COMPUTER

9TH STANDARD

KEERTHI KUMAR H.M B.E

* ಅರ್ಪಣೆ *

ಈ ಪುಸ್ತಕವನ್ನು ನನ್ನ ಅತ್ಮೀಯ ಕಂಪ್ಯೂಟರ್ ಶಿಕ್ಷಕರು ಹಾಗೂ ನನ್ನ ಎಲ್ಲಾ ಹಿತೈಷಿಗಳಿಗೆ ಹೃದಯ ಪೂರ್ವಕವಾಗಿ ಅರ್ಪಿಸುತ್ತಿದ್ದೇನೆ.

> *What the elder person is followed by others;*
> *What he demonstrates by action that people follow"*
> *-Bhagwad Gita*

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CHAPTER - 1

CLASSIFICATION OF COMPUTER

Information can be stored and processed in number of ways. A computer may be digital or analog. They do have some principles in common, but they employ different types of data representation and are in general, suited to different kind of work. The way computers process the information can be broadly classified into three categories viz.

1. **Analog Computer**
2. **Digital Computer**
3. **Hybrid Computer**

Analog Computers

In analog computers, continuous quantities are used. Computations are carried out with the physical quantities, such as voltages, length, current, temperature etc. The devices that measures such quantities are analog devices. For example, Voltmeter, ammeter and thermometer. Analog Computer operates by measuring rather than counting. The main advantage of analog computers is that all calculations take place in parallel and hence these are faster.

Digital Computer

The digital computer work upon discontinuous data. They convert the data into digits (Binary Digit 0 and 1) and all operations carried out on these digits at extremely fast rates. A digital computer basically knows how to count the digits and add the digit. Digital Computers are much faster than analog computer and far more accurate. Computers used for business and scientific applications are digital computers. Digital computer can be classified into four types:

1. **Mini Computers**
2. **Micro Computers**
3. **Main Frames**
4. **Super computers**

Mini Computers

This type of computers is usually designed for real-time dedicated applications or as high performance, multiple user applications. Today's typical minicomputer is a multi

processor system running some flavor of UNIX for an operating system. Examples of Mini computers are the Digital Alpha, IBM RS/6000, and Sun Ultra.

IBM RS/6000

SUN ULTRA

Features of Mini Computers

- They have less memory & storage capacity than mainframe computers.
- They offer limited range of peripherals.
- Limited range of software's can be used by them.
- The end users can directly operate it.
- They are not very sensitive to the external environment and hence are more generalized.
- They are used for data processing.

Micro Computers

Also know as PC, this is the most prevalent form of computers. Sitting on a standard desktop(or even laptop), today PC's are single/Multi processor systems which can perform simple task such as word processing or spreadsheet calculations or demanding task such as graphic rendering. The first PC was built by IBM; today's PCs are built by a variety of vendors such as Dell, Hp, Hcl, and Lenovo or by savvy users who build their own customized PCs using their preferred components.

Features of Micro computers

- They brought revolution in the history of computers.
- They are cheap and user friendly.

- The main components are Monitor, CPU, Keyboard, Mouse, Speakers, Modem and Printer.
- They are having limited peripherals attached to them.
- This type of computers can use wide range of software's.
- They are used as desktops either in offices or even homes.
- Their operation can be easily learnt by anyone having logical aptitude.
- Children enjoy playing games & watching movies in these computers.
- Most popular micro computer's processing chip manufacturing company is Intel.

Main Frames

Applications which require high performance and/or generate and process large numbers of truncations are generally hosted on mainframes. As an example, you can imagine the large amount of transactions that a major bank would have to process on a daily basis. To process high volume of ATM, Cheques and electronic transactions. Most major banks rely heavily on mainframes. The most popular manufacturer of Mainframe is IBM, whose recently-introduced S/390 mainframe runs at 126 MIPS (Million Instruction Per Second) in a single-processor configuration.

Features of Main Frame

- They are big computer systems sensitive to temperature, humidity, dust etc.
- Qualified & trained operators are required to operate them.
- They have wide range of peripherals attached.
- They have large storage capacity.
- They can use wide variety of software's.
- They are not user friendly.
- They can be used for more mathematical calculations.
- They are installed in large commercial places or government organizations.

Super Computers

Designed for Ultra-high performance tasks such as weather analysis, encryption cracking and creation of animation. Super computers are large, expensive, massively parallel-processing beasts usually owned by government agencies or large corporations. It is generally accepted fact that the National Security Agency (NSA) houses a number of super computers dedicated to code-breaking and intelligence gathering. Examples of Super computer are IBM's Deep Blue, which are defeated World Chess Champion Gary Kasparov and Silicon Graphics Cary Line.

Features of Super Computers

- They are huge computers installed in space centers, nuclear power stations etc.
- They are used for performing complex mathematical calculations.
- Only scientists and mathematicians can operate them.
- They are having huge memories & tremendous processing speed.
- They are used for weather forecasting, animation graphics etc.

Hybrid Computers

Hybrid Computers utilize the best qualities of both the digital and analog computers. In these computers some calculations take place in analog manner and rest of them take place in digital manner. Hybrid computers are best used in hospital where analog part is responsible for measurement of patient's heart beat, blood pressure, temperature and other vital signs and then the operation is carried out in digital fashion to monitor patient's vital signs. Hybrid Computers are also used in weather forecasting.
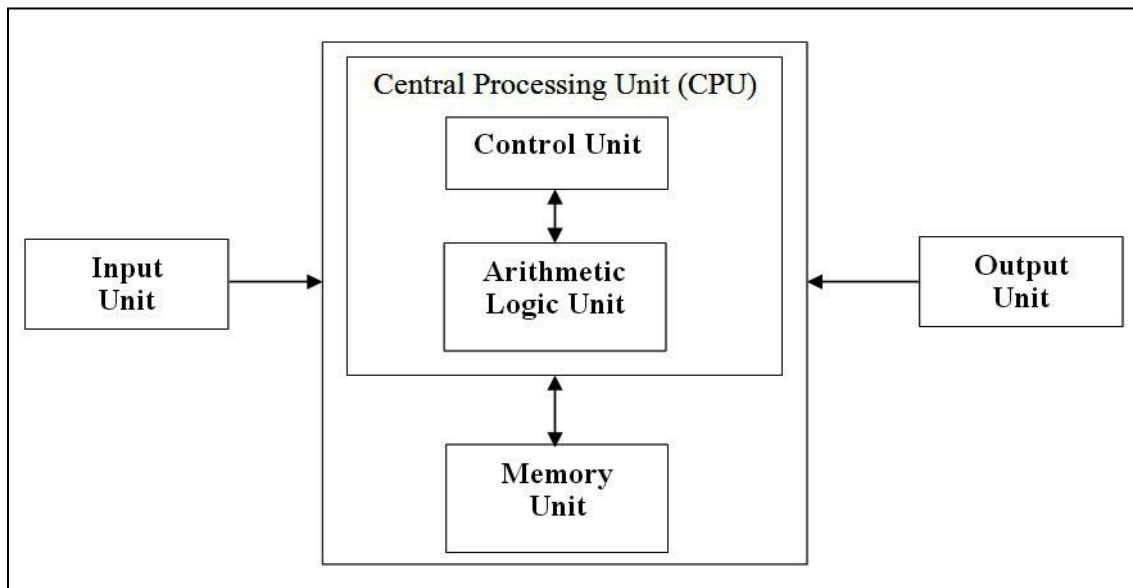
CHAPTER - 2

COMPUTER SYSTEM UNIT

BLOCK DIAGRAM OF A COMPUTER

A computer is designee using four basic units. They are:

1. Input Unit
2. Central Processing Unit(CPU)
   - Control Unit
   - Arithmetic and Logic Unit (ALU)
3. Memory Unit
4. Output Unit

INPUT UNIT

Computers need to receive data and instructions in order to solve a problem. The Input unit performs this operation. The Input Unit basically links the external world or environment to the computer system. The input unit may consist of one or more input devices. The Keyboard and mouse of a computer are the most commonly used input devices. Some of the input devices are given in the picture:

Regardless of the input accepted all inputs have to be converted to its binary form if it is to be understood by the computer. The input unit consists of circuits, which perform this operation before it is sent for processing.

CENTRAL PROCESSING UNIT (CPU)

It is the main part of a computer system like the heart of a human being. Most computers are identified by the type of CPU that is present in them. The function of the CPU is to interpret the instructions in the program and execute them one by one. It consists of two major units.

> CPU: The CPU is known to be heart or brain of the Computer System as it follows the instruction of the software/program to manipulate data into

1. **Control Unit:** How does the input unit know it is time to input data? How does the computer know that the execution of a job is complete? Why is it that, only the required output is displayed on the output unit and not everything?

> Control Unit: Control Unit refers to functioning unit which carries out four basic operations, these are (1) fetches an instructions.(2) Decodes the instructions (3) executes the instruction (4) It stores the result.

All this possible because of the control unit. It controls and directs the transfer of program instructions and data between various units. The main activity of the control unit is to maintain order and direct the operations of the entire system.

2. **Arithmetic and Logic Unit (ALU):** The ALU of a computer system is the place where the actual execution of the instructions takes place during the processing operation. Arithmetic operations like addition, subtraction, multiplication and division (+,-,*,/) and logical operations like AND, OR, NOT and relational operations like (<,>,<=,>=) are being carried out in this unit.

> ALU: Arithmetic and Logic Unit performs arithmetic and logical operations and controls the speed of these operations.

MEMORY UNIT

The data and the instructions required for processing has to be stored in the memory unit before the actual processing starts. In a similar manner the results generated from processing has to be preserved before it is displayed. The memory units thus provide space to store input data, intermediate results and the final output generated.

Secondary storage devices are additional memory (storage) devices such as floppy disks, magnetic tapes, Hard Disk Drive (HDD) and Compact Disk (CD) etc., which are used to store huge information for future use. The input unit, output unit and secondary storage devices are together known as Peripheral Devices.

OUTPUT UNIT

It is used to print or display the results, which are stored in the memory unit. The actual function of the output unit is just the reverse of the input unit. Thus the output unit links the computer to the outside world. As the computer works with binary values the output generated will also be in this form. The output unit converts the data form binary to the human understandable form before it displays the results. Some of the Output devices are given below.
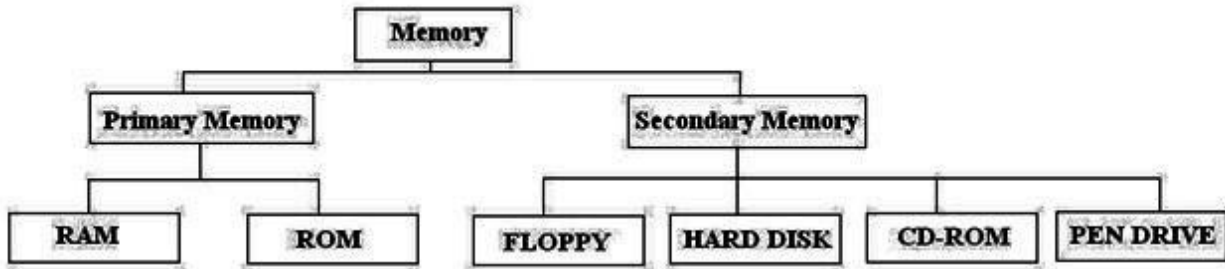
COMPUTER MEMORY

A computer contains a number of components such as CPU, input devices, and Output devices and so on. We also use a number of other things such as instructions, programs and so on. All these are no use if you do not have data to work with. Data can be stored only in the memory of the computer.

Memory is an essential component of any digital computer. It is storing device. It stores programs and data, which are required by the CPU, and the results generated after processing.

There are two kinds of memory are commonly used in computers.

1. Primary Memory (Semi-Conductor Memory)
2. Secondary Memory (Magnetic Memory)

The storage capacity of a computer is measured in terms of Bytes. One byte includes a total of 8 individual units called as bits. One bit can store either a 0 or 1 in it. The table below gives the storage capacities.

Name	Shorthand	Power	Bytes
Byte	1 Byte	2^0	1
Kilobyte	1 KB	2^{10}	1024
Megabyte	1 MB	2^{20}	1,048,576
Gigabyte	1 GB	2^{30}	1,073,741,824
Terabyte	1 TB	2^{40}	1,099,511,627,776

Primary Memory

The Primary memory is employed as the main memory of the computer. It stores the programs and data, which are currently needed by the CPU. The size of the main memory is comparatively much smaller than that of the secondary memory because of its high cost.

The CPU communicates directly only with the main memory. As the CPU works very high speed, its matching memory must be very fast. Only primary memory devices can provide the matching speed. RAM and ROM's are used as the main memory of the computer.

Functions of the Primary memory include:

1. To contain a copy of the main software program (Operating System). This program is loaded into primary memory when the computer is turned on.
2. Temporarily store a copy of the application program that is currently being executed.
3. Temporarily store the data input from the keyboard, which is required for processing.
4. Temporarily store the result, which is generated from processing until it is transferred to an output device.

Primary memory is of two types

1. RAM (Random Access Memory)
2. ROM (Read Only Memory)

Random Access Memory (RAM)

RAM is also called as the main memory of a computer. The user can write information into Ram and read information from it. RAM is accessible to users. The user enters his program and data into RAM, It has random access property. In a random access memory any memory location can be accessed in a random manner directly without going through any other memory location. The access time is same for each memory location.

RAM is a volatile memory. The information written into it is retained in it as long as the power supply is on. As soon as the power supply goes off (or is interrupted) its stored information is lost. He programmer has to reload his program and data into the RAM when the power supply is resumed.

Read Only Memory (ROM)

When the computer is put on for the first time it has to perform a number of operations to start off such as checking the functioning of all the hardware components and the loading of the operating system into to the primary memory.

How does the computer know what to do? How does it know that all the hardware has to be checked for proper functioning? How does it know from where the operating

system has to be loaded? Instructions to perform all these operations are present permanently in a memory called as the ROM.

ROM stands for "**Read Only memory**". It is nonvolatile, i.e., the information stored in it is not lost even when the power supply goes off. It is used for permanent storage of information.

Secondary Storage Devices

Since the storage capacity of the primary memory is not very large, it cannot hold large amount of data, including programs, which may be needed for processing, thus secondary storage devices are necessary. Any additional storage used in a computer other than the primary memory may be classified as secondary memory or storage.

These devices are normally very slow compared to the primary storage. The data on the secondary storage is not directly accessible for processing. All the data required for processing has to be routed through the primary or main storage, as far as the CPU is concerned.

The secondary memory is used as auxiliary memory. The information, which is not being currently processed, resides in the secondary memory. The information, which is needed by the CPU for current processing, is transferred from the secondary memory to the main memory. The size of the secondary memory is normally large and the cost is also reasonable.

The secondary memory is used for bulk storage or mass storage of programs, data and other information. It has much larger capacity than main memory. It stores system software, assemblers, compilers, useful packages, large data files etc. The secondary memory should not be of volatile nature. It must store information permanently. The secondary memory has this property. It retains the information once stored on it. The magnetic memory such as Hard Disk Drive (HDD), Floppy Disk, Compact Disk, Pen Drive, Memory cards is the most commonly used secondary memory in computer.

Memory Card Reader

USB Flash Memory

Media Devices

External Optical Drives

ZIP Drive

Cache Memory

   The word Cache is pronounced as cash. The cache memory is placed in between the CPU and Main memory. It is much faster than main memory. Its access time is much less compared to that of the main memory. The cache memory is an intermediate memory and is not accessible to users. It stores instructions and data, which are to be immediately executed. It is used to reduce the average access time reading data, which normally stored in the main memory. Thus the cache memory increases the operating speed of the system. But it is much costlier then main memory.

CHAPTER - 3

INTRODUCTION TO MS-EXCEL

INTRODUCTION

Excel is software, which falls under the general category known as spreadsheets. Excel is one of the several spreadsheets productions that can be run on a personal computer. Excel is a replacement for an 'accountant's columnar pad, his sharp pencil and a calculator. This however does not mean that you should be an accountant. If you have complex calculation Excel can handle them with ease, Excel can make working with numbers fun and it also helps you to present data with colorful charts so that they have some impact.

A spreadsheet is highly interactive computer program that consists of a collection of rows and columns that are displayed on-screen in a scrollable window. The intersection of each row and column is called a cell. A can hold a number, text or a formula that perform a calculations using one or more other cells. It's easy to copy cells, move cells and modify any formula you create.

A spreadsheet can be stored and used at a later stage or discarded after it has served the intended purpose. A cell in a spreadsheet can be formatted in many ways and printed for hard copy reference. In addition, groups of numeric cells can be used to generate charts and maps. Excel files are normally called as workbooks, which consists of many spreadsheets. The sheet can be work sheet, chart sheet, macro sheet or custom dialog boxes. These features make easy to organize your work.

Excel enables the user to work with many file at any given of time. It is not necessary to close down a file even if the user need to consult another, this feature allow the user to transfer data between work sheet in different work books.

A workbook is the file in which data is stored. A workbook can contain a number of work sheets in it. A workbook may also be referred to a multi-page Excel document. Every workbook is saved with the extension of .xls or .xlsx.

The feature of MS Excel includes:

1. It includes very powerful calculating features with the ability to work both numbers and text. Data can also be presented graphically, which helps in a variety of data analysis.

2. It includes a number of database functions. These functions allow us to work with data in a tabular form.
3. The user interface provided is very user friendly. Common operations such as cut, copy and paste can be easily performed.
4. Excel maintains consistency in file concepts. All data can be gathered in workbooks. This concept allows the user to function easily with a number of different types of work sheets stored in single place.

The Excel window

As in MS-Word, the old menu system has been replaced by the *Ribbon* and the *Office button*. The title bar displays the name of your current workbook. Tabs at the bottom of the screen identify the different worksheets available to you – I'll show you a little later how to give them meaningful names.
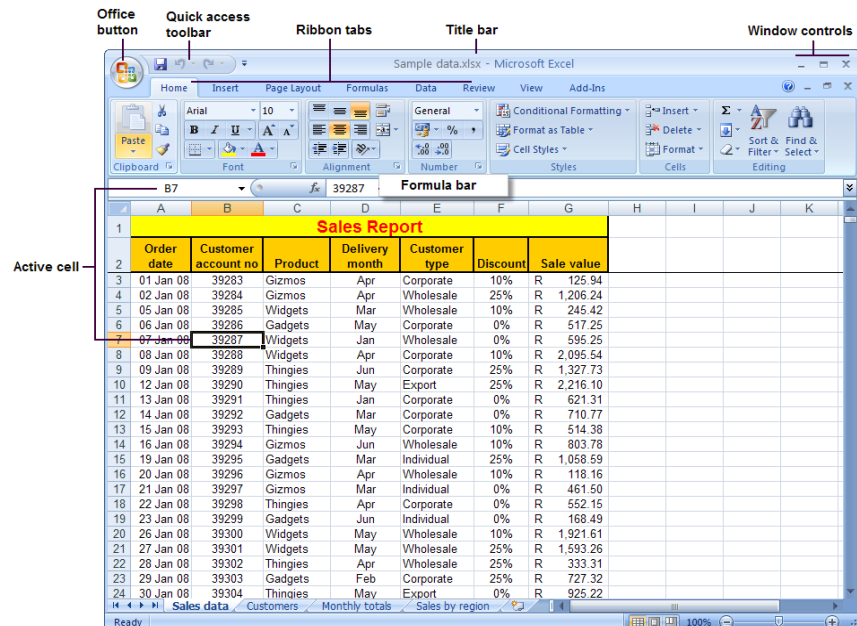
Starting Excel

- If you have an icon on the desktop for Excel, then all you have to do is double-click it to open Excel.
- Alternatively, click the Start button and then select All Programs, Microsoft Office, and Microsoft Excel.
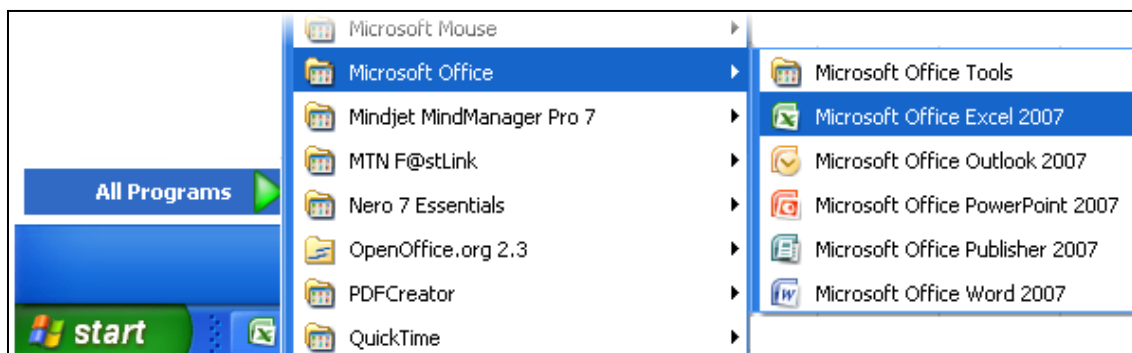
WORKING WITH SHEETS

Before you start entering data, you need to decide whether this is a completely new project deserving a workbook of its own, or whether the data you are going to enter relates to an existing workbook. Remember that you can always add a new *worksheet* to an existing workbook, and you'll find it much easier to work with related data if it's all stored in the same file.

If you need to create a *new* workbook from inside Excel:

1. Click on the Office button, select New and then Blank Workbook.
2. Sheet 1 of a new workbook will be displayed on your screen, with cell A1 active.

To open an *existing* workbook from inside Excel:

1. Click on the Office button, click *Open*, and then navigate to the drive and folder containing the file you want to open.
2. Double-click on the required file name.

Saving a workbook

So now it's time to save your work. As usual, you need to specify the file name, and its location (drive and folder).

1. Click the Office button and select *Save*, or click the Save icon on the Quick Access toolbar. If this workbook has been saved before, then that's it – your workbook will be saved again with the same name and location.
2. If it's the first time of saving this workbook, then the Save As dialogue box will open.
3. Click the drop-down arrow next to *Save In* to select the desired drive and folder.
4. Type the new file name in the *File Name* field.
5. Click the *Save* button.

> **Note: Every time you *Save* or *Save As* in Excel, the entire workbook is saved. This is another good reason for keeping related data on different worksheets in the same workbook!**

Adding a New Sheet

To insert a new worksheet at the end of the existing worksheets, just click the *Insert Worksheet* tab at the bottom of the screen.
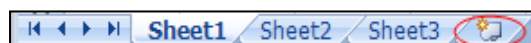
To insert a new worksheet before an existing worksheet, do as follows:

1. Select the worksheet before which you want to insert a new worksheet.
2. On the Home ribbon, find the Cells group and click ***Insert*** followed by ***Insert Sheet***.
3. A new worksheet will be inserted before the current worksheet.

Remove a Work Sheet

To Remove/delete a worksheet,

1. Select the worksheet that you want to delete.
2. On the Home ribbon, find the Cells group and click ***Delete*** followed by ***Delete Sheet***.
3. The current worksheet will be deleted.

Re-Order the Sheet

In order to Re-order a worksheet,

Moving or copying a worksheet

Right-click on the worksheet tabs, and select ***Move or Copy*** from the pop-up menu. A dialog box will open:

- The ***To Book*** field allows you to move or copy the current worksheet to another workbook.
- The ***Before Sheet*** field allows you to specify the new position of the worksheet.
- The ***Create a Copy*** checkbox lets you specify whether the worksheet should be moved or copied.
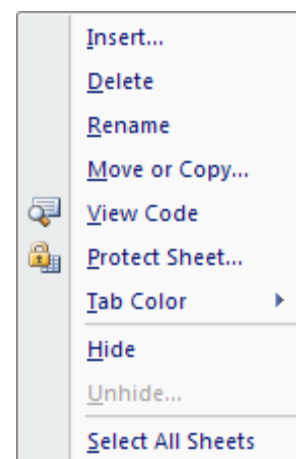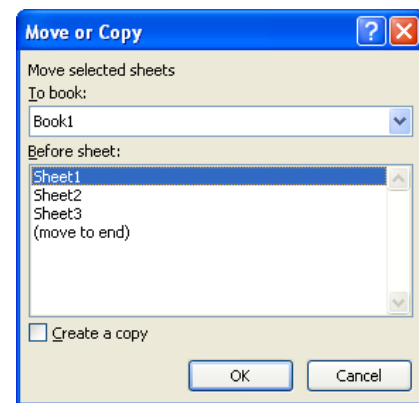
Renaming a worksheet

Right-click on the worksheet tab, and select ***Rename*** from the pop-up menu. Type the new worksheet name and press [ENTER].

> **Note: The simplest ways to insert, delete, rename, move or copy a worksheet is to right-click on the worksheet tab, and then select the desired option from the pop-up menu.**

Editing Cell Contents

There are two different ways to enter edit mode: either double-click on the cell whose contents you want to edit, or else click to select the cell you want to edit, and then click anywhere in the formula bar.

1. To delete characters, use the [BACKSPACE] or [DEL] key.
2. To insert characters, click where you want to insert them, and then type. You can toggle between insert and overtype mode by pressing the [INSERT] key. You can force a line break within the current cell contents by typing [ALT] + [ENTER].
3. Exit edit mode by pressing [ENTER].

Deleting Cell Contents

You want to delete data that's already been entered in a worksheet? Simple!

1. Select the cell or cells containing data to be deleted.
2. Press the [DEL] key on your keyboard.
3. The cells remain in the same position as before, but their contents are deleted.

MOVING CELL CONTENTS

You've already entered some data, and want to move it to a different area on the worksheet?

1. Select the cells you want to move (they will become highlighted).
2. Move the cursor to the border of the highlighted cells. When the cursor changes from a white cross to a four-headed arrow (the move pointer), hold down the left mouse button.
3. Drag the selected cells to a new area of the worksheet, and then release the mouse button.

You can also cut the selected data using the ribbon icon or [CTRL] + [X], then click in the top left cell of the destination area and paste the data with the ribbon icon or [CTRL] + [V].

COPYING CELL CONTENTS

To copy existing cell contents to another area on the worksheet:

1. Select the cells you want to copy (they will become highlighted).
2. Move the cursor to the border of the highlighted cells while holding down the

[CTRL] key. When the cursor changes from a white cross to a hollow left-pointing arrow (the copy pointer), hold down the left mouse button.

3. Drag the selected cells to a second area of the worksheet, and then release the mouse button.

You can also copy the selected data using the ribbon icon or [CTRL] + [C], then click in the top left cell of the destination area and paste the data with the ribbon icon or [CTRL] + [V].

To copy the contents of one cell to a set of adjacent cells, select the initial cell and then move the cursor over the small square in the bottom right-hand corner (the *fill handle*).   The cursor will change from a white cross to a black cross. Hold down the mouse button and drag to a range of adjacent cells. The initial cell contents will be copied to the other cells. Note that if the original cell contents end with a number, then the number will be incremented in the copied cells.

> **Note: If the original cell that you are moving or copying contains a reference to a cell address, then the copied cell address will be adjusted relative to the target cell.**

USING AUTOFILL

This is one of Excel's niftiest features! It takes no effort at all to repeat a data series (such as the days of the week, months of the year, or a numbers series such as odd numbers) over a range of cells.

1. Enter the start of the series into a few adjacent cells (enough to show the underlying pattern).
2. Select the cells that contain series data.
3. Move the cursor over the small square in the bottom right-hand corner of the selection (the *fill handle*). Hold down the mouse button and drag to a range of adjacent cells.
4. The target cells will be filled based on the pattern of the original series cells.

CHAPTER - 4

INSERTION & DELETION IN MS-EXCEL

INSERTING ROWS AND COLUMNS

When you insert a row, the new row will be positioned *above* the row containing the active cell.

1. Select a cell in the row above which you want to insert a new row.
2. On the Home ribbon, find the Cells group and click *Insert* followed by *Insert Sheet Rows*.
3. A new row will be inserted above the current row.

When you insert a column, the new column will be positioned *on the left* of the column containing the active cell.

1. Select a cell in the column to the left of which you want to insert a new column.
2. On the Home ribbon, find the Cells group and click *Insert* followed by *Insert Sheet Columns*.
3. A new column will be inserted to the left of the current column.

DELETING ROWS AND COLUMNS

To delete a row, do as follows:

1. Select a cell in the row that you want to delete.
2. On the Home ribbon, find the Cells group and click *Delete* followed by *Delete Sheet Rows*.
3. The row containing the active cell will be deleted. All the rows below it will move up by one.

To delete a column, do as follows:

1. Select a cell in the column that you want to delete.
2. On the Home ribbon, find the Cells group and click *Delete* followed by *Delete Sheet Columns*.
3. The column containing the active cell will be deleted. All the columns on its right will move left by one.

> **Note: You can also right-click on the active cell and use the pop-up menu to insert or delete a row/column.**

FORMATTING ROWS AND COLUMNS

Any of the cell formatting options above can easily be applied to all the cells contained in one or more rows or columns. Simply select the rows or columns by clicking on the row or column labels, and then click on the formatting icons that you want to apply.

You may also want to adjust the width of a column:

1. To manually adjust the width, click and drag the boundary between two column headings.
2. To automatically adjust the width, select the required columns, and then in the Cell group on the Home ribbon, select *Format*, *Cell Size*, *Autofit Column Width*.
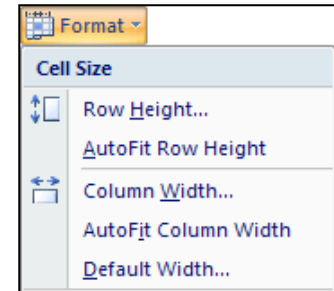
To specify an exact column width, select the columns, and then in the Cell group on the Home ribbon, select *Format*, *Cell Size*, *Column Width*, and type the value you want.
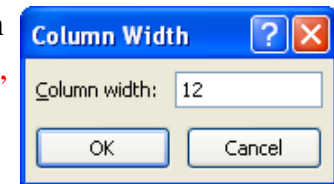
To adjust the height of a row:

1. To manually adjust the height, click and drag the boundary between two row labels.
2. To automatically adjust the height, select the required rows, and then in the Cell group on the Home ribbon, select *Format*, *Cell Size*, *Autofit Row Height*.
3. To set a row or rows to a specific height, select the rows, and then in the Cell group on the Home ribbon, select *Format*, *Cell Size*, *Row Height*, and type the value that you want.
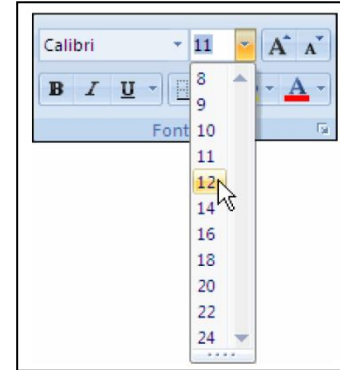
FORMATTING CELLS

Changing Font:

1. Select the cell or range of cells you wish to format
2. Locate the Font area of the Home Ribbon
3. Click on the drop-down font list
4. From the last appears click on the name of the font you want
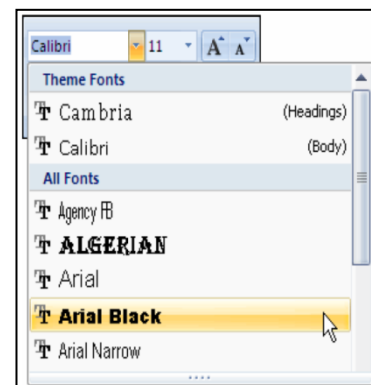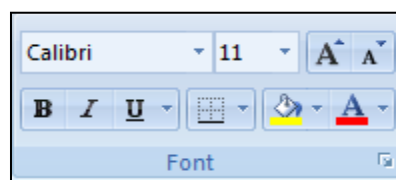
Changing Font Size:

1. Select the cell or range of cells you wish to format
2. Locate the Font area of the Home Ribbon
3. Click on the drop-facing arrow next to font size menu
4. From the last that appears click on the size of the font you want

Changing Font Style:

1. Select the cell or range of cells you wish to format
2. Locate the Font area of the Home Ribbon
3. Click one of the following buttons to apply text formatting

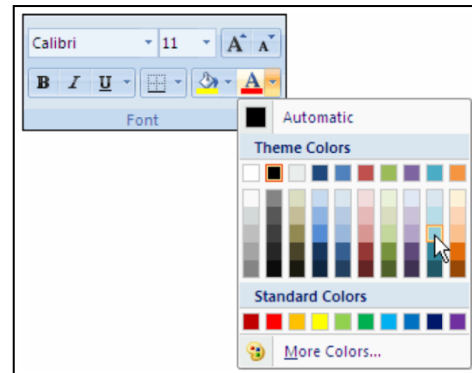| To Format your Text	Click on
Bold	**B**
Italic	*I*
Underline	U

Changing Text Color:

1. Select the cell or range of cells you wish to format
2. Locate the Font area of the Home Ribbon
3. Click on the drop-facing arrow of the Font Color Button
4. From the font color that appear, Select the color you want

TEXT ALIGNMENT

Horizontal Alignment

1. Select the cell or range of cells you wish to format
2. Locate the Alignment area of the Home ribbon

3. Click on one of the following buttons to apply horizontal text alignment

To Align your text to	Click on
Left of the Cell	☰
Middle of the Cell	☰
Right of the Cell	☰

Vertical Alignment

1. Select the cell or range of cells you wish to format
2. Locate the Alignment area of the Home ribbon
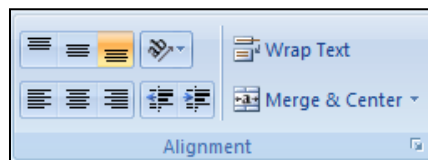3. Click on one of the following buttons to apply Vertical text alignment

To Align your text to	Click on
Top of the Cell	☰
Middle of the Cell	☰
Bottom of the Cell	☰

Formatting Long Text Phrases within a Cell:

In many situations, the line of text you enter into a cell will be wider than the cell itself. In these situations, the text may be hidden beyond the edge of the cell. Although one solution to this problem is to resize the cell, there are several additional solutions shrinking the text to fit the cell wrapping the text and merging cells so that text is displayed on multiple lines within the cell.

Wrapping Text within a Cell

1. Select the cell or range of cells you wish to format
2. Locate the Alignment area of the Home ribbon
3. Click on the button labeled Wrap Text
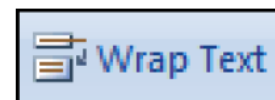
Merge Cells

Another solution for handling long text phrases is to merge several cells together so the text can fully displayed. To merge several cells
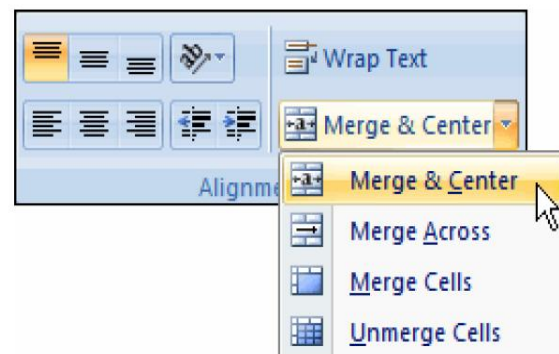
1. Select the cell or range of cells you wish to format
2. Locate the Alignment area of the Home ribbon
3. Click on the down-facing arrow located next to the button labeled Merge & Center
4. From the list that appear, Select the formatting you wish to apply (for example Merge & Center)

BACKGROUND COLOR

Background colors (called Fill Color in Excel) can provide additional contrast in your worksheets, whether you use them alone or to complement existing cell borders. To apply Fill color

1. Select the cell or range of cells you wish to format
2. Locate the Font area of the Home ribbon
3. Click on the down-facing arrow of the Fill Color Button
4. From the options that appear, select the color you wish to apply to your background.
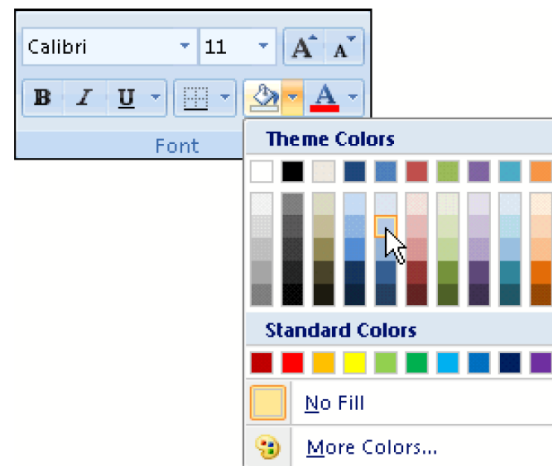
DATE FORMAT

If you choose the date format for numbers, you have a great deal of control over how your dates appear in the worksheet. If you select **Date** from the dialog box, you will be offered a choice of formats, but you can create your own format by clicking the **Custom** option. You can then build a date format using the letters d, m and y for date month and year as follows

dd	two digit day number	01, 02, … 31
ddd	three letter day	Mon, Tue, … Sun
dddd	full day name	Monday, Tuesday, … Sunday
mm	two digit month number	01, 02, …12
mmm	three letter month name	Jan, Feb, … Dec
mmmm	full month name	January, February, … December
yy	two digit year	98, 99, 00, …
yyyy	four digit year	1998, 1999, 2000, …

So the date format **dddd dd-mmm-yy** would give dates in the form:
Monday 06-Mar-00
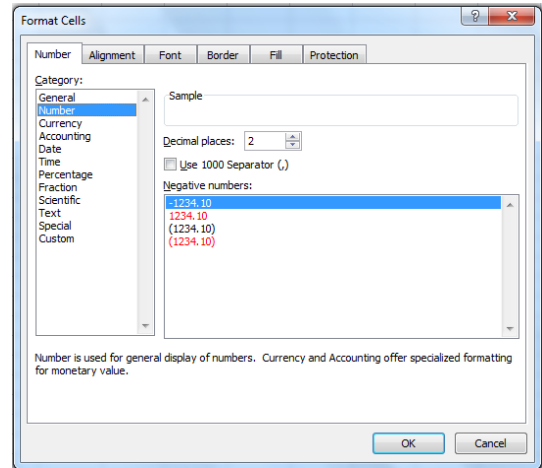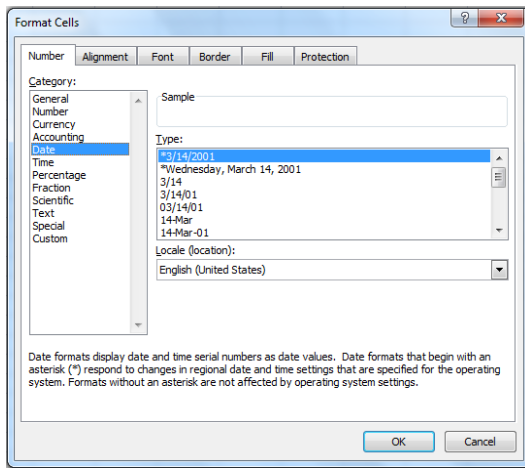
NUMBER FORMAT

To clarify your worksheet further you can specify the format in which selected numbers are displayed. To do this, select the cells containing the numbers in question, then from the **Number** group on the **Home** tab, click the drop down list.

Select any numbering style, or for more options, select the **More Number Formats** option. In the dialog box that appears, you will see a list of categories of numbers and for each category there will be a second list containing possible formats. You can then choose a format for your selected data.

In addition, there are buttons in the Number group which will quickly format numbers as currency, percentages, or fixed numbers of decimals.

ADVANCE FORMATTING OPTIONS

Excel permits number to be formatted in many different ways. Without changing the value of the number in a cell, number format allow data to be represented so that they can be used in many different kinds of projects.
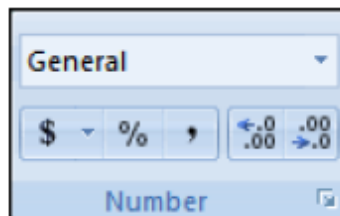
Type	Looks Like	Option
General	0.55	None
Number	0.55	Number of decimal places shown, negative number format
Currency	$0.55	Number of decimal places shown, currency symbol, negative number format
Accounting	$0.55(lines up decimal points in a column of data)	Number of decimal places shown, currency symbol
Percentage	55%	Number of decimal places shown
Fraction	1/5	Number of digits in denominator, type of fraction
Text	0.55	Number is displayed exactly as entered
Date	1/0/00	Several Date formats available
Time	1:20:00 PM	Several Time formats available
Special	Varies	Zip code, Phone number, Social Security Number

Applying Number Format

1. Select the cell or range of cells you wish to format
2. Locate the Number area of the Home ribbon
3. Click on the down-facing arrow next to the Number Format button
4. From the list that appears, select the number format you wish to apply to the cells you selected (for example Percentage)
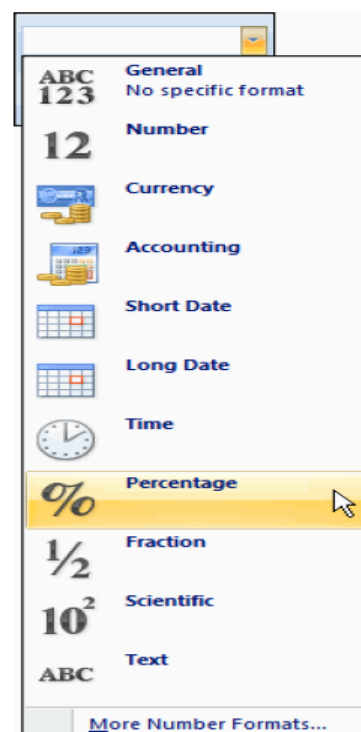
BORDER

Border can provide contrast serving to highlight cells containing important data

Applying a Basic Cell Border

To create a border around one cell or around a group of cells

1. Select the cell or range of cells you wish to format
2. Locate the Font area of the Home ribbon
3. Click on the down-facing arrow of the Border Button
4. From the list that appears, Select the border style you wish to apply to your cells (for example All Borders)
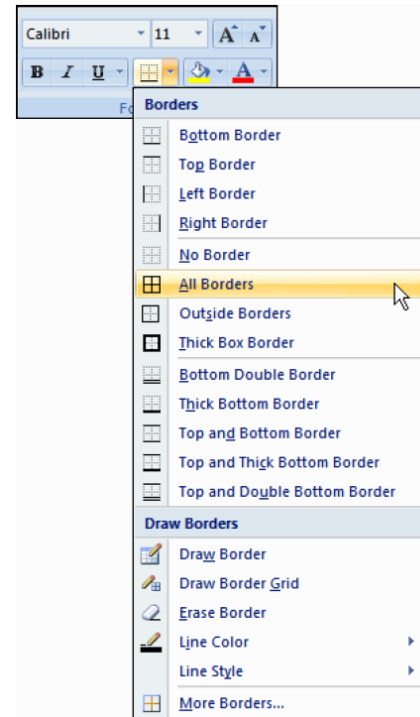
Applying a Custom Cell Border

To create a border around one cell or around a group of cells

1. Select the cell or range of cells you wish to format
2. Locate the Font area of the Home ribbon
3. Click on the down-facing arrow of the Border Button
4. From the list that appears, Select More Borders
5. The Border tabs of the Format cells window will appear
6. In the Style section of the Line area,
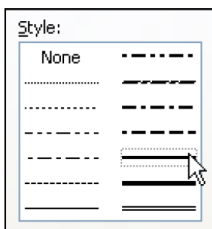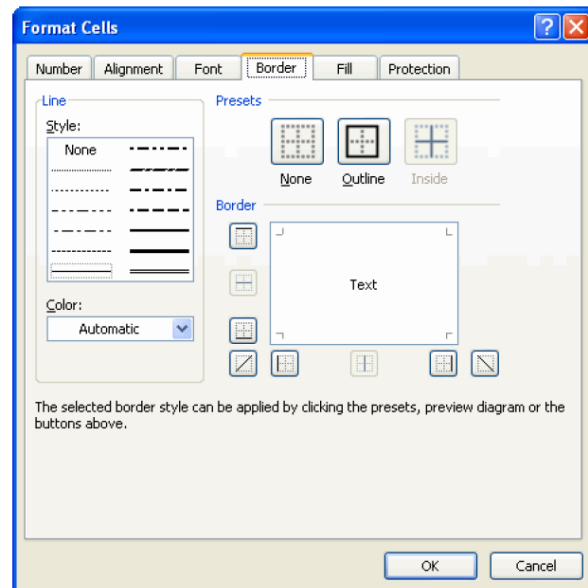
Choose the Line style you wish to use for your cell border.

CHAPTER - 5

FUNCTIONS, SORTING & FILTERING

FUNCTIONS

Excel provides a wide range of built-in functions that can be included in your formulas to save you the effort of having to specify detailed calculations step-by-step. Each function is referred to by a specific name, which acts as a kind of shorthand for the underlying calculation. Because a function is used inside a formula, you'll still need to start off with an equals sign to show Excel that a calculation is required.

BASIC FUNCTIONS

Some of the most commonly used functions include:

SUM()	To calculate the total of a set of numbers
AVERAGE()	To calculate the average of a set of numbers
MAX()	To calculate the maximum value within a set of numbers
MIN()	To calculate the minimum value within a set of numbers
COUNT()	To count the number of cells selected

So how do you use a function?

A function makes use of values or cell references, just like a simple formula does. The numbers or cell references that it needs for its calculations are placed in brackets after the name of the function.

To give a simple illustration:

The formula:	Is equivalent to the function:
= 12 + 195 + 67 – 43	= SUM(12, 195, 67, -43)
= (B3 + B4 + B5 + B6)	=SUM(B3:B6)
= (B3 + B4 + B5 + B6)/4	= AVERAGE (B3:B6)

Several popular functions are available to you directly from the Home ribbon.

1. Select the cell where you want the result of the calculation to be displayed.
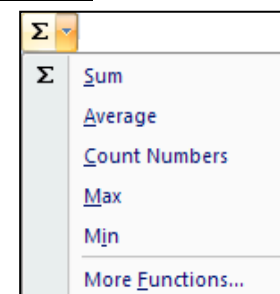
2. Click the drop-down arrow next to the ***Sum*** button.
3. Click on the function that you want.
4. Confirm the range of cells that the function should use in its calculation.
5. Press [ENTER]. The result of the calculation will be shown in the active cell.

Using AutoSum

Because addition is the most frequently used Excel function, a shortcut has been provided to quickly add a set of numbers:

1. Select the cell where you want the total to appear.
2. Click on the ***Sum*** button on the Home ribbon.
3. Check that the correct set of numbers has been selected (indicated by a dotted line). If not, then drag to select a different set of numbers.
4. Press [ENTER] and the total will be calculated.

AVERAGE()

To calculate the average for the following set of numbers, you would:

1. Click on cell J3 to make it active.
2. Click on the arrow next to the ***Sum*** button, and select Average.
3. Press [ENTER] to accept the range of cells that is suggested (C3:H3).

That's it! You can now copy the formula in cell J3 down to cells J4, J5, J6, J7 – using relative addressing because you want a different set of marks to be used for each student.

J3				fx	=AVERAGE(C3:H3)				
A	B	C	D	E	F	G	H	I	J
1				STUDENT DATABASE					
SL NO	NAME	KAN	ENG	HIN	MAT	SCI	SOC	SUM	AVERAGE
1	AKASH	78	65	86	77	88	90	484	80.66666667
2	BALU	67	45	55	62	67	59	355	59.16666667
3	CHANDRU	89	77	78	80	82	83	489	81.5
4	DIVYA	54	61	65	63	56	49	348	58
5	KEERTHI	123	97	98	100	100	99	617	102.8333333

MAX()

To calculate the maximum number for the given set of numbers, you would:

1. Click on cell K3 to make it active.
2. Click on the arrow next to the ***Sum*** button, and select Max.
3. Press [ENTER] to accept the range of cells that is suggested (C3:H3).

That's it! It will show the maximum marks in the student database of each student.

		K3			*fx*	=MAX(C3:H3)				
	A	B	C	D	E	F	G	H	I	J	K

	A	B	C	D	E	F	G	H	I	J	K
1						STUDENT DATABASE					
2	SL NO	NAME	KAN	ENG	HIN	MAT	SCI	SOC	SUM	AVERAGE	MAX
3	1	AKASH	78	65	86	77	88	90	484	80.66666667	90
4	2	BALU	67	45	55	62	67	59	355	59.16666667	67
5	3	CHANDRU	89	77	78	80	82	83	489	81.5	89
6	4	DIVYA	54	61	65	63	56	49	348	58	65
7	5	KEERTHI	123	97	98	100	100	99	617	102.8333333	123

MIN()

To calculate the minimum number for the given set of numbers, you would:

1. Click on cell L3 to make it active.
2. Click on the arrow next to the *Sum* button, and select Min.
3. Press [ENTER] to accept the range of cells that is suggested (C3:H3).

That's it! It will show the minimum marks in the student database of each student.

		L3			*fx*	=MIN(C3:H3)					

	A	B	C	D	E	F	G	H	I	J	K	L
1						STUDENT DATABASE						
2	SL NO	NAME	KAN	ENG	HIN	MAT	SCI	SOC	SUM	AVERAGE	MAX	MIN
3	1	AKASH	78	65	86	77	88	90	484	80.66666667	90	65
4	2	BALU	67	45	55	62	67	59	355	59.16666667	67	45
5	3	CHANDRU	89	77	78	80	82	83	489	81.5	89	77
6	4	DIVYA	54	61	65	63	56	49	348	58	65	49
7	5	KEERTHI	123	97	98	100	100	99	617	102.8333333	123	97

COUNT()

To simply count the number of cells selected in a row/column:

1. Click on cell M3 to make it active.
2. Click on the arrow next to the *Sum* button, and select Count Numbers.
3. Press [ENTER] to accept the range of cells that is suggested (C3:H3).

		M3			*fx*	=COUNT(C3:H3)						

	A	B	C	D	E	F	G	H	I	J	K	L	M
1						STUDENT DATABASE							
2	SL NO	NAME	KAN	ENG	HIN	MAT	SCI	SOC	SUM	AVERAGE	MAX	MIN	COUNT
3	1	AKASH	78	65	86	77	88	90	484	80.66666667	90	65	6
4	2	BALU	67	45	55	62	67	59	355	59.16666667	67	45	6
5	3	CHANDRU	89	77	78	80	82	83	489	81.5	89	77	6
6	4	DIVYA	54	61	65	63	56	49	348	58	65	49	6
7	5	KEERTHI	123	97	98	100	100	99	617	102.8333333	123	97	6

ADVANCED FUNCTION

String/Text Functions

➤ **UPPER()**

It is used to converts the string to all upper case letters.

The Syntax is **UPPER(text)**

Text is the text you want converted to uppercase.

	A	B	C
		=UPPER(A2)	
1	**Name**	**Coverted Text**	
2	morarji Desai	MORARJI DESAI	

➤ **LOWER()**

It is used to converts the string to all lower case letters.

The Syntax **LOWER(text)**

Text is the text you want to convert to lowercase. LOWER does not change characters in text that are not letters.

	A	B	C
		=LOWER(A2)	
1	**Name**	**Coverted Text**	
2	KITTUR RANI	kittur rani	

ARITHMETIC FUNCTIONS

➤ **PRODUCT()**

It is used to multiply all the numbers given as arguments and returns the product.

The Syntax is

PRODUCT(number1,number2,...)

Number1, number2, ... are numbers that you want to multiply.

	A	B	C	D	E
					=PRODUCT(C2:D2)
1	Sl No	Description	Quantity	Rate	Product
2	1	HDD	3	3750	11250
3	2	RAM	4	2710	10840
4	3	SMPS	2	699	1398

➤ **MOD()**

It returns the remainder after number is divided by divisor. The result has the same sign as divisor.

The Syntax is **MOD(number,divisor)**

Number is the number for which you want to find the remainder.

Divisor is the number by which you want to divide number.

	A	B	C	D	E
				=MOD(B4,C4)	
1	Sl No	Number	Divisor	Remainder	
2	1	12	5	2	
3	2	-7	2	1	
4	3	24	5	4	

➢ **SQRT()**

It is used to find the square root of the given value.

The Syntax is **SQRT(number)**

Number is the number for which you want the square root.

	A	B	C	D
1	Sl No	Number	Square Root	
2	1	12	3.464101615	
3	2	144	12	
4	3	15	3.872983346	

C2   *fx* =SQRT(B2)

➢ **FACT()**

It returns the factorial of a given number. The factorial of a number is equal to 1*2*3*...* number.

The Syntax is **FACT(number)**

Number is the nonnegative number for which you want the factorial. If number is not an integer, it is truncated.

	A	B	C	D
1	Sl No	Number	Factorial	
2	1	4	24	
3	2	5	120	
4	3	6	720	

C4   *fx* =FACT(B4)

LOGICAL FUNCTIONS

➢ **The IF() function**

The IF() function is getting a section all of its own, because for many people it's not as intuitive to understand as the common math's and stats functions.

The IF() function checks for a specific condition. If the condition is met, then one action is taken; if the condition is not met, then a different action is taken.

The Syntax is: IF (condition, result if true, result if false)

	A	B	C	D	E	F	G	H	I	J	K
1					STUDENT DATABASE						
2	SL NO	NAME	KAN	ENG	HIN	MAT	SCI	SOC	SUM	AVERAGE	RESULT
3	1	AKASH	78	65	86	77	88	90	484	80.66666667	PASS
4	2	BALU	67	45	55	62	67	59	355	59.16666667	PASS
5	3	CHANDRU	89	77	78	80	82	83	489	81.5	PASS
6	4	DIVYA	30	23	45	35	32	28	193	32.16666667	FAIL
7	5	KEERTHI	123	97	98	100	100	99	617	102.8333333	PASS

DATE AND TIME FUNCTION

➢ **TODAY()**

It returns the serial number of the current date. If the cell format was **General** before the function was entered, the result is formatted as a date. The syntax is **TODAY( )**

➢ **NOW()**

It returns the serial number of the current date and time. If the cell format was **General** before the function was entered, the result is formatted as a date. The syntax is **NOW( )**

SORTING AND FILTERING:

SORT

The sort function does exactly what it says: it sorts your data records based on the criteria that you specify. You can sort numbers, text or dates, in either ascending (default) or descending order. Blank cells are always placed last in a sort.

Sorting Column Wise

If you want to sort an *entire data table*:

1. Click anywhere in the column that you want to sort by.
2. On the **Home ribbon**, select **Sort & Filter.**
3. Choose either **Ascending** (Sort A to Z) or **Descending** (Sort Z to A) order.
4. Your data will be sorted based on the value in the column that you initially clicked on.
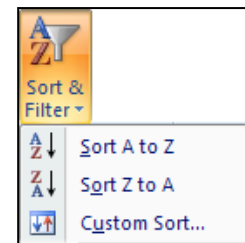
If you want to sort on two or more criteria (columns), or if you want to sort a range of cells, then you need to do a *custom sort*:

1. Click in the data table, or select the cells to be sorted.
2. On the **Home ribbon**, select **Sort & Filter**, and choose **Custom Sort.** The Sort Window will open.

3. In the **Sort By** field, use the drop-down arrows to select the column that you want to sort by and the order (ascending or descending) to be used.
4. If you want to add another sort criterion, then click the **Add Level** button, and a second details row will appear in the window. Again, choose the sort column and sort order.
5. Add more levels (or delete levels) as required.
6. When you click the **OK** button at the bottom of the window, your data will be sorted.

FILTER

The filter function lets you view just the records that you want to see! The other records in your data table will still be there, but hidden. To use this amazing function:

1. On the **Home ribbon**, select **Sort & Filter**, and select the **Filter** option.
2. In the first row of your data table, a drop-down arrow will appear on the right of each column heading. When you click on a drop-down arrow, you'll see a list of all the values occurring in that column. Press [ESC] to close the filter list.

3. If you want to view records with a particular value only, click to uncheck the Select All option, and then check one or more values that you want to view. Click the **OK** button.
4. All rows that do not contain the value(s) you checked will be hidden from view. A

column that has been filtered will show a funnel icon next to the drop-down arrow on the heading.

5. Repeat the filtering process for as many columns as you need. You can remove a column filter by checking its **Select All** option.

REMOVING FILTER

To clear your previous filter settings,

1. Select **Sort & Filter**, and then **Clear**.

2.   **Clear**   To turn off filtering, select **Sort & Filter**, and then **Filter** (the same option that you originally used to turn it on).

> Note that the Sort & Filter function is also available from the Data ribbon.

CHAPTER - 6

INTRODUCTION TO C PROGRAMMING

INTRODUCTION

The use of computers spans from early scientific calculations to current business data processing. It was further expanded to different fields of applications. Based on the applications different programming languages were developed. For example FORTRAN was developed for scientific calculations, COBOL for business data processing, PASCAL for general applications and PROLOG and LISP for artificial intelligence. There was need for a programming language would be used to develop both application program and system program. C, a high level programming language is developed to fulfill requirements.

WHAT IS C?

C is a High level programming language developed at **AT & T Bell Laboratories** of USA in 1972. It was designed and written by a man named **Dennis Ritchie**. In the late seventies C began to replace the more familiar languages of that time.

C is derived from two early programming languages such as **BCPL** and **B**. The BCPL was developed by Martin Richards and B was developed by Ken Thompson.

In 1972, Dennis Ritchie developed a new version of B and named it as C. He selected the name C for his new language because C comes after B in the alphabetical order which indicates the advancement of B. Some sources also says that Dennis Ritchie selected the 2ⁿᵈ character of BCPL.

CHARACTERISTICS OF C

C has become a popular programming language because of its many features. The most important characteristics are:

- ➢ C is a general purpose programming language.
- ➢ C is a structural programming language.
- ➢ Helps in development of system software.
- ➢ It has rich set of operators and data types.
- ➢ It provides compact representation for expressions.
- ➢ Very less number reserved words.

APPLICATIONS OF C

Because of its portability and efficiency, C is used to develop the system as well as application software.

System Software

> Operating Systems
> Compilers
> Assemblers
> Editors
> Linkers

Application Software

> Data Base Management System
> Graphics Packages
> Spread Sheets
> Word Processor
> CAD/CAM Applications.

CHARACTER SET

Every Programming language has its own character set. The characters used in the C language are grouped into 3 categories.

> Alphabets
> Digits
> Special Characters

Alphabets	Upper letters case A-Z		
	Lower letters case a-z		
Digits	0 to 9		
Special Characters	, comma	. Period	` Apostrophe
	: Colon	; Semicolon	? Question mark
	! Exclamation	_ Underscore	| Pipeline
	{Left brace	} Right Brace	# Hash
	[Left bracket	] Right Bracket	^ Caret
	(Left parenthesis	) Right parenthesis	& ampersand
	/ Slash	\ Back slash	~ Tilde
	+ Plus sign	- Minus Sign	< Less Than
	* Asterisk	% Percentage	> Greater Than

BASIC STRUCTURE OF C PROGRAM

Different programming languages have their own format of coding. The basic components of a C program are:

- Pre-processor statements
- Main()
- A pair of curly braces {, }
- Declarations & Statements
- User defined functions

The complete structure of C program as shown below

```
Pre-processor statements
main ()
{
        Declarations;
        Statements;
}
User defined functions
```

Pre-processor statements:

These statements begin with # symbol, and are also called preprocessor directives. These statements direct the C processor to include Header files and also symbolic constants into a C program.

```
Ex:
# include<stdio.h>
# define NULL 0
```

Main Function:

As the name itself indicates, this is the main function of every C program. Execution of a C program starts with main (). No C program is executed without the main () function. The function main () should be written in lowercase letter and shouldn't be terminated with semicolon. It calls other library functions and user defined functions. There must be one and only main () in every C program.

Declarations:

The declaration is the part of the C program where all the variables, arrays and functions are declared with their basic data types.

Ex:
    int sum, x, y;

Statements:

These are instructions to the computer to perform some specific operations. They may be input-output statements, arithmetic statements, control statements. They also include comments.

Ex:
    Printf("Sum = %d", sum);

User defined functions:

These are subprograms. Generally a sub program is a function. The user defined function contains a set of statements to perform a specific task. These are written by the user, hence the name user-defined functions.

Ex:
    Printline()
    {
            Printf("- - - - - - - - - - - - - - ");
    }

Example of C program:

```
/*      Sum of Two integers          */              //comments

#include<stdio.h>
#include<conio.h>                            //Preprocessor statements

/* main program begins */
main ()
{
        int num1,num2,result;              //Declaration part
        clrscr();
        Printf("Enter the two number");
```

```
Scanf("%d%d"&num1,&num2);
result=num1+num2;
printf("The sum of two number is %d",result);   //Executable part
getch();
}
```
End of Program

Compiling and Executing a C program

Compiling a C program means translating it into Machine language. C Compilers are used for this purpose. The C program to be compiled must be typed in using an editor. An editor is a program which allows the programmer to write the program and edit it.

Ex:
Turbo C (TC), Borland C, ANSI C

There are basically five steps in the successful execution of a program.

1. Creating a program file (source file)
2. Saving the program (With .C as extension)
3. Compilation
4. Linking system library function
5. Running (Executing) the program.

DOS Platform:

Use the following steps to create and execute a C program.

➢ Open a compiler
➢ Click on the File menu. Select New option
➢ Enter your C program
➢ Click on the File menu. Select Save option. Save the file using .C Extension
➢ Click Compile button. If errors are reported, debug and re-compile the program using Compile option.
➢ Click on Run button
➢ Enter your inputs in a execution window. Results will be displayed here if the inputs are correct.

CONSTANTS, VARIABLES AND DATA TYPES

The quantity which doesn't change during the execution of a program is known as constant. There are two types of constants in C as shown below.

- Numeric Constant
- Non-numeric Constant
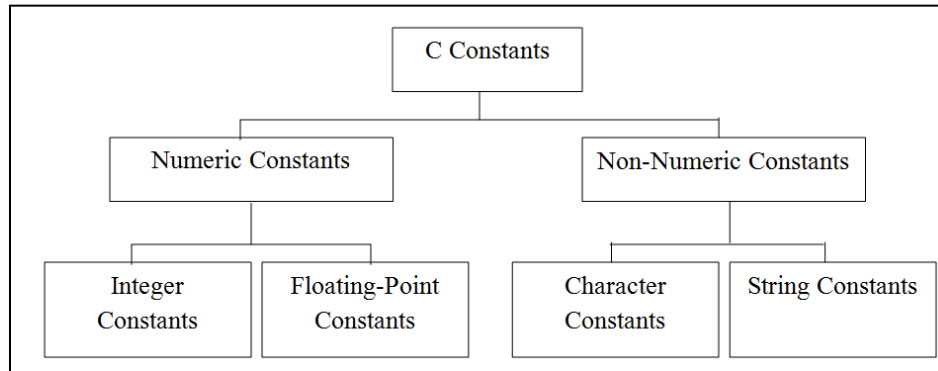
Integer Constant:

An integer constant is a whole number. It is a sequence of digit without decimal point. It is prefixed with + or -.

Ex: 246, +25, -75, -3356, +7456 etc

Floating-Point Constant:

A floating point constant is a number with decimal point. It is defined as a sequence of digits preceded and followed by a decimal point. They may have a prefixed + or -.

Ex: -245.01, 3.72 etc

Character Constant:

A character constant is a single character enclosed within a pair of apostrophes.

Ex: 'a', 'x', '%' etc

String Constant:

A String constant is a sequence of characters enclosed within a pair of double quotes.

Ex: "Hi", "KREIS", "MDRS" etc

BACKSLASH CONSTANT:

A backslash constant is a combination of two characters in which the first character is always the backslash (\) and the second character can be any one of the characters n, r, t, v, etc. Some of the backslash constant used in c programs are as follows:

Backslash Constant	Meaning
\n	New Line
\t	Horizontal Tab
\v	Vertical Tab
\"	Double Quote
\'	Apostrophe
\0	Null Character
\\	Back Slash

VARIABLES

The quantity that changes during the execution of a program is called a **Variable.** The variables are the names given to identify the specific program elements. Therefore, variables are also called as **identifiers.**

Ex:

Marks, x, area, name, num[10] etc

DATA TYPES

Data types indicate the type of data that a variable can hold. The data may be numeric or nun-numeric in nature. C has its own built in data types as

Data Types	Symbols
int	%d, %i
float	%f
char	%c, %s

SIMPLE C-PROGRAMS

Program 01: Write a C program to Print the Name.

/* This program display a name*/

```
#include<stdio.h>
#include<conio.h>
void main()
{
        char name;
        Printf("Enter the Name you want to display");
        Scanf("%c"&name);
        printf("you have entered an %c name", name);
        getch();
}
```

Program 02: Write a C program to Addition of two numbers.

/* This program adds the two numbers*/

```
#include<stdio.h>
#include<conio.h>
void main()
{
        int num1,num2,result;
        Printf("Enter the 1st number");
        Scanf("%d"&num1);
        Printf("Enter the 2nd number");
        Scanf("%d"&num2);
        result=num1+num2;
        printf("The sum of two number is %d",result);
        getch();
}
```

Program 03: Write a C program to Subtraction of two numbers.

/* This program subtract of two numbers*/

```
#include<stdio.h>
#include<conio.h>
```

```
void main()
{
        int num1,num2,result;
        Printf("Enter the 1st number");
        Scanf("%d"&num1);
        Printf("Enter the 2nd number");
        Scanf("%d"&num2);
        result=num1-num2;
        printf("The differnce of two number is %d",result);
        getch();
}
```

Program 04: Write a C program to Multiplication of two numbers.

/* This program multiplies the two given numbers*/

```
#include<stdio.h>
#include<conio.h>
void main()
{
        int num1,num2,result;
        Printf("Enter the 1st number");
        Scanf("%d"&num1);
        Printf("Enter the 2nd number");
        Scanf("%d"&num2);
        result=num1*num2;
        printf("The multiply of two number is %d",result);
        getch();
}
```

Program 05: Write a C program to Division of two given numbers.

/* This program divides the two given numbers*/

```
#include<stdio.h>
#include<conio.h>
void main()
{
        int num1,num2;
        float result;
```

```
Printf("Enter the 1st number");
Scanf("%d"&num1);
Printf("Enter the 2nd number");
Scanf("%d"&num2);
result=num1/num2;
printf("The division of two number is %f",result);
getch();
}
```

" ನನ್ನ ಆತ್ಮೀಯ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ನೀಡುತ್ತಿರುವ ಕಿರುಕಾಣಿಕೆ "

ಆತ್ಮೀಯರೇ, ನನ್ನ ಜೀವನದ ಅಮೂಲ್ಯವಾದ ಸಂಪತ್ತೆಂದರೆ "ನನ್ನ ವಿದ್ಯಾರ್ಥಿ ಬಳಗ" ನನ್ನ ಶಾಲೆಯ ವಿದ್ಯಾರ್ಥಿ ಬಳಗ ನನ್ನನು ಜವಾಬ್ದಾರಿಯುತ ಶಿಕ್ಷಕನ್ನಾಗಿಸಿದ್ದಾರೆ. ನನ್ನನ್ನು ಬೆಳಸಿ ಸಂತೋಷಪಟ್ಟು ಹೆಮ್ಮೆಯಿಂದ ನನ್ನ ಬಗ್ಗೆ ಪ್ರಶಂಸಿದ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ಅವರ ಪ್ರೀತಿಯ ಗುರುವಾಗಿ ಈ ಪುಸ್ತಕವನ್ನು ಕಿರುಕಾಣಿಕೆಯಾಗಿ ನಿಮ್ಮ ಕೈಗಿಡುತ್ತಿದ್ದೇನೆ.

ಈ ಪುಸ್ತಕವು ನನ್ನ ವಿದ್ಯಾರ್ಥಿಗಳ ಜ್ಞಾನವನ್ನು ಹೆಚ್ಚಿಸಲಿ, ಅವರು ಪರೀಕ್ಷೆಗಳಲ್ಲಿ ಯಶಸ್ಸು ಗಳಿಸುವಂತಾಗಲಿ, ಅವರ ಜೀವನ ಸುಖವಾಗಿರಲಿ ಎಂದು ಹಾರೈಸುವೆ..............

ಇಂತಿ ನಿಮ್ಮ

ಕೀರ್ತಿ ಕುಮಾರ್ ಹೆಚ್.ಎಂ
ಕಂಪ್ಯೂಟರ್ ಶಿಕ್ಷಕರು
ಮೊ.ದೆ.ವ.ಶಾಲೆ, ಬೇಲೂರು ಟೌನ್