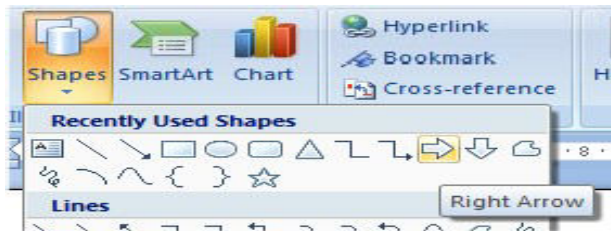


- This will display a drop down from which you can select the shape you wish to insert into your document.

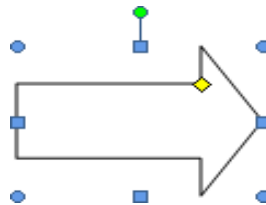


- We will insert a right pointing arrow into our document. To do this click

on the Right Arrow shape.



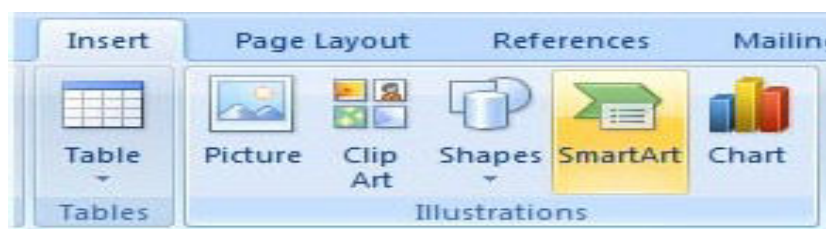
- You may not notice any change, but if you move the mouse pointer down over the white space within your document, you will notice that the mouse pointer has changed to the shape of a small cross. Click (and hold the mouse button down). Move the mouse pointer down diagonally across the page. You will see a preview outline of the arrow displayed. Release the mouse button and you will see an arrow shape displayed on your page.



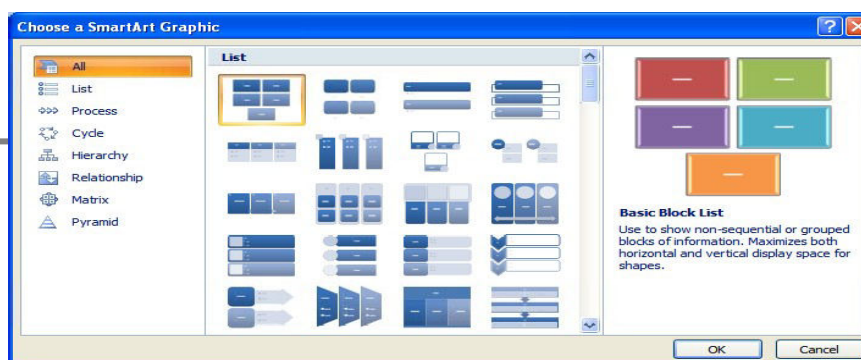
- Save your changes and close the document.

Inserting SmartArt:

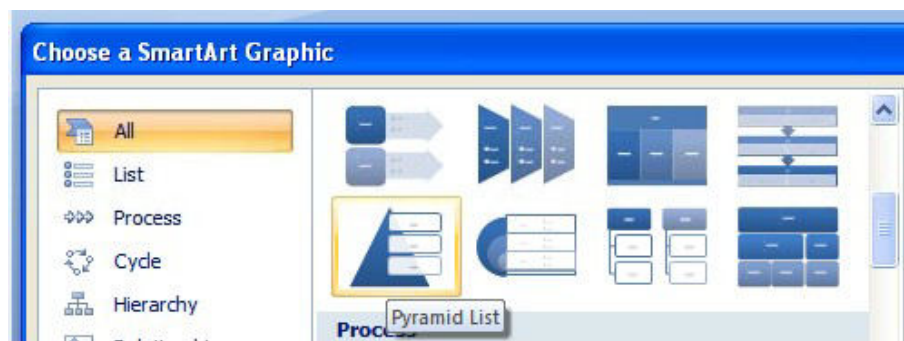
- Create a new document and save the document as a file called My SmartArt. Click on the Insert tab and then click on the Smart Art icon.



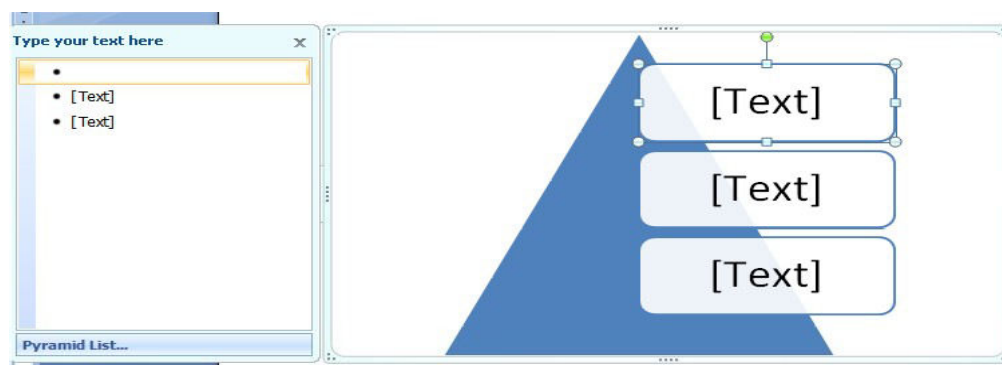
- You will see the Choose a SmartArt Graphic dialog box displayed.



- Slowly scroll down the list to view the amazing variety of SmartArt graphic shapes that are available.
- Scroll back up the list and select the Pyramid List graphic.

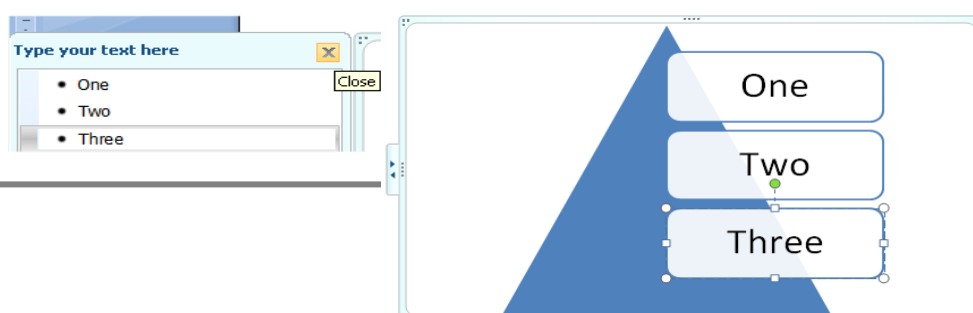


- Click on the OK button



- You will see an area to the left called 'Type your text here'. Click on the first text section and type the word 'one'. In a similar fashion type in the word 'two' and 'three' into the other text input section.
- Click on the Close icon as illustrated below.

- Your page will now look like this.



- Double click below the graphic and you will be able to type normally into the document. Type in your name. Save your changes and close the document.

Selecting, resizing and deleting graphics:

- **Selecting a graphic:**

Open a document called Graphic objects. This document contains a number of different types of graphic objects. Try clicking once on a graphic. Then click on another graphic. As you can see, selecting a graphic is very simple.

- **Resizing a graphic:**

Click on a graphic to select it. To resize the graphic and keep the height and width ratios the same, move the mouse pointer to any corner, and while keeping the mouse button pressed drag diagonally across the screen. When you release the mouse button the graphic will resize.

- If you wish you can stretch the graphic either vertically or horizontally by dragging from the center of any edge.

- **Deleting a graphic:**

Click on a graphic to select it. Press the Del key.

- Save your changes and close the document.

Copying or moving graphics:

- You can copy or move a graphic using the Clipboard or using normal drag and drop techniques.
- Open a document called Copying and moving graphics.
- Save the file as My Copying and moving graphics.

Copying a graphic using the Clipboard:

- Select the second graphic in the document. Press the Ctrl+C keys to copy the graphic to the Clipboard. Click towards the bottom of the document and press Ctrl+V to paste the graphic to the insertion point.

Moving a graphic using the Clipboard:

- Select the first graphic in the document. Press the Ctrl+X keys to move the graphic to the Clipboard. Click towards the bottom of the document and press Ctrl+V to paste the graphic to the insertion point.
- Use the **Undo** icon to reverse the move and copy operations you have just performed.

Moving a graphic using drag and drop:

- Select the first graphic in the document. Depress the left mouse button and while keeping the button pressed, move the mouse pointer to the bottom of your document. When you release the mouse button the graphic will have moved to the location that you dragged it to.

Copying a graphic using drag and drop:

- Select the first graphic in the document. Depress the Ctrl key and while keeping it depressed, depress the left mouse button and while keeping the button pressed, move the mouse pointer to the bottom of your document. Release the mouse button and the Ctrl key and the graphic will have been copied to the location that you dragged it to.
- Save your changes and close the document.

Multiple Documents:

Using multiple documents within Microsoft Word:

- Microsoft Word is an application that runs on an Operating System called Microsoft Windows. Windows is a multitasking operating system which means that you can run more than one program at a time. It is important that you know how to move or copy text and graphics from one document to another, or between Microsoft Word and a different program such as Microsoft Excel (a spread sheet program).

Switching between open documents:

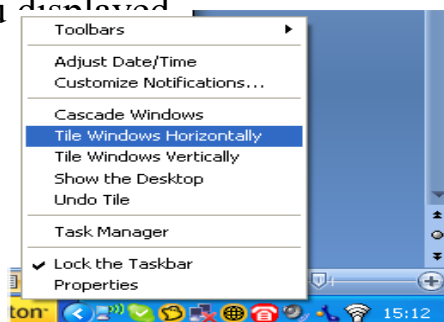
- When you use Microsoft Word 2007 you can work on more than one document at a time. You can use the Clipboard to copy selected text or a graphic from one document to another.
- Open a document called Multiple1.
- Open a second document called Multiple2.
- Open a third document called Multiple3.
- Press the Alt key and hold it down. Press the Tab key a few times. You will notice a popup window that lets you move from document to document, each time you press the Tab key. Release the Alt key and you will switch to the document selected in the popup window. Practice this technique a few times if you have not used it before.

- You can also use the Switch Windows icon to switch from one document to another. To use this feature, click on the View tab and click on the Switch Windows tool (located within the Window group under the View tab). You will see a drop down list allowing you to switch to another open document window.



Tiling or cascading documents on your screen:

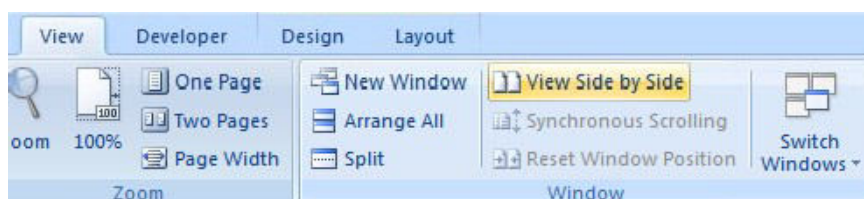
- You can arrange multiple documents on the screen. To do this right click over an empty part of the Taskbar (at the bottom of your screen). You will see a popup menu displayed



- Experiment with selecting the commands 'Cascade Windows', 'Tile Windows Horizontally' and 'Tile Windows Vertically'.
- Before continuing, use the Maximize icon (top-right of each document window), to maximize each document window.

Comparing documents side by side:

- This feature allows you to compare two versions of a document, side by side. Open a document called Compare 1. Open a second document called Compare2.
- Switch to display the document called Compare1.
- Click on the View tab and click on the View Side by Side command (located within the Window section under the View tab).



This will display the two documents side by side. As you scroll down one document, the other document also scrolls down the screen. Try scrolling through each document to practice using this feature.

- Close both documents before continuing.

Proofing and Printing:

The importance of proofing:

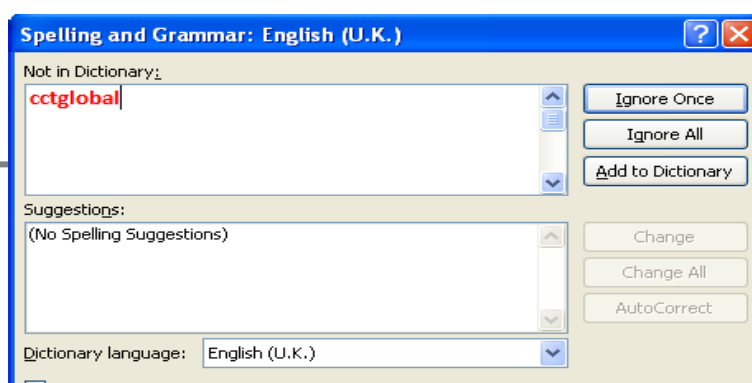
- When you have finished writing a letter always read it through before printing. Change any errors you find. Run the spell checker to find any spelling or grammatical errors. The keyboard shortcut to run the spell checking program is F7.
- Preview the document within the Print Preview view. Does the text look balanced on the page? Does everything else look correct?
- Print out the document and read through it one more time. Often when you read a printed document you see errors that you somehow missed when reading the document on the screen.

Spell checking a document:

- Open a document called Printing.
- Press F7 to start the spell checking program. Allow any changes that you think are necessary and then close the spell checking program.

Adding words to the built-in custom dictionary:

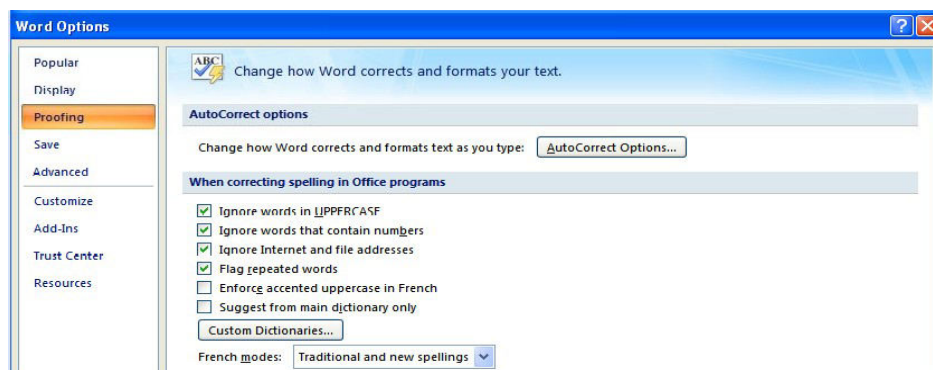
- The spell checker works by comparing words contained within your document with a list of words contained within a dictionary. Sometimes Microsoft Word will highlight a word it does not recognize but this word may be a specialist word or a trademark word used within your particular business or organization. You can easily add words to the dictionary. Type in the word cctglobal. Run the spell checker program (by pressing F7). You will see the Spelling and Grammar dialog box displayed.



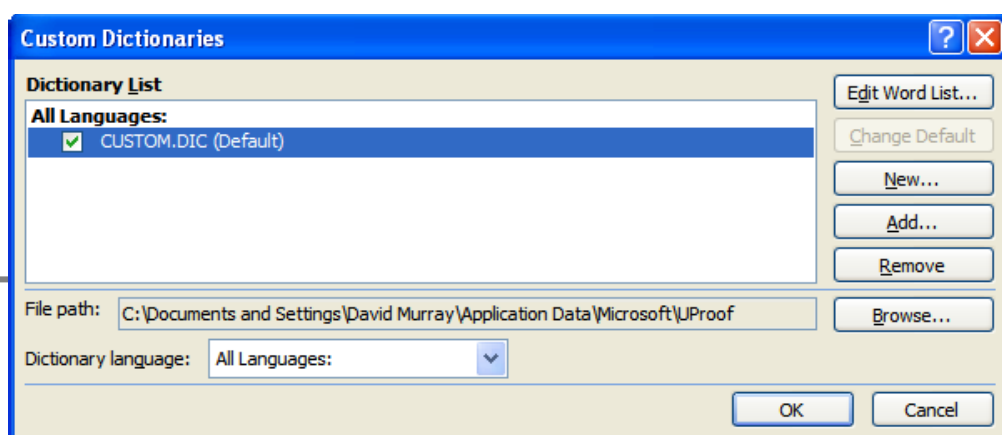
- Click on the Add to Dictionary button. From now on when you use the spell checker, it will recognize this word.
- Save and close the document. Create a new document and type in the word cctglobal. Run the spell checker and you should find that this word is no longer indicated as a potential problem by the spell checking program.

Removing a word from the spell checking dictionary:

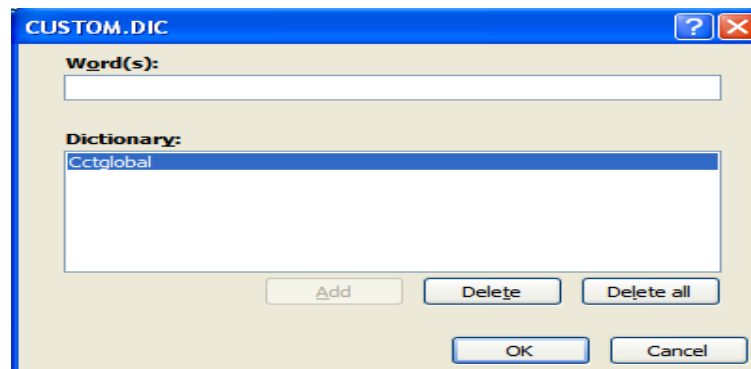
- Sometimes you may have accidentally added a word to the spelling dictionary, so it is important that you know how to remove a word from the dictionary.
- Click on the Office Button, and then click on the Word Options. The Word Options dialog box is displayed. Select the Proofing button (displayed down the left side of the dialogbox).



- Click on the Custom Dictionaries button. This will display the Custom Dictionaries dialogbox.

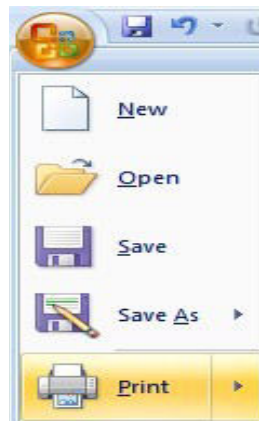


- Click on the Edit Word List button, select the word you wish to delete (in this case cctglobal), and then click on the Delete button. Click on the OK button to close the dialogbox.

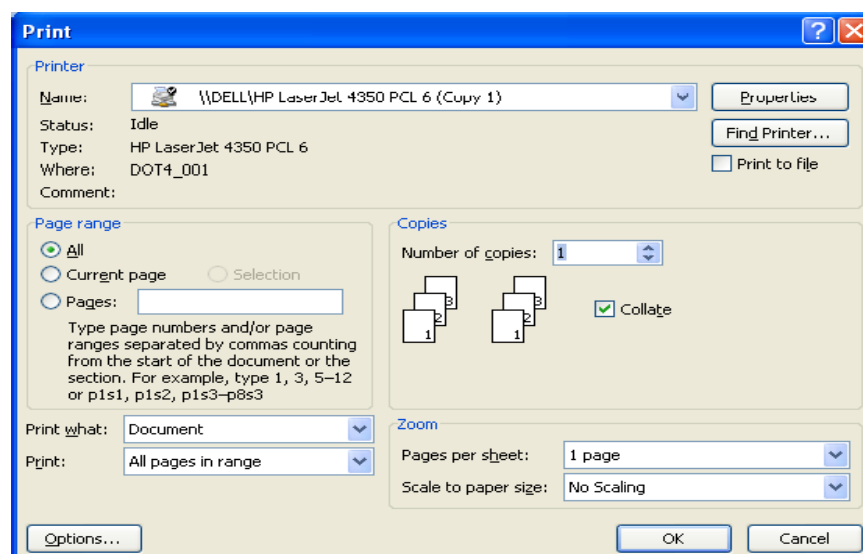


Printing options:

- You can choose from a variety of printing option. Click on the **Office Button** and select the Print button.



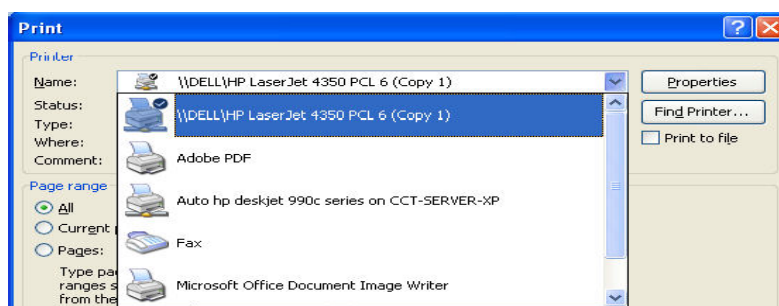
This displays the Print dialog box.



- Use the Print dialog box to select required options such as:

Printer Name:

- You may have more than one printer available that you can print to. Click on the down arrow to the right of the Printer Name section to see what printers are available. In the example shown you can print to a fax, which means that rather than printing to a printer, you would be prompted for a fax number and the document would be sent as a fax to this number.



Page Range:

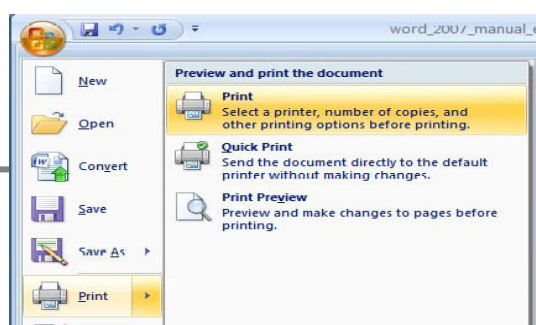
- You can print the entire document, the current page or a range of pages.
- Number of Copies:
- You can print multiple copies and choose to collate these.

Zoom:

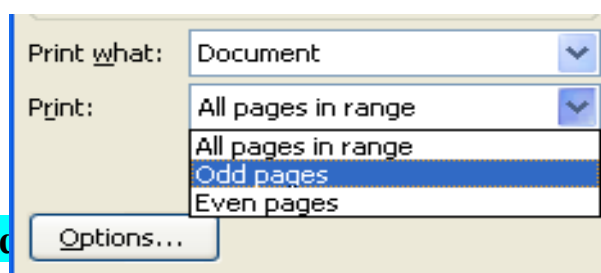
- The zoom option allows you to print multiple document pages on a single sheet of printed paper. This facility may vary from one printer to another.

Printing only odd or even pages:

- Some printers are capable of printing on both sides of the paper. These are often called 'duplex printers'. If you need to print on both sides of the paper but your printer only prints on one side of the paper, you can try printing all the odd pages of your document, and after turning the printed document upside-down within your printer then print just the even pages.
- To print just the odd or even pages of a document, click on the Office button. A menu is displayed. Click on the arrow next to the Print command. Within the submenu displayed, click on the Print option.

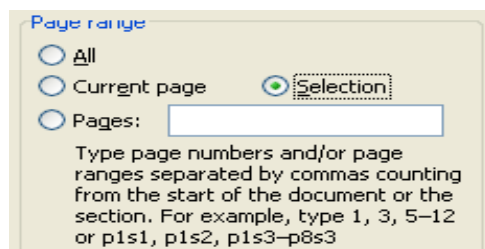


- This will display a dialog box. You should see a Print section within your dialog box. Clicking on the down arrow next to this option lets you choose to print only odd pages or only even pages.



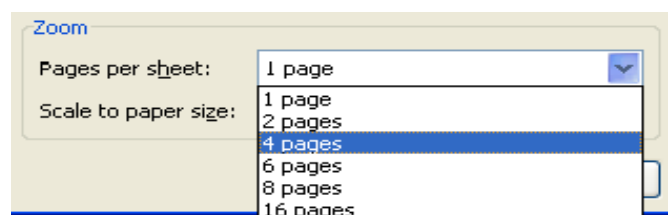
Printing part of a document

- You may have a very long document but only wish to print part of the document. To do this, select the part of the document that you wish to print. Open the Print dialog box. Within the Print Range section of the dialog box click on the Selection button. Now only the selected portion of the document will be printed.



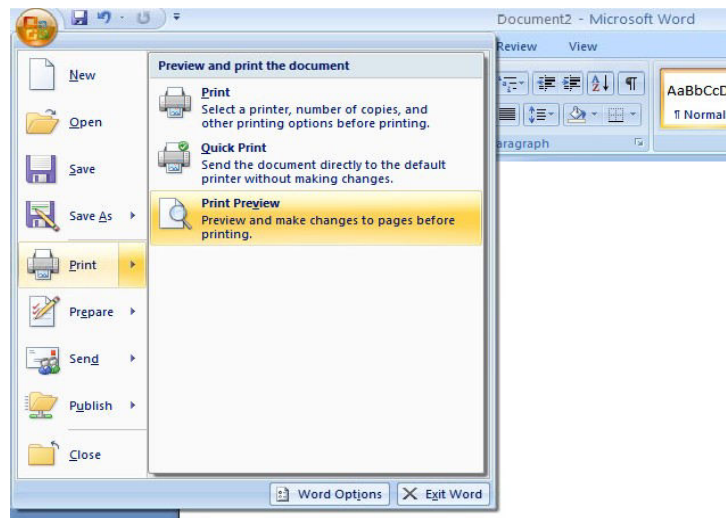
Printing more than one page of a document per printed sheet:

- To save paper you can print more than one document page per printed sheet. To do this, open the **Print dialog box**. Within the Zoom section click to the right of the 'Pages per sheet' option and select the number of pages to be printed on each printed page.

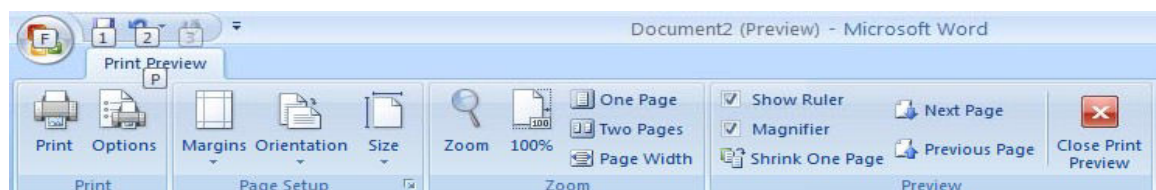


Previewing and printing a document:

- It is vital that you get into the habit of previewing a document before you print it. This can save a lot of wasted paper! To preview a document click on the Office Button and select the Print button. Click on the Print Preview button.



- The document will now be displayed in Print Preview mode and you will see different icons displayed across the top of the screen.



- You can use these icons to make any last minute changes that are required, such as modifying the layout of your document

SPREADSHEETS:

Spreadsheets are used to organize real world data. Data can be numeric or alphanumeric (involving letters or numbers). The key benefit to using a spreadsheet program is that you can manipulate data easily. You can perform various types of operation with the data like editing, deleting, formatting, and relocating data. You can also program the spreadsheet to perform certain functions automatically. These functions include arithmetic and logical functions. The arithmetic functions include mathematical, statistical, trigonometric, engineering, financial etc. . the logical functions include comparisons (less than, greater than,

equal to, not equal to, etc.

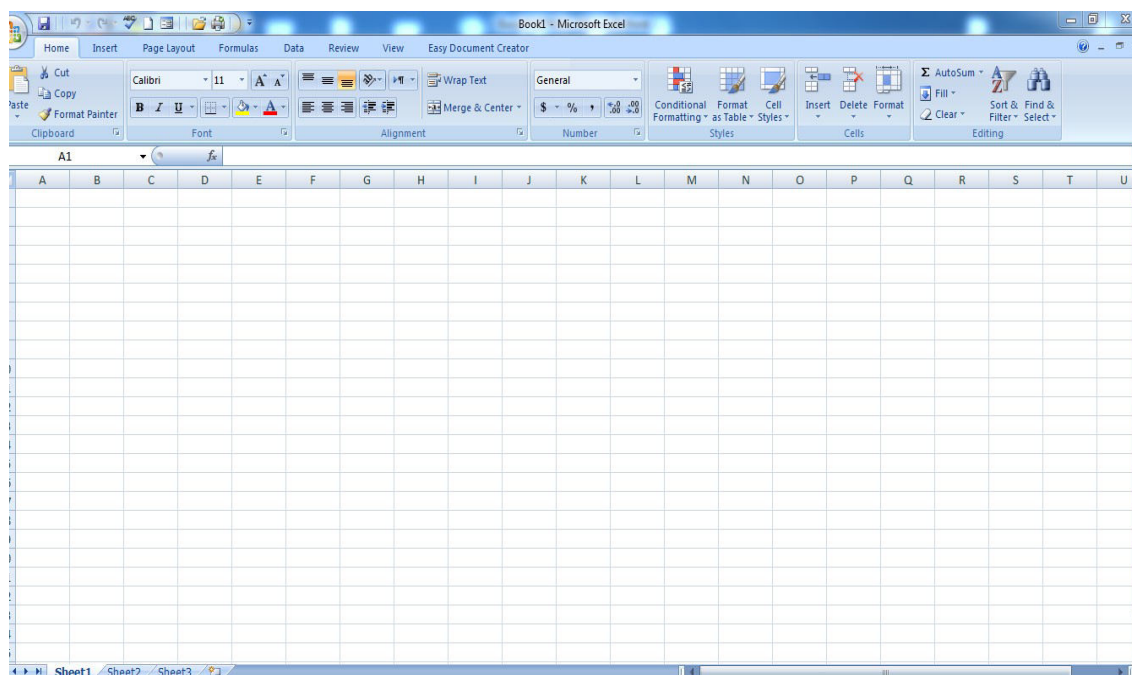
Spreadsheet can hold almost limitless amounts of data—a big company's whole data and information can be included in a single spreadsheet.

In Microsoft Office we have Microsoft Excel that is an example of a “spreadsheet.” and we are going to take here MS Excel 2007 and show you the basic functions and operations pictorially.

Opening Microsoft Excel:

- To start Microsoft Excel 2007 click on the Start icon, at the bottom left of your screen and you will see a popup menu.
- Click on All programs. Another menu level is displayed and you can select Microsoft Office. Finally select Microsoft Office Excel 2007.
- Once you click on the Microsoft Excel option this will load the Microsoft Excel program from your hard disk into main memory and you will be able to see use the program. When the Microsoft Excel 2007 program loads, your screen will look something like this.

Excel will then open a blank page called “Book1.”



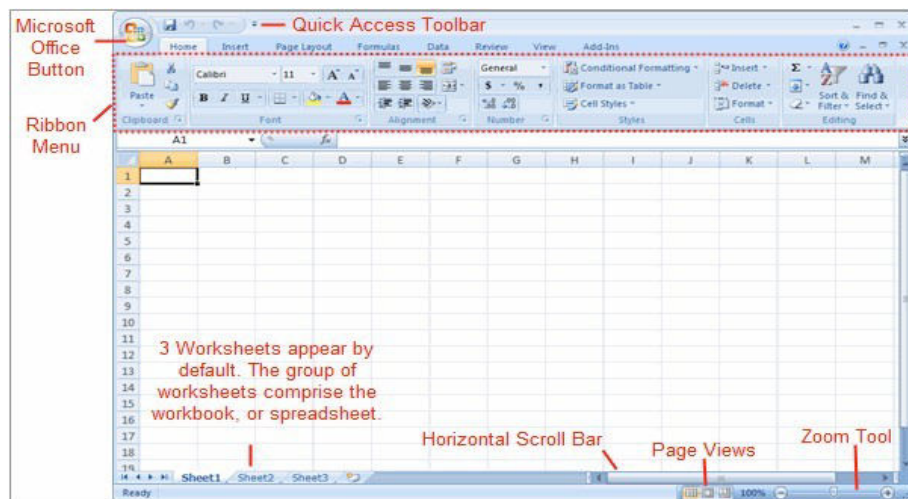
Microsoft Excel Features:

The Ribbon Menu System

The tabbed Ribbon menu system is how you navigate through Excel and access

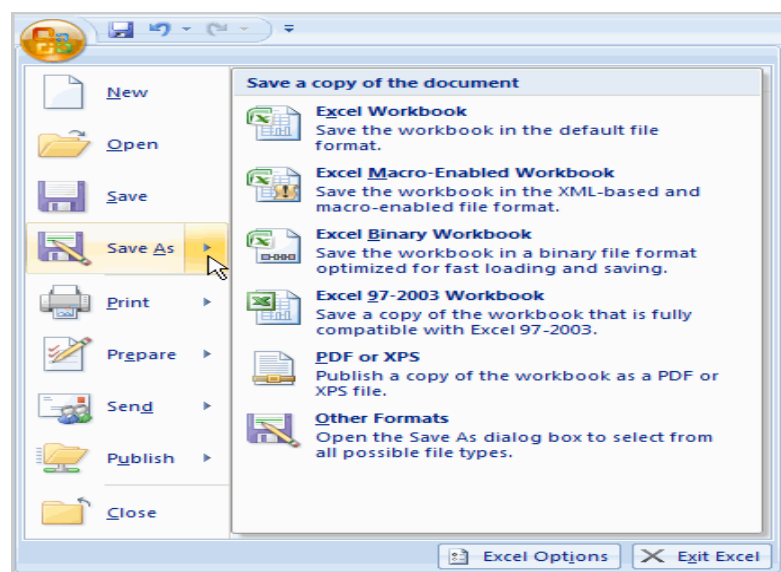
various Excel commands. If you have used previous versions of Excel, the Ribbon system replaces the traditional menus.

At the bottom, left area of the spreadsheet, you will find worksheet tabs. By default, three worksheet tabs appear each time you create a new workbook. On the bottom, right area of the spreadsheet you will find page view commands, the zoom tool, and the horizontal scrolling bar.



The Microsoft Office Button

Above the Ribbon in the upper-left corner is the Microsoft Office Button. When you left-click the button, a menu appears. From this menu, you can create a new spreadsheet, open existing files, save files in a variety of ways, and print. You can also add security features, send, publish, and close files.



Quick Access Toolbar

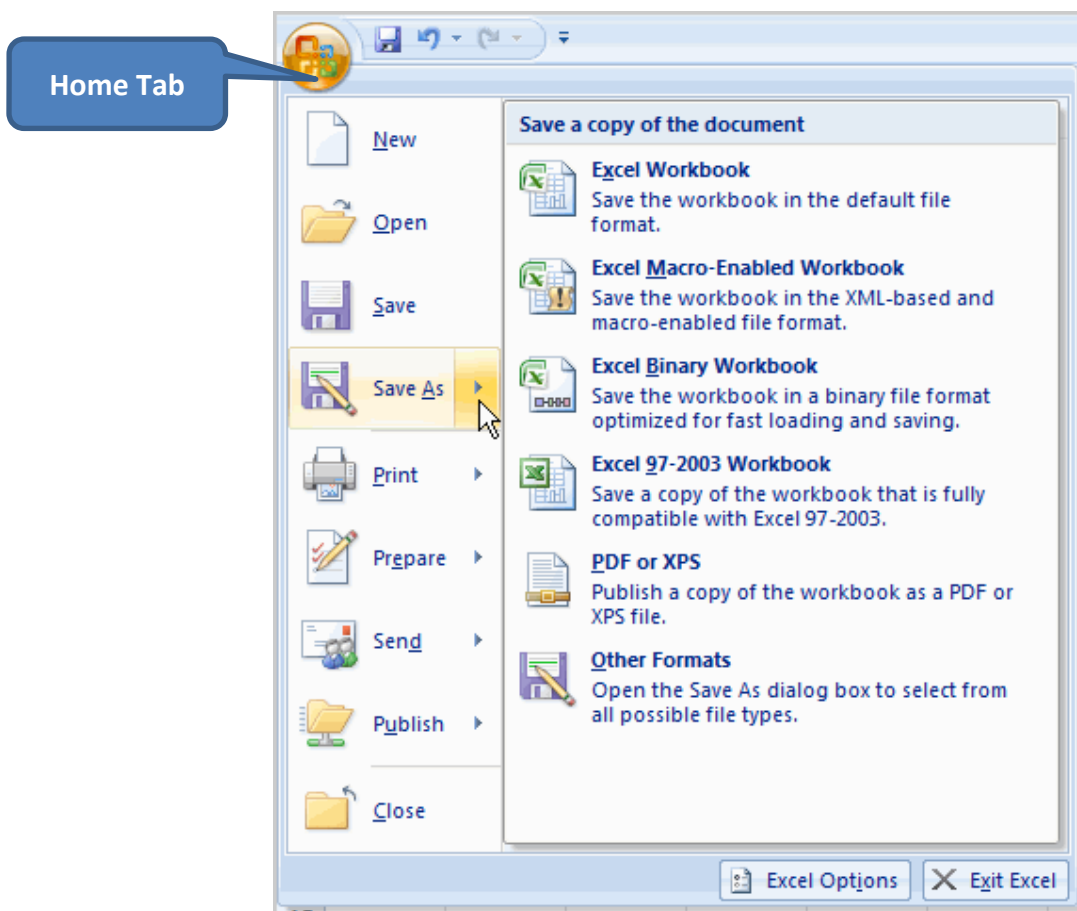
On the top left-hand side of the Title Bar, you will see several little icons above the

File menu. These let you perform common tasks, such as saving and undoing, without having to find them in a menu. We'll go over the meanings of the icons a little later.



The Home Tab

The most commonly used commands in Excel are also the most accessible. Some of these commands available in the Home Tab are:

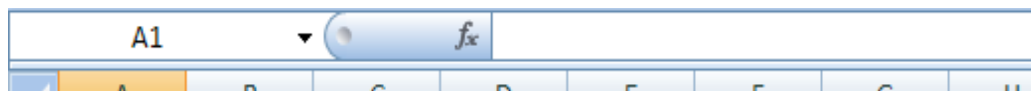


The Home Tab Toolbar offers options that can change the font, size, color, alignment, organization and style of the text in the spreadsheet and individual cells. For example, the “Calibri” indicates the FONT of your text, the “11” indicates the SIZE of your text; etc. We will go over how to use all of these options to format your text in a little while.

Each of these options expands into a menu if you left-click on the tiny down-arrow in the bottom right corner of the window.

This tab works the exact same way as the MS Word Formatting Toolbar. The main difference is that the format changes will only affect the selected cell or cells, all unselected cells remain in the default setting (“Calibri” font, size “11”).

Formula Bar:



The Formula Bar, also known as the Equation Editor, is generally found below the ribbon menu. The left side denotes which cell is selected (“A1”) and the right side allows you to input equations or text into the selected cell. There are two ways to input information into a cell. You may either select an individual cell and type the equation or text into the formula bar or type the equation or text directly into the selected cell.

Equations (for example, =SUM(D5+E5)) will automatically be hidden inside the cell and can only be viewed using the formula bar; the result of the equation will display in the cell.

If any written text is longer than the cell width, then the spreadsheet will cover up any portion longer than the cell width. The information will still be in the cell, you just won’t be able to see it at all times.

MICROSOFT EXCEL BASICS

Typing in Cells:

Cells are the small rectangular boxes that make up the spreadsheet. The boxes are the intersection of columns (A, B, C, etc.) and rows (1, 2, 3, etc.). To reference a cell, use the column and the row name. For example, the cell in the first column and first row is called “A1”. All the information entered into an Excel spreadsheet is entered into cells.

Click on a cell to begin typing in it. It is that easy! When you are finished typing in the cell, press the Enter key and you will be taken to the next cell down. You can then begin typing in that cell. You can easily navigate around the cells using your arrow keys.

Keep in mind that the Formatting toolbar in Microsoft Excel 2007 is exactly the same as the one used for Microsoft Word 2007. The biggest difference between the two programs is that, in Excel, the format is set for each individual cell. So if you change the font and applied the bold option in cell C5, then this format will only be applied to cell C5. All remaining cells will remain in default mode until they have

been changed.

Sometimes you may only wish to adjust the format of one particular cell. In this case, simply select the cell by clicking the mouse on it and make any necessary adjustments to the font, size, style, and alignment. Those changes will not carry over when you begin typing in a new cell.

Other times, you may wish to adjust the text format of a group of cells, entire rows, or entire columns.

In Excel, you can choose groups of cells in rectangular units—all the cells you select must form a rectangle of some kind. To select a group of cells, begin by clicking on the cell that would be in the upper-left hand corner of your rectangle. Hold down the Shift key on your keyboard and use the arrows (←, →, ↑, ↓) on the keyboard to expand the selection of cells, or click and drag your mouse.

Once the group of cells has been selected, you can make adjustments to the font, size, style, and alignment and they will be applied to all selected cells.

PRACTICE:

Select cell A1. Type 123 in that cell and press Enter on the keyboard. Select cell C6. Type abc in that cell and press Tab on the keyboard. Pressing Enter, Tab or left-clicking another cell will indicate to Excel that you are done typing in that cell.

Left-click in the Formula Bar. You should now see a blinking cursor in the bar. Type hello in the bar and press Enter. As you're typing in the formula bar, the data appears in the highlighted cell. Now use the Undo button in the quick access toolbar to remove "hello". Select cell C6. Press the delete button on your keyboard to delete "abc" from that cell.

	A	B	C	D
1	123			
2				
3				
4				
5				
6			abc	hello

Formatting Cells:

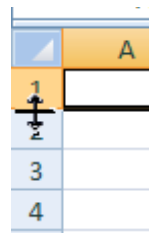
The cell width and height will usually need to be adjusted to view all the

information entered into a cell.

To adjust the cell width, move the mouse pointer in between two cell columns in the column header. Hold down the left mouse button and drag the mouse left to shorten the width or right to expand the width. Notice that all cells within the column are automatically adjusted.



Adjust the cell height using the same method. Move the mouse cursor between two rows, hold down the left mouse button and move the mouse up to decrease the height and down to increase the height.

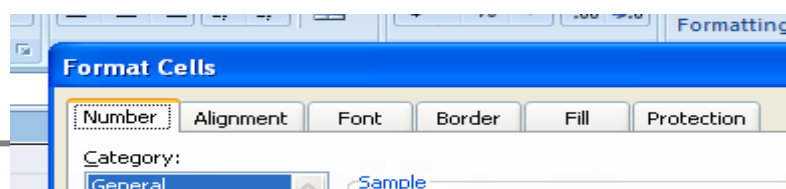


Before you begin entering data into a spreadsheet, you may already know the width and height you want your cells to have. In this case, you can adjust all the widths and heights by doing the following:

Select the “square” between Column A and Row 1. This will select ALL the cells in the spreadsheet. From the “Home” tab of the Ribbon Menu, within the “Cells” box, click on “Format,” and select Row Height. You will now be asked to enter a numerical value for height. The default value is 15, but you can enter your own height value (10, 20, 25, etc.).

Repeat the same steps for Column width. From the “Home” tab of the Ribbon Menu, within the “Cells” box, click on “Format,” and select Column Width. Note that the default value for the width is 8.43. Enter your own width value (5, 10, 15, 20, etc.)

For any given cell or selected cells, you can also format the way your data is represented within the cell(s). Select a single cell or multiple cells. Again, from the “Home” tab of the Ribbon Menu, within the “Cells” box, click on “Format.” Select “Format Cells.” The format window will now appear, giving you a wide variety of options on how to format your cell.



Number – This allows you to choose how to represent the numbers that are entered into a cell (number, currency, time, etc.).

Alignment – This determines how the data will be aligned within the cell (left-side, centered, or right-side).

Font – Select the type of font to be used within the cells.

Border – This option lets you choose what type of border, if any, you would like around the cells or some of the cells.

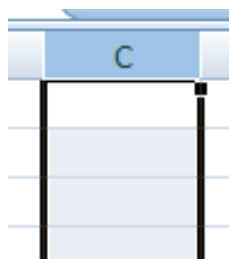
Fill – This allows you to change the background color of the cell.

Protection – This option allows you to “lock” cell information so that other users cannot make changes.

To select an entire row, click on the Row Number with your mouse—note how the entire row becomes highlighted. All formatting changes will now be applied to the whole row.



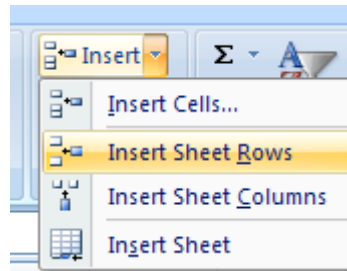
To select an entire column, click on the Column Number with your mouse— again, the entire column will become highlighted. All formatting changes will be applied to the whole column.



Inserting Rows and Columns:

When you are working on a spreadsheet, you may realize that you left out a row or column of data and need to add it in.

To insert a row, click on the row below where you want your new row to be (remember to click on the row number to highlight the entire row). From the “Home” tab, within the “Cells” box, click “Insert.” Select “Insert Sheet Rows.” A new row will automatically be inserted and the row numbers automatically adjusted.



To insert a column, click on the column to the right of where you want your new column to be (remember to click on the column letter to highlight the entire column). From the “Home” tab, within the “Cells” box, click “Insert.” Select “Insert Sheet Columns.” A new column will automatically be inserted and the column letters automatically adjusted.

PRACTICE:

Enter the data as shown in the screenshot below.

	A	B
1	rent	450
2	water	30
3	electric	70
4	gas	50
5	food	250
6	phone	50

Now let's insert a heading. Insert a row above row 1. In cells A1 and B1 enter Bill and January.

	A	B
1	Bill	January
2	rent	450

Sorting Data:

Once you have created your spreadsheet and entered in some data, you may want to organize the data in a certain way. This could be alphabetically, numerically, or another way.

First, select all the cells that represent the data to be sorted, including the header descriptions by selecting cell A1 and click and dragging down and to the right until all the cells you want to sort are selected.

Using the mouse, select Sort & Filter from the Editing panel. Select Custom Sort... The following window should appear: Ensure that the “My data has headers” box is checked.

Select the column you wish to sort by. Do you want to sort by alphabetical order, reverse alphabetical order, least to greatest number, etc.? When you press “OK,” your spreadsheet will be sorted in the order that you specified.

PRACTICE:

Select all the data on your worksheet (cells A1 through B7) and go to the Custom Sort menu. Ensure that “My data has headers” is checked. Choose to sort by Bill and click OK. Your list should now be sorted alphabetically.

	A	B
1	Bill	January
2	electric	70
3	food	250
4	gas	50
5	phone	50
6	rent	450
7	water	30

Basic Formulas:

Excel can calculate basic equations like addition, subtraction, multiplication, and division. Let’s say you just want to add two numbers, with the answer appearing in a particular cell. (As you may remember, all formulas begin with an = sign. This lets Excel know that you are entering a formula.)

To write a formula that adds two numbers together (for example, $181 + 376$):

1. Click on the cell where you want the answer to the equation to appear.
2. Begin by typing the = sign.
3. Type the numbers you want to add separated by the + sign (without spaces): $181+376$.

Your entire equation should look like this:

=181+376

	A	B	C
1			
2		=181+376	
3			
4			

Press the Enter key.

You will now see the sum appear in the cell – in this case, 557.

You can repeat these steps for subtraction, multiplication, or division too. Instead of the plus sign (+), use - for subtraction, * for multiplication, and / for division.

Cell References:

What if you want to be able to add numbers in two different cells, but those numbers might change and you don't want to have to retype your equation every time they do? In situations like this, you can use cell references within your equation. This tells Excel to use whatever value is in a specific cell to calculate the equation. That way, if the number in one of the cells does change, your equation will automatically recalculate the answer.

In the example to the right, we want to add the contents of cells B3 and B4 (181 + 376). We could write our formula the way we did above, but then if we changed the value in cell B3 to 200, our equation wouldn't reflect the sum of these two cells anymore. We would have to update the equation manually.

	A	B	C
1			
2			
3		181	
4		376	
5		=B3+B4	
6			

Instead, we can write our equation using the names of the cells rather than the numbers in them. The name of a cell is its column letter and its row number (A2, C3, etc.). To write a formula using cell references:

1. Type the numbers you want to add in two different cells.
2. Click on the cell where you want the answer to the equation to appear.

3. Begin the equation by typing the = sign.
4. Either click on or type in the name of the cell with the first number to be added (in this example, B3).
5. Type the + sign.
6. Either click on or type in the name of the cell with the second number to be added (in this example, B4). Your equation should look like this:
`=B3+B4`
7. Press the Enter key.
8. You will now see the answer appear in the cell – in this example, 557.

Now, if you changed the value of cell B3 to 200, the answer that appears in the cell where you typed your equation will be 576 (200+376). It automatically recalculates when one of the numbers in a referenced cell changes.

Once you have entered your equation, when you click on the cell with that equation it will highlight the cells it is referencing by drawing colored borders around them (see the example above). This helps you see if it is using the cells you want it to use or if you have made a mistake in typing the formula.

AutoSum and Excel Equations:

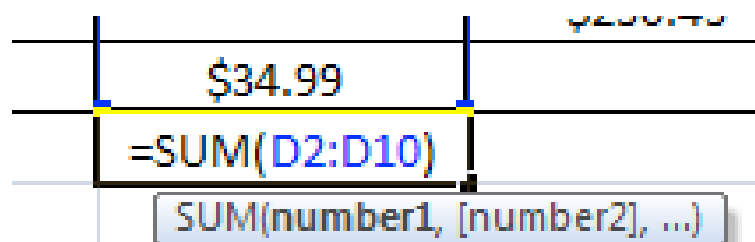
One of the most powerful features of Excel is its ability to perform basic math functions on data. Excel can add, subtract, multiply, divide, find the average, and perform general counting functions on the numerical data that you enter. To enable this feature, highlight all of the cells in a column, plus one additional empty cell in which to display the result.

Select the AutoSum icon from the ribbon menu:



If you click directly on the Σ, Excel will automatically add up the numbers you have selected. If you click on the little dropdown arrow next to it (▼), you will get the full choice of mathematical functions.

If you double-click on the cell in which the answer appears, you will see an equation that looks something like this (you will also see this equation in the Formula bar):



Let's break down what exactly the equation means:

= indicates that you are starting an equation in this cell.

SUM tells the function to be performed. In this case, all the cells will be added together.

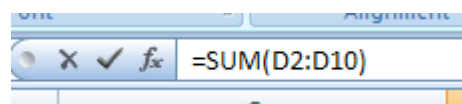
() The parentheses contain the cells that the function will be performed on.

D2 This is the first cell to be included in the addition formula.

D10 This is the last cell to be included in the addition formula.

: indicates that all cells between the first and the last should be included in the formula.

The spreadsheet will often “select” the cells that it thinks you wish to include. But you can manually change the cell range by typing into the Formula bar.



When you are ready to execute the formula, just press the “Enter” key.

Other mathematical functions you can perform from the AutoSum button include:

Average – This function will calculate the average of the selected cells. Count

Numbers – This function simply counts the number of cells selected.

Max – This function will return the highest value of the selected cells.

Min – This function will return the lowest value of the selected cells.

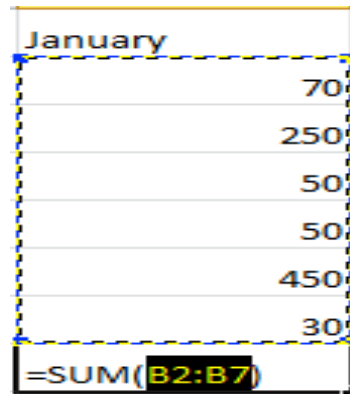
Remember Excel equations are similar to programming languages, so have some patience and if at first you don't succeed, try again. Even Excel professionals create incorrect formulas on their first try.

Once you get an equation to work, you will technically be a computer programmer!

PRACTICE:

Select cell B8. Click the AutoSum button. Excel will highlight the amounts in cells B2:B7. Click Enter to accept this. The total amount now appears in cell B8. Now

change the amount of electric to \$90. Note that the total price changes automatically.



January
70
250
50
50
450
30
=SUM(B2:B7)

CLOSING MICROSOFT EXCEL:

Saving Spreadsheets:

When you finish your spreadsheet and want to leave the computer, it is important to save your work, even if you are printing a hard copy. To save your work in Excel, it is essential to know **WHAT** you are trying to save and **WHERE** you are trying to save it.

Click the Office Button, then hover your mouse over Save As. Select Excel Workbook.

You can change the filename that Excel has chosen just by typing a new one in the “File name” box at the bottom of the window that appears.

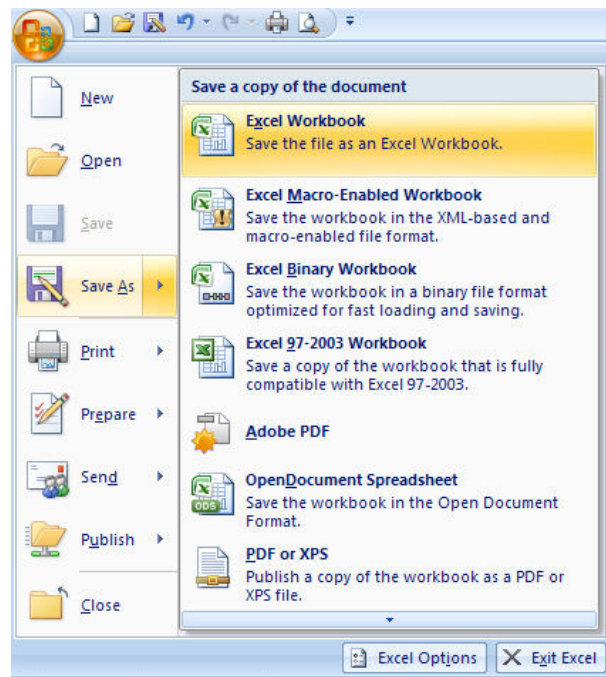
The My Documents folder on your computer’s hard drive is a good place to store your documents. A blank CD or a USB jump drive are great portable storage options and can contain a LOT of data.

Excel will automatically save your document with the suffix “.xls”—this is simply a tag that lets Excel know that your work is specific to this program and what version it is in. You do not have to type it—just highlight what is there (default is “Book1”) and write a new file name. You may also chose to save it in an older format so that it can be opened with older versions of Excel.

After the first save, you can just click “Save” to preserve your work. However, it is important to note that every following command of SAVE will overwrite your original file, creating the most up-to-date version.

If you would like to keep saving different versions of your worksheet, be sure to

use the “Save As” function each time you save, using a slightly different name for each version.



Printing Spreadsheets

To print your Excel document, click on the Office Button, then click “Print” from the menu. From the window that pops up, you can make changes to your print job and release it.

As with all commands in Excel, you can make changes along the way. You can change the number of copies you would like to print, change the paper orientation, choose which printer you want to use, and more.

Other useful tools are the Print Preview function found alongside the Print command and the Page Setup function. Print Preview will allow you to look over an exact copy of what will come out of the printer before actually executing the print command. Page Setup will allow you to select the page order in which multiple pages will be printed and to determine if the Gridlines should be printed or not.

Finding More Help

You can get help with Excel by clicking on the Question Mark symbol in the upper-right hand corner of the main menu bar or by pressing the “F1” button. This will take you to help from Office.com, Microsoft’s help website.

There are also many other resources and tutorials available online. You might try a Google search with the words “Excel 2010” and the function you are trying to perform. Ask your instructor for help finding these resources if you have any trouble.

Closing the Program

Click on the Office Button, then click “Exit.” OR

Click on the X in the top right corner of the Excel screen.

It’s that easy! If you don’t save before attempting to close the program, Excel will prompt you to save the file. Make sure you save if you don’t want to lose any changes!!

PRESENTATION PROGRAMME:

A presentation program is a software used to display information in the form of a slide show. It has three major functions: an editor that allows text to be inserted and formatted, a method for inserting and manipulating graphic images, and a slide-show system to display the content. Presentation software can be viewed as enabling a functionally-specific category of electronic media, with its own distinct culture and practices as compared to traditional presentation media.

Presentations in this mode is very common in almost every field of life in this new era throughout the globe. The presentations in this form are pervasive in all aspects of business communications, especially in business planning, as well as in academic conferences and professional conferences, in socio-political events and in the knowledge sharing.

Most modern meeting rooms and conference halls are configured to include presentation electronics, such as overhead projectors suitable for displaying presentation slides, often driven by the presenter's own laptop, under direct control of the presentation program used to develop the presentation. Often the presenter will present a lecture using the slides as a visual aid for both the presenter (to track the lecture's coverage) and the audience (especially when an audience member mishears or misunderstands the verbal component).

In Microsoft Office we have Microsoft PowerPoint 2007 that is an example of a “Presentations” and we are going to take here MS PowerPoint 2007 2007 and show you the basic functions and operations pictorially.

Microsoft Office PowerPoint 2007 enables users to quickly and easily create high-impact, vibrant slide presentations. PowerPoint 2007 has powerful graphics capabilities and great formatting features that enable even the novice to create

professional looking presentations. The user interface has been redesigned with the intent of making the tools you need easier to find and help you give your presentation a professional and consistent look throughout.

The new PowerPoint environment has been designed so that its powerful features are easier to find when you need them. This design reflects the way in which people generally work within the program. In previous versions, commands were primarily located in a Menu list. In PowerPoint 2007 the commands are displayed on the Ribbon for easy access. Commands are represented as Buttons on a toolbar. The term Buttons replace the term Icon in previous versions.

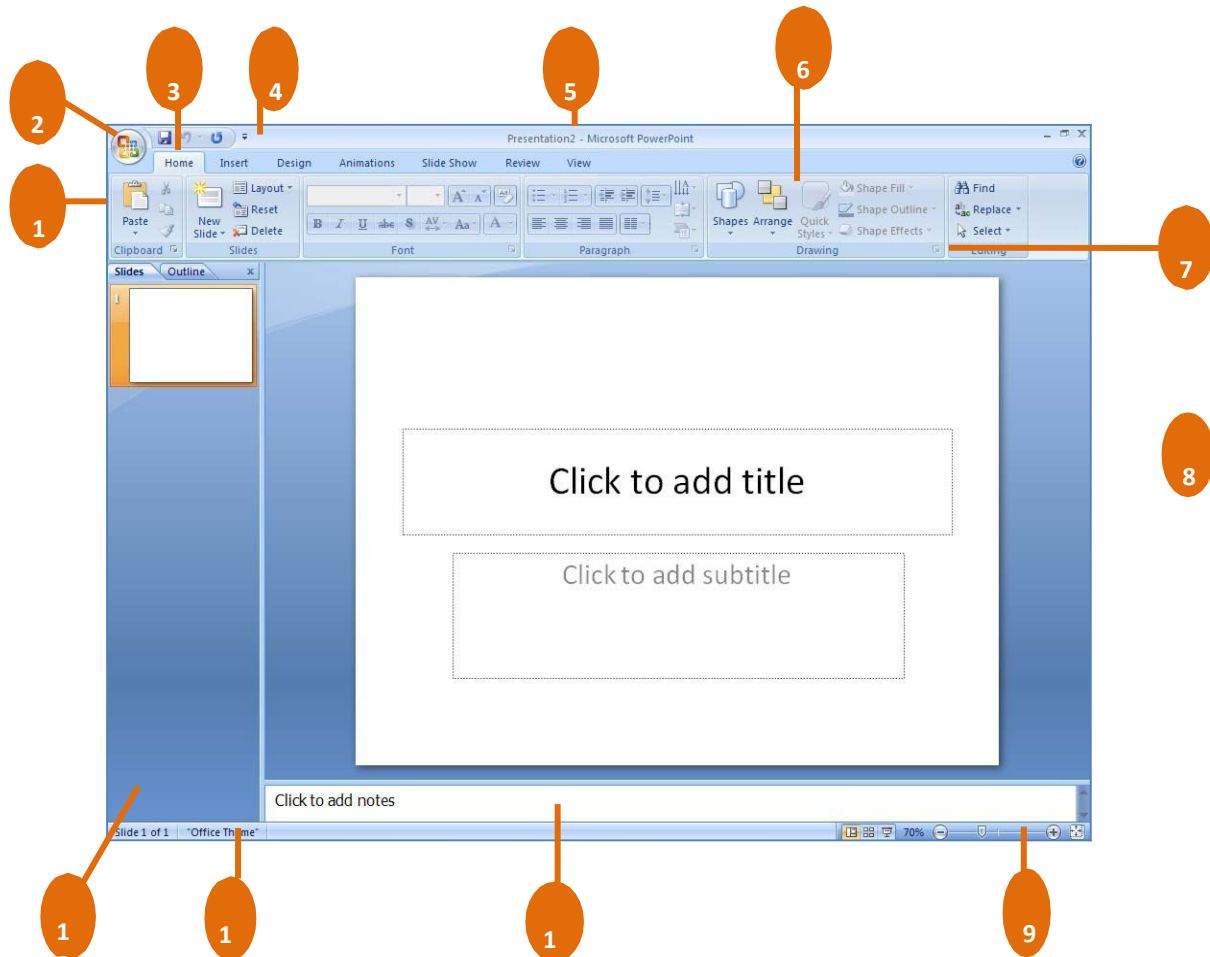
- Commands are arranged on tabs, grouped according to the task you want to accomplish. Commands are arranged on background tabs that become visible only when they are needed.
- Tabs are designed to be task-oriented.

Groups within each tab break a task into subtasks

Here will provide you with step-by-step instructions on how to use some of the new tools.

STARTING UP POWERPOINT 2007

- Click on the Start button, located in the lower left corner of the Windows task bar.
- Point to All programs, click Microsoft Office.
- Select Microsoft Office PowerPoint 2007.
- PowerPoint 2007 will open displaying a blank slide like below.



1. **Ribbon:** An area across the top of the screen that makes almost all the capabilities of PowerPoint available in a single area. The Ribbon replaces the menus and toolbars in previous versions. The Ribbon exposes most of the feature that use to be hidden in menus. The Ribbon makes it easier to see and find commands to format your document.

NOTE: The **Ribbon** can be reduced to a single line of tabs by pressing CTRL + F1.

2. **Microsoft Office Button:** A button that provides access to menu commands in PowerPoint.



The Microsoft Office Button is located in the upper-left corner of the window. This button manages the following PowerPoint commands: Open, Save, Print, Recent Documents, and replaces the File button in previous versions. At the bottom of the menu are buttons for changing PowerPoint Options and Exiting PowerPoint. Many of the options available in the PowerPoint Options menu are located in the Tools menu in previous versions.

Tip: Press the **ESC** key or click away from menu to close.

3. **Tab:** An area on the Ribbon that contains buttons organized in groups. The default tabs are Home, Insert, Design, Animations, Slide Show, Review and View.
4. **Quick Access Tool Bar:** A customizable toolbar at the top of an active document. By default the Quick Access Tool Bar displays the Save, Undo, and Repeat buttons and is used for easy access to frequently used commands.

The Quick Access Toolbar is located to the right of the Microsoft Office Button and was designed for easy access to frequently used commands. The Quick Access Toolbar can be customized to add such commands as Print and Spell Check.

5. **Title Bar:** A horizontal bar at the top of an active document. This bar displays the name of the presentation and application. At the right end of the Title Bar, as in previous versions is the Minimize, Restore and Close buttons.
6. **Groups Categories:** A Group of buttons on a tab that are exposed and easily accessible. These buttons were formally embedded in menus on the Menu Bar in the previous versions.
 - The Home tab is organized in Seven groups mainly related to slide layout and formatting: Clipboard, Slides, Font, Paragraph, Drawing, and Editing. For example, the Home tab will allow you to quickly create a new slide, choose a layout, add and format text and shapes.
 - The Insert tab is organized in Five groups: Tables, Illustrations, Links, Text, and Media Clips. Here you find all objects you would include with your slides, such as tables, pictures, diagrams, charts, text boxes, sounds, hyperlinks, headers and footers.
 - The Design tab is organized in Three groups: Page Setup, Themes, and Background. The Themes group command allows you to completely change the look of your presentation. This includes the colors, background and fonts.
 - The Animations tab is organized in Three groups: Preview, Animations, and Transition to this Slide. Here is where you find the tools to set the animating effects to your presentations and slide

transitions.

- The Slide Show tab is organized in Three groups: Start Slide Show, Setup, and Monitors. Here is where you prepare your presentation, add narration, choose which slide to start with and set up the view when multiple monitors are involved.
- The Review tab is organized in Three groups: Proofing, Comments, and Protect. Here is where you will find your spelling and grammar checker, in addition to this when you have someone review your presentation this is where comments can be added and addressed.
- The View tab is organized into Six groups: Presentation Views, Show/Hide, Zoom, Color/Gray scale, Window, and Macros. Here you can change the display of your presentations, make a quick switch to Notes Page view, turn on gridlines, or arrange all your open presentations in the window.

7. **Dialog Box Launcher:** A button that launches a dialog box containing options for refining a command.

8. **Slide Pane:** Workspace to create, edit or format, slides.

9. **View Toolbar:** A toolbar found at the bottom right of the PowerPoint window that enables, adjusts, and displays different views of a presentation's content.



10. **Notes Pane:** Where you type your presentation notes that apply to the slide. You can print your notes and refer to them when you give your presentation or handout to your audience.

11. **Status Bar:** A horizontal bar at the bottom left of the PowerPoint window that gives details about the active presentation.

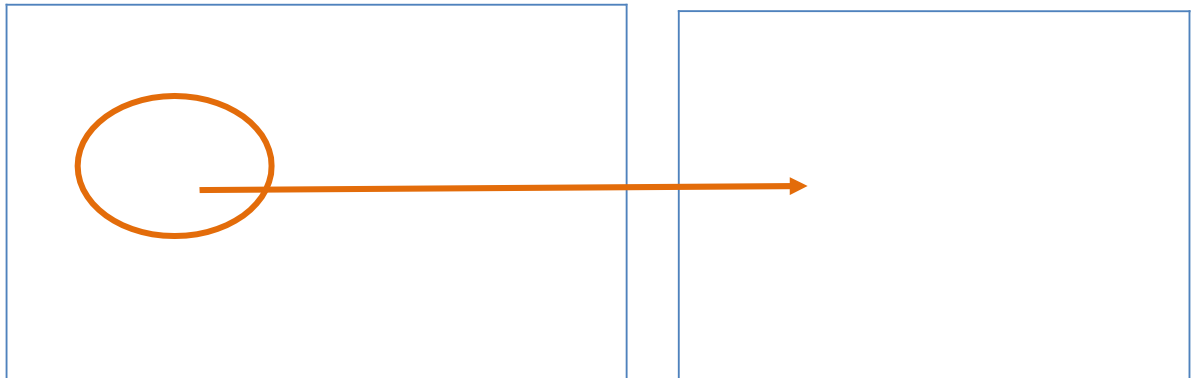


Slides and Outline Tab Pane: Slide tab allows you to view slides thumbnail-sized making it easy for you to navigate through your presentation and to see the effects of any design changes. You can also easily rearrange, add, or delete slides here.

Outline tab is where you can start writing content. Capture ideas, plan how to present them, and move slides and text around. The Outline tab shows your slide text in outline form.

CREATING A NEW PRESENTATION

1. Click Microsoft Office Button
2. Click New, New presentation screen appears
3. Double-Click on Blank Presentation



OPENING AN EXISTING PRESENTATION:

1. Click the Microsoft Office Button.
2. Click Open.
3. In the Open dialogue box, navigate to the folder that contains the file you want to open, and then double-click the file.

CREATING A NEW SLIDE:

There are three ways to add a slide in PowerPoint.

1. On the Home tab, in the Slides group, click New Slide.
2. Right-click on the slide from the slides tab and select New Slide on the pop-up menu.
3. Click on a slide from the slides tab and hit the enter key.

DELETING A SLIDE:

1. Right-click the slide that you want to delete.
2. Click Delete Slide.

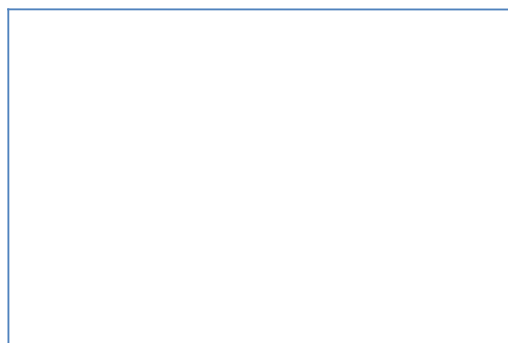
CHANGING THE ORDER OF THE SLIDES:

1. In the Outline and Slides tab Pane, click the Slides tab.
2. Click on the slide thumbnail that you want to move, and then drag them to their new location.

Tip: To select multiple sequential slides, click the first slide, and then hold down SHIFT while you click the last slide that you want to select. To select multiple non-sequential slides, hold down CTRL while you click each slide that you want to select.

ADDING TEXT TO A SLIDE:

Slide layouts contain placeholders. The dotted border represents placeholders; just click inside the border and you can add text or insert objects. The slide's layout will determine the position and size of placeholders.



1. Click inside a text placeholder.
2. Type or Paste the Text.

Note - If your text exceeds the size of the placeholder, PowerPoint reduces the font size and line spacing incrementally as you type, to make the text fit.

FORMATTING TEXT:

Mini Toolbar is activated when you select text to be formatted. This toolbar is miniature and semi-transparent to help you work with fonts, font styles, font sizing, alignment, text color, indent levels, and bullet features.

Live Preview temporarily applies formatting on select text or objects whenever a formatting command is hovered. This allows you to quickly see how the formatting options will look in place before they are made.

CHOOSING A LAYOUT FOR A NEW SLIDE:

1. From the Outline and Slides tab Pane, Click on the slide you are selecting a new layout.
2. On the Home tab, in the Slides group, click Layout.
3. Click Layout Style of your choice.

SELECTING A THEME FOR YOUR PRESENTATION:

On the Design tab, in the Themes group, click the document theme that you want, or click more  to see all available document themes.

TIP - You can apply a theme to all slides, to selected slides only, or to the master slide. Just right-click the document theme and then click the option that you want.

INSERTING OBJECTS INTO YOUR PRESENTATION

Inserting Pictures Into Your Presentation:

1. From Insert Tab, in Illustrations Group, click Picture.
2. Double-Click Folder where picture is stored

Double-Click on picture you want to insert

Inserting Clip Art Into Your Presentation

1. From Insert Tab, in Illustrations Group, click Clip Art.
2. Search field will appear. Enter keyword in Search for field.
3. Click Go.
4. Results appear, click on image you choose then drag image into your open slide.

Note - Once Picture or Clip Art is inserted, if you want to resize it or give it special effects. Click on the image and the Picture Tools appear on the Ribbon. Click the Format tab, and use buttons and options there to work with the picture.

Inserting Shapes Into Your Presentation:

Home tab, in the Drawing group, click Shapes.

Note - Once your shape is inserted, if you want to resize it or give it special effects. Click on the shape and the Drawing Tools appear on the Ribbon. Click the Format tab, and use buttons and options there to work with the shape.

Inserting Charts Into Your Presentation:

Inserting Charts created in Excel:

If you already have created a chart in Excel from an existing spreadsheet...

1. In Excel, select the chart by clicking its border.
2. From the Home Tab Clipboard group, click Cut.
3. In PowerPoint, click in the placeholder on the slide or notes page that you want to insert the chart.
4. On the Home tab, in the Clipboard group, click Paste.

Inserting a Chart from within PowerPoint

1. In PowerPoint, click slide that you will insert chart.
2. On the Insert tab, in the Illustrations group, click Chart.
3. In the Insert Chart dialog box, click chart, then click OK.

Office Excel 2007 opens in a split window and displays sample data on a worksheet

1. In Excel, to replace the sample data, click a cell on the worksheet.
2. Type your data that you want.

Note - After you update the worksheet, the chart in PowerPoint will be updated automatically with the new data.

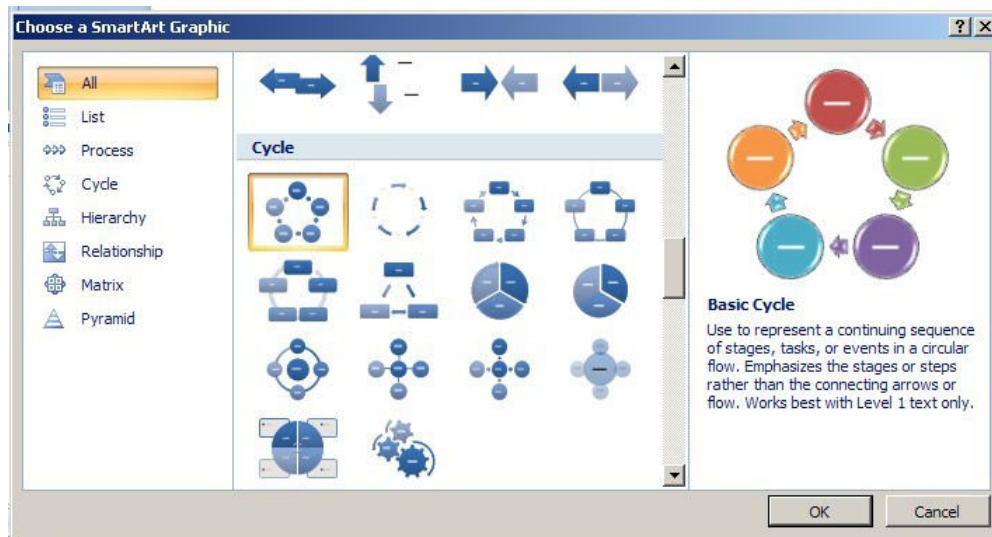
1. In Excel, click the Microsoft Office Button, and then click Save As.
2. In the File name box, type a new name for the file.
3. Click Save.
4. In Excel, on the File menu, click Close.

Inserting SmartArt Graphics:

On the Insert tab, in the Illustrations group, click SmartArt.

1. In the Choose a SmartArt Graphic dialog box, click the type and layout that you want.
2. Enter your text by doing one of the following:
 - a) Click in a shape in your SmartArt graphic, and then type your text.
 - b) Click Text in the Text pane and then type or paste your text.
 - c) Copy text from another program, click Text, and then paste into the Text pane.

A SmartArt graphic is a visual representation of your information that you can quickly and easily create, choosing from among many different layouts, to effectively communicate your message or ideas.



Overview Of Creating A Smart art Graphic

When you create a SmartArt graphic, you are prompted to choose a type of SmartArt graphic, such as Process, Hierarchy, Cycle, or Relationship. A type is similar to a category of SmartArt graphic, and each type contains several different layouts.

Before you create your SmartArt graphic, visualize what type and layout will work best for displaying your data. Your graphic should be clear and easy to follow. The table is intended to help you get started; this is not a complete list.

Purpose of Graphics	Type
Non-Sequence Information	List
Steps or Timeline	Process
Continuous Process	Cycle
Decision Tree	Heirarchy
Organization Chart	Heirarchy
Illustrate Connections	Relationship
Show How Parts Relate to the Whole	Matrix
Proportional Relationships	Pyramid

APPLYING SIMPLE ANIMATION TO YOUR PRESENTATION:

From the Animation Tab PowerPoint 2007 enables you to easily apply animation effects to make your presentation more appealing. You can choose to

have your slides fade-in or dissolve. In addition to this, you can control the timing of the transition from slide to slide and how the transitions will occur. Just go to the Animation tab, click on the slide you wish to add the animation and select an option.

The finishing tasks for creating your presentation are located on the Slide Show and Review Tabs. Use the Slide Show tab to create narration, set-up views, and multiple monitors. The Review tab is for spell check and reviewing comments.

REVIEW AND PREVIEW YOUR PRESENTATION

Check The Spelling In Your Presentation:

Even though the spelling checker is turned on automatically in Office PowerPoint 2007, it is still a good idea to check spelling again after you finish working on your presentation:

1. Through the slides tab, navigate to the beginning of your presentation by clicking on your first slide.
2. On the Review tab, in the Proofing group, click Spelling.

If Office PowerPoint 2007 finds spelling mistakes, it displays a dialog box, and the first misspelled word found by the spelling checker is selected. You indicate how you want to resolve each error that the program finds. After you resolve each misspelled word, the program selects the next one, and so forth.

PREVIEW YOUR PRESENTATION AS A SLIDE SHOW

To view your presentation on your computer screen exactly the way that it will look to your audience when you are presenting, do the following:

On the Slide Show tab, in the Start Slide Show group, do one of the following:

1. To start with the first slide in the presentation, click From Beginning.
2. To start with the slide that currently appears in the Slide pane, click From Current Slide.
3. The presentation opens in Slide Show view.
4. Click to advance to the next slide.

Tip- To return to Normal view at any time, press ESC.

Of course, you can also preview your presentation at any time while you are

creating it.

KEYBOARD SHORTCUTS FOR PRESENTATIONS:

To move the insertion point	Press....
Start a presentation from the beginning.	F5
Perform the next animation or advance to the next slide.	N, Enter, Page Down, Right Arrow, Down Arrow, Or Spacebar
Perform the previous animation or return to the previous slide.	P, Page Up, Left Arrow, Up Arrow, Or Backspace
Go to slide number.	Number+Enter
Display a blank black slide, or return to the presentation from a blank black slide.	B Or Period
Display a blank white slide, or return to the presentation from a blank white slide.	W Or Comma
Stop or restart an automatic presentation.	S
End a presentation.	Escape Or Hyphen
Erase on-screen annotations.	E
Go to the next slide, if the next slide is hidden.	H
Set new timings while rehearsing.	T
Use original timings while rehearsing.	O
Use mouse-click to advance while rehearsing.	M
Return to the first slide.	1+Enter
Redisplay hidden pointer and/or change the pointer to a pen.	Control+P
Redisplay hidden pointer and/or change the pointer to an arrow.	Control+A
Hide the pointer and navigation button immediately.	Control+H
Hide the pointer and navigation button in 15 seconds.	Control+U
Display the shortcut menu.	Shift+F10
Go to the first or next hyperlink on a slide.	Tab
Go to the last or previous hyperlink on a slide.	Shift+Tab
Perform the "mouse click" behavior of the selected hyperlink.	Enter while a hyperlink is selected

SAVING AND CONVERTING

Saving A New Presentation:

1. Click on Microsoft Office Button.
2. Click Save-As.
3. In the File name type the name of the presentation.
4. Click Save.

Note - If you need to save in a different location click the down arrow on the right end of the save in box and then choose your location.

Converting A Presentation:

To work with presentations created in earlier versions and convert them to the newer version.

1. Open the Presentation
2. Save it by using Save As.
3. Click on the PowerPoint Presentation format.

Compatibility

PowerPoint 2007 also gives you an opportunity to run a file through Compatibility Checker before you save a presentation to an older format.

1. Click the Microsoft Office Button.
2. Click Prepare.
3. Click Run Compatibility Checker.

Printing Handouts And Notes Pages:

You can print your notes pages with a slide thumbnail to help you prepare for your presentation and you can print handouts for your audience.

Note- You can print only one slide thumbnail with notes per page when printing Notes Pages.

1. Click the Microsoft Office Button, click the arrow next to Print, and then click Print Preview.
2. In the Page Setup group, click the arrow under the Print What box, and then click Notes Pages to print notes and select Handouts to print handouts.
3. To specify the page orientation, click the arrow under Orientation, and then click Portrait or Landscape.
4. Click Print.

Note- If you want to print your notes and slide thumbnails in color, select a color

printer. Click the Microsoft Office Button, click the arrow next to Print, and then click Print Preview. Under Print, click Options, point to Color/Gray scale, and then click Color.

Unit 6

Programing Fundamentals

Objectives:

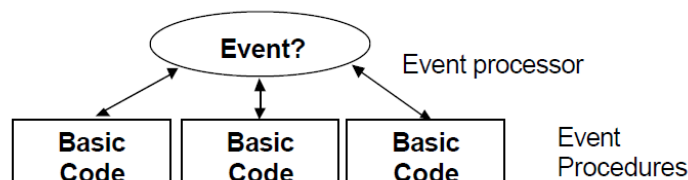
In this Chapter you will learn about:

- VB Basics
- Visual Basic Loops
- Visual Basic Functions
- Forms



What is Visual Basic?

- Visual Basic is a tool that allows you to develop Windows (Graphic User Interface - GUI) applications. The applications have a familiar appearance to the user.
- Visual Basic is event-driven, meaning code remains idle until called upon to respond to some event (button pressing, menu selection, ...). Visual Basic is governed by an event processor. Nothing happens until an event is detected. Once an event is detected, the code corresponding to that event (event procedure) is executed. Program control is then returned to the event processor.



Some Features of Visual Basic:

- ✓ Full set of objects - you 'draw' the application
- ✓ Lots of icons and pictures for your use
- ✓ Response to mouse and keyboard actions
- ✓ Clipboard and printer access
- ✓ Full array of mathematical, string handling, and graphics functions
- ✓ Can handle fixed and dynamic variable and control arrays
- ✓ Sequential and random access file support
- ✓ Useful debugger and error-handling facilities
- ✓ Powerful database access tools
- ✓ ActiveX support

- ✓ Package & Deployment Wizard makes distributing your applications simple

Structure of a Visual Basic Application:

Application (Project) is made up of:

- Forms - Windows that you create for user interface
- Controls - Graphical features drawn on forms to allow user interaction (text boxes, labels, scroll bars, command buttons, etc.) (Forms and Controls are objects.)
- Properties - Every characteristic of a form or control is specified by a property. Example properties include names, captions, size, color, position, and contents. Visual Basic applies default properties. You can change properties at design time or run time.
- Methods - Built-in procedure that can be invoked to impart some action to a particular object.
- Event Procedures - Code related to some object. This is the code that is executed when a certain event occurs.
- General Procedures - Code not related to objects. This code must be invoked by the application.
- Modules - Collection of general procedures, variable declarations, and constant definitions used by application. Steps in Developing Application

There are three primary steps involved in building a Visual Basic application:

1. Draw the user interface
2. Assign properties to controls
3. Attach code to controls

We'll look at each step.

1. Drawing the User Interface and Setting Properties

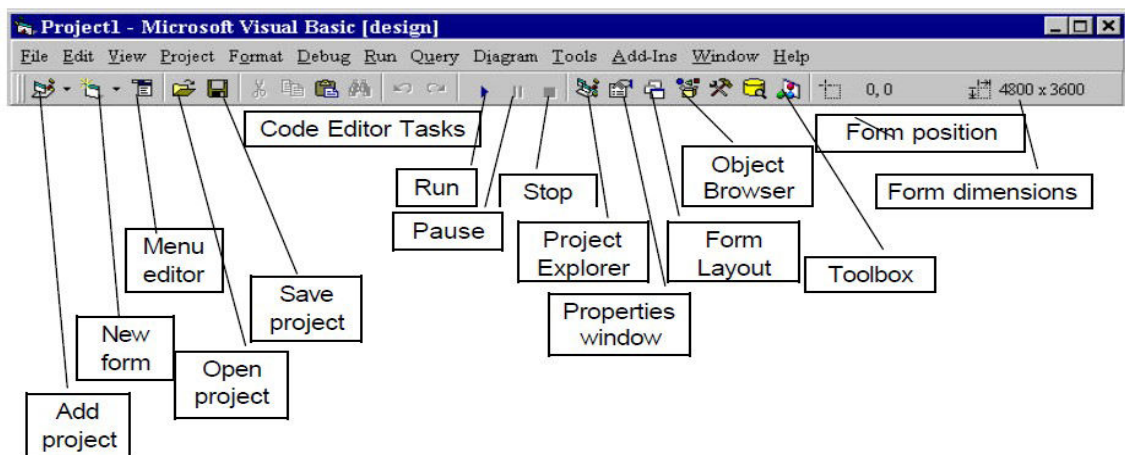
- Visual Basic operates in three modes.
 - Design mode - used to build application
 - Run mode - used to run the application
 - Break mode - application halted and debugger is available

We focus here on the design mode.

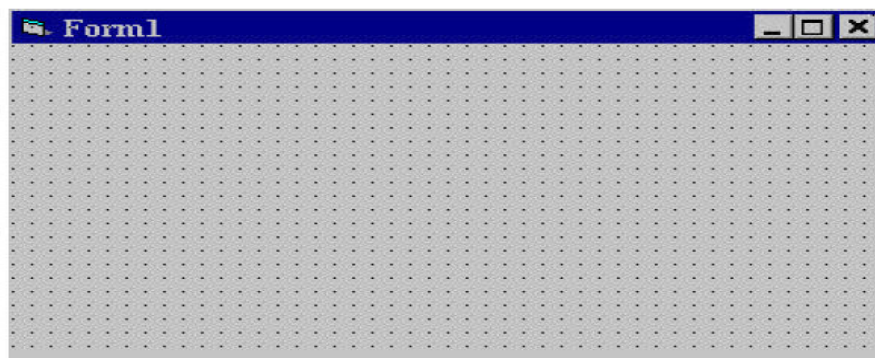
2. Six windows appear when you start Visual Basic.

- The **Main Window** consists of the title bar, menu bar, and toolbar. The title bar indicates the project name, the current Visual Basic operating mode, and the current form. The menu bar has drop-down menus from which you control the operation of the Visual Basic environment. The

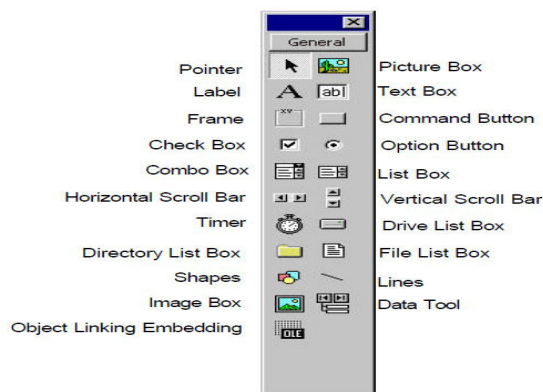
toolbar has buttons that provide shortcuts to some of the menu options. The main window also shows the location of the current form relative to the upper left corner of the screen (measured in tips) and the width and length of the current form.



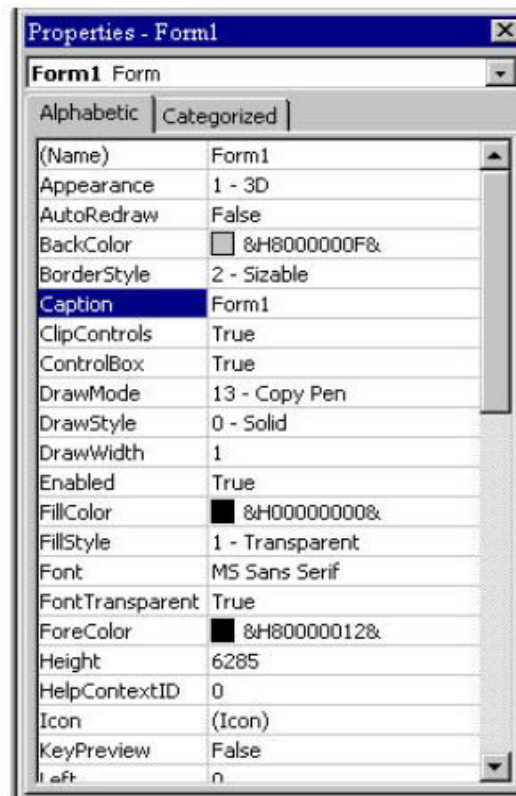
- The **Form Window** is central to developing Visual Basic applications. It is where you draw your application.



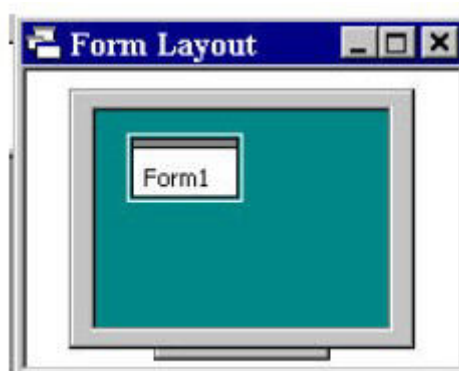
- The **Toolbox** is the selection menu for controls used in your application.



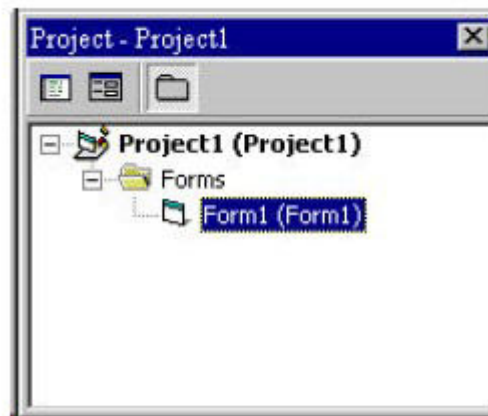
- The **Properties Window** is used to establish initial property values for objects. The drop-down box at the top of the window lists all objects in the current form. Two views are available: Alphabetic and Categorized. Under this box are the available properties for the currently selected object.



- The **Form Layout Window** shows where (upon program execution) your form will be displayed relative to your monitor's screen:

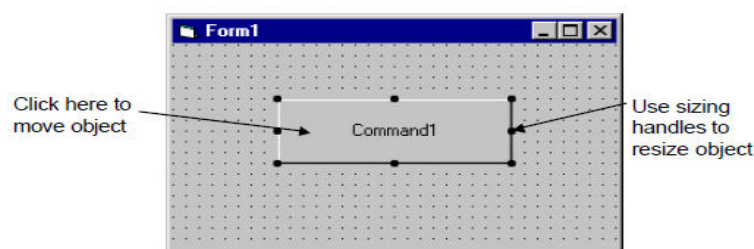


- The **Project Window** displays a list of all forms and modules making up your application. You can also obtain a view of the Form or Code windows (window containing the actual Basic coding) from the Project window.



As mentioned, the user interface is ‘drawn’ in the form window. There are two ways to place controls on a form:

1. Double-click the tool in the toolbox and it is created with a default size on the form. You can then move it or resize it.
 2. Click the tool in the toolbox, then move the mouse pointer to the form window. The cursor changes to a crosshair. Place the crosshair at the upper left corner of where you want the control to be, press the left mouse button and hold it down while dragging the cursor toward the lower right corner. When you release the mouse button, the control is drawn.
- To **move** a control you have drawn, click the object in the form window and drag it to the new location. Release the mouse button.
 - To **resize** a control, click the object so that it is select and sizing handles appear. Use these handles to resize the object.



Variables in VB:

Variables are used by Visual Basic to hold information needed by your application. Rules used in naming variables:

- No more than 40 characters
- They may include letters, numbers, and underscore (_)

- The first character must be a letter
- You cannot use a reserved word (word needed by Visual Basic)

Visual Basic Data Types

Data Type	Suffix
Boolean	None
Integer	%
Long (Integer)	&
Single (Floating)	!
Double (Floating)	#
Currency	@
Date	None
Object	None
String	\$
Variant	None

Variable Declaration

There are three ways for a variable to be typed (declared):

1. Default
2. Implicit
3. Explicit

If variables are not implicitly or explicitly typed, they are assigned the variant type by default. The variant data type is a special type used by Visual Basic that can contain numeric, string, or date data.

Visual Basic Statements and Expressions:

The simplest statement is the assignment statement. It consists of a variable name, followed by the assignment operator (=), followed by some sort of expression.

Examples:

StartTime = Now

Explorer.Caption = "Captain Spaulding"

BitCount = ByteCount * 8

Energy = Mass * LIGHTSPEED ^ 2

NetWorth = Assets - Liabilities

The assignment statement stores information.

- Statements normally take up a single line with no terminator. Statements can be stacked by using a colon (:) to separate them. Example:

StartTime = Now : EndTime = StartTime + 10

(Be careful stacking statements, especially with If/End If structures. You may not get the response you desire.)

- If a statement is very long, it may be continued to the next line using the continuation character, an underscore (_). Example:

Months = Log(Final * IntRate / Deposit + 1) / Log(1 + IntRate)

- Comment statements begin with the keyword Rem or a single quote ('). For example:

```
Rem This is a remark
' This is also a remark
x = 2 * y ' another way to write a remark or comment
```

You, as a programmer, should decide how much to comment your code. Consider such factors as reuse, your audience, and the legacy of your code.

Visual Basic Operators:

➤ The simplest operators carry out arithmetic operations. These operators in their order of precedence are:

Operator	Operation
^	Exponentiation
* /	Multiplication and division
\	Integer division (truncates)
Mod	Modulus
+ -	Addition and subtraction

➤ Parentheses around expressions can change precedence.

➤ To concatenate two strings, use the & symbol or the + symbol:

```
lblTime.Caption = "The current time is" & Format(Now, "hh:mm")
txtSample.Text = "Hook this " + "to this"
```

➤ There are six comparison operators in Visual Basic:

Operator	Comparison
>	Greater than
<	Less than
>=	Greater than or equal to
<=	Less than or equal to
=	Equal to
<>	Not equal to

➤ The result of a comparison operation is a Boolean value (True or False).

➤ We will use three logical operators:

Operator	Operation
Not	Logical not
And	Logical and
Or	Logical or

- The Not operator simply negates an operand.
- The And operator returns a True if both operands are True. Else, it returns a False.
- The Or operator returns a True if either of its operands is True, else it returns a False.
- Logical operators follow arithmetic operators in precedence.

Visual Basic Branching - If Statements:

Branching statements are used to cause certain actions within a program if a certain condition is met.

The simplest is the If/Then statement:

- If Balance - Check < 0 Then Print "You are overdrawn"
Here, if and only if Balance - Check is less than zero, the statement "You are overdrawn" is printed.
- You can also have **If/Then/End If** blocks to allow multiple statements:
If Balance - Check < 0 Then
 Print "You are overdrawn"
 Print "Authorities have been notified"
End If

In this case, if Balance - Check is less than zero, two lines of information are printed.

- Or, **If/Then/Else/End If** blocks:
 If Balance - Check < 0 Then
 Print "You are overdrawn"
 Print "Authorities have been notified"
 Else
 Balance = Balance - Check
 End If



Here, the same two lines are printed if you are overdrawn (Balance - Check < 0), but, if you are not overdrawn (Else), your new Balance is computed.

- Or, we can add the **ElseIf** statement:
 If Balance - Check < 0 Then
 Print "You are overdrawn"
 Print "Authorities have been notified"
 ElseIf Balance - Check = 0 Then
 Print "Whew! You barely made it"
 Balance = 0
 Else
 Balance = Balance - Check
 End If

Now, one more condition is added. If your Balance equals the Check amount (ElseIf Balance - Check = 0), a different message appears.

- In using branching statements, make sure you consider all viable possibilities in the **If/Else/EndIf** structure. Also, be aware that each If and ElseIf in a block is tested sequentially. The first time an If test is met, the code associated with that condition is executed and the If block is exited. If a later condition is also True, it will never be considered.

Select Case - Another Way to Branch:

- In addition to If/Then/Else type statements, the **Select Case** format can be used when there are multiple selection possibilities.
- Say we've written this code using the If statement:
 If Age = 5 Then
 Category = "Five Year Old"
 ElseIf Age >= 13 and Age <= 19 Then
 Category = "Teenager"

```
ElseIf (Age >= 20 and Age <= 35) Or Age = 50 Or (Age >= 60 and Age <= 65) Then
    Category = "Special Adult"
ElseIf Age > 65 Then
    Category = "Senior Citizen"
Else
    Category = "Everyone Else"
End If
```

The corresponding code with Select Case would be:

```
Select Case Age
Case 5
    Category = "Five Year Old"
Case 13 To 19
    Category = "Teenager"
Case 20 To 35, 50, 60 To 65
    Category = "Special Adult"
Case Is > 65
    Category = "Senior Citizen"
Case Else
    Category = "Everyone Else"
End Select
```

Notice there are several formats for the Case statement. Consult on-line help for discussions of these formats.

Visual Basic Looping:

- Looping is done with the **Do/Loop** format. Loops are used for operations are to be repeated some number of times. The loop repeats until some specified condition at the beginning or end of the loop is met.

- **Do While/Loop Example:**

```
Counter = 1
Do While Counter <= 1000
    Debug.Print Counter
    Counter = Counter + 1
Loop
```

This loop repeats as long as (**While**) the variable Counter is less than or equal to 1000. Note a Do While/Loop structure will not execute even once if the While condition is violated (False) the first time through. Also note the Debug.Print statement. What this does is print the value Counter in the Visual Basic Debug window. We'll learn more about this window later in the course.

- **Do Until/Loop Example:**

```
Counter = 1
Do Until Counter > 1000
    Debug.Print Counter
    Counter = Counter + 1
Loop
```

This loop repeats Until the Counter variable exceeds 1000. Note a Do Until/Loop structure will not be entered if the Until condition is already True on the first encounter.

- **Do/Loop While Example:**

```
Sum = 1
Do
    Debug.Print Sum
    Sum = Sum + 3
Loop While Sum <= 50
```

This loop repeats While the Variable Sum is less than or equal to 50. Note, since the While check is at the end of the loop, a Do/Loop While structure is always executed at least once.

- **Do/Loop Until Example:**

```
Sum = 1
Do
    Debug.Print Sum
    Sum = Sum + 3
Loop Until Sum > 50
```

This loop repeats Until Sum is greater than 50. And, like the previous example , a Do/Loop Until structure always executes at least once.

- Make sure you can always get out of a loop! Infinite loops are never nice. If you get into one, try Ctrl+Break. That sometimes works - other times the only way out is rebooting your machine!
- The statement Exit Do will get you out of a loop and transfer program control to the statement following the Loop statement.

Visual Basic Counting:

- Counting is accomplished using the **For/Next** loop.

Example

```
For I = 1 to 50 Step 2
    A = I * 2
    Debug.Print A
Next I
```

In this example, the variable I initializes at 1 and, with each iteration of the For/Next loop, is incremented by 2 (Step). This looping continues until I becomes greater than or equal to its final value (50). If Step is not included, the default value is 1. Negative values of Step are allowed.

- You may exit a For/Next loop using an Exit For statement. This will transfer program control to the statement following the Next statement.

Book References

1. E Balagurusamy
2. IGNOU Study Material
3. McGRAW Abraham Silberschatz, Henry F. Korth, S. Sudarshan
4. Ronald J. Tocci Neal S. Widmer

QR Code References

1. E- Content developed by Sajad Akbar Rather (I/C ICT DIET SOPORE)
2. E- Content developed by Javeed Hassan Sofi (Tr. GMS Brar Bandipora)
3. [www. easytuts4you.com](http://www.easytuts4you.com)
4. SuccessCDs (<http://youtu.be/Kelm63Q-LO8>)
5. Knowledge Gate (<http://youtu.be/C-CzmtqMVfo/>)
6. <http://youtu.be/SJXTjSqjcLg>
