

UNIT-III

MS Excel: Worksheet basics, creating worksheet, entering data into worksheet, data, text, dates, alphanumeric values saving & quitting worksheet, opening and moving around in an existing worksheet, Toolbars and menus, Keyboard shortcuts, working with single and multiple workbook, working with formula & cell referencing, Auto sum, coping formulas, absolute and relative addressing, formatting of worksheet, previewing & printing worksheet, Graphs and Charts, Database, macros, multiple worksheets-concepts.

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Unit 3 MS Excel

3.1 Introduction

Microsoft Excel is part of Microsoft Office package. Microsoft Excel is one of the most popular spreadsheet applications which helps us to manage data, apply various formulas, create visually persuasive charts, and thought provoking graphs. Excel is supported by both Mac and PC platforms. Microsoft Excel can also be used to balance a check book, create an expense report, build formulas, edit them and many more daily life applications.

Spreadsheet program is relational grid of Columns and Rows used to store and manipulate numeric information by means of computer.

Application of Spreadsheet program

1. Basic Use: It is widely used in making financial statements, business forecasting, inventory control, accounts receivable etc.
2. Financial Modelling : Financial model are based upon "Whatif" anaysis. By changing input variables the financial model designed in Excel builds a new set of results. These results can be presented in a tabular form or in graphical form.
3. Scientific & Engineering: MS EXCEL provides many stational and mathematical functions which are used extensively in scientific and engineering applications.
4. Presentation Graphics: EXCEL is powerful, flexible graphical presentation tool. Various types of graphs and charts can be drawn in EXCEL.
5. Database Management: Excel is very good in manipulating data bases. It is very simple to edit, sort, enter and filter database in EXCEL.
6. Home Budget: We can use EXCEL to keep track of the house hold expenses. The program shows percentage of each paycheck that goes to rent, electricity, telephone, cable, grocery and gas etc. We can see which expenses increases and decrease each month.
7. Miscellaneous Applications: EXCEL has application in all aspect of our daily life.

3.2 EXCEL Terminology

Columns: MS EXCEL (all Spreadsheets) are having a grid layout. The

MS EXCEL

letters across the top are Column headings. To highlight an entire Column, click on any of the letters. The image below shows the B Column highlighted:

	A	B	C	D	E
1					
2					
3					
4					
5					
6					
7					
8					

Fig. 1 : Column representation in Excel

Rows: If you look down the left side of the grid, you'll see numbers, which start at number 1 at the very top and go down to over a million. You can click a number to highlight an entire Row. If you look at the image below, you'll see that Row 5 has been highlighted.

	A	B	C	D	E
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					

Fig. 2 : Row representation in Excel

CELL: In spreadsheet program cross-section of each row and column is known as Cell. A cell is where the column and row intersect. A cell can contain data and can be used in calculations of data within the spreadsheet. Spreadsheets are all about individual Cells. A Cell is a letter combined with a number. So if you combine the B column with Row 5, you get Cell B5. Combine Column D with Row 5 and you get Cell D5.

To see this for yourself, click inside any of the cells on your spreadsheet. In the Images below, we have clicked inside cell A1 and cell C3.

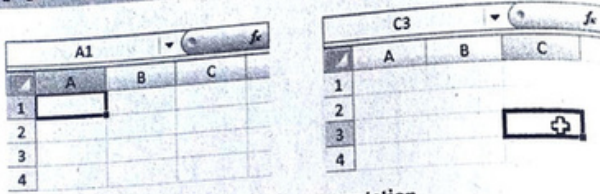


Fig. 3 : Cell representation

The first picture is Column A, Row 1 (A1), and the second picture is Column C Row 3 (C3). Notice that the cells we clicked on have a black border around them. This tells you the cell is active. The cell that is active will have its Column letter and Row number displayed in the top left, just above the letters A and B in the pictures. When you click into a cell, you can then type text and numbers.

Each cell in the EXCEL is having a unique name which is used in applying formulas, graphs etc. This unique name of each cell is known as CELL ADDRESS. Each cell address is labelled as A1, A2 etc means in each cell address first name of Column is indicated with alphabet then row number is represented with row number, thus creating unique CELL ADDRESS for each cell in worksheet.

WORKSHEET: is single sheet available in EXCELL which is having many rows and columns in it. Total Number of Rows in a worksheet is 1048576, these rows are given number from 1, 2, 3, 4 1048576.

Total number of Columns in a Wroksheet is 16,384. Last column is named as XFD. Each column is labelled from A,B,C, Z after that column numbering starts from AA, AB, AC, AZ then after that numbering starts from BA, BB, BC, and goes on till XFD. You've never going to need this many!

You can check it out easily by pressing ctrl+right arrow and then ctrl+down arrow.

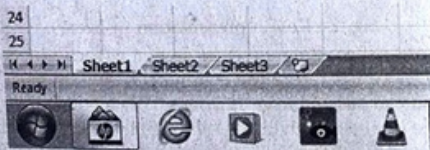


Fig. 4 : Worksheets in Excel

Workbook: is collection of various worksheets in single workbook. The workbook is the holder for related worksheets. For example we have one book of particular subject. This book contains many pages having different topics related to that subject. Similarly Workbook is collection of many worksheets related to same project or work done in MS EXCL.

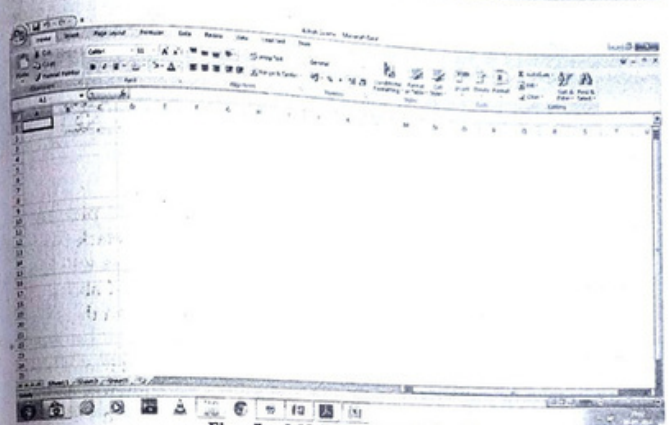


Fig. 5 : MS EXCEL work book

3.3 Working Area of MS EXCEL

New versions of MS Excel are having some different features then previous features and are more advanced and developed. There are three features that you should remember as you work within Excel 2007 or above versions:

- The Microsoft Office Button,
- The Quick Access Toolbar,
- The Ribbon.

The function of these features is explained below.

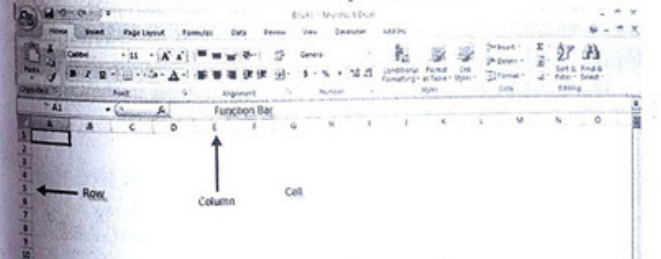


Fig. 6 : Parts of MS Excel

3.3.1 Microsoft Office Button

The Microsoft Office Button performs many of the functions that were located in the File menu of older versions of Excel. This button allows you to

create a new workbook, Open an existing workbook, save and save as, print, send, or close.

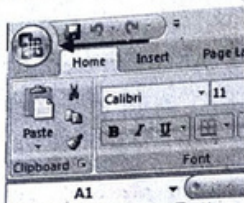


Fig. 7 : MS Office Button

3.3.2 Ribbon

The ribbon is the panel at the top portion of the document. It has seven tabs: Home, Insert, Page Layouts, Formulas, Data, Review, View, load test and Team. Each tab is divided into groups. The groups are logical collections of features designed to perform function that you will utilize in developing or editing your Excel spreadsheets.

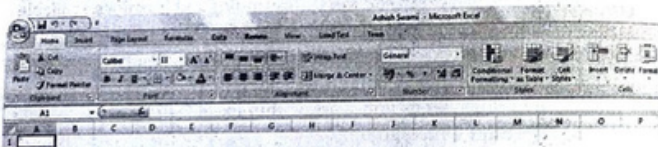


Fig. 8 : Ribbon in Excel

3.3.3 General TABS

The Home Tab: This is one of the most common tabs used in Excel. You are able to format the text in your document, cut, copy, and paste information. Change the alignment of your data, insert, delete, and format cells. The Home Tab also allows you to change the number of your data (i.e. currency, time, date).

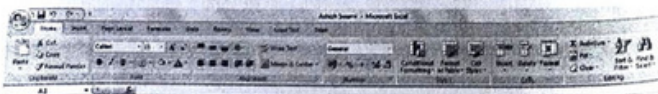


Fig. 9 : Home Tab.

The Insert Tab: This tab is mainly used for inserting visuals and graphics into your document. There are various different things that can be inserted from this tab such as pictures, clip art, charts, links, headers and footers, and

word art:



Fig.10 : Insert Tab.

The Page Layout Tab: Here you are able to add margins, themes to your document, change the orientation, page breaks, and titles. The scale fit of your document is also included as a feature within this tab, if needed.



Page Layout Tab.

The Formula Tab is used to add various formulas and functions available in the MS Excel. As per the requirement we can use desired formulas and if specific formula is not available we can apply that formula on data by entering in formula bar.



Fig.11 : Formula Tab

Commonly utilized features are displayed on the Ribbon. To view additional features within each group, click the arrow at the bottom right corner of each group.

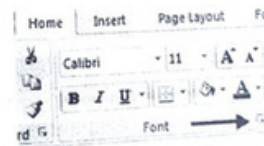


Fig.12 : Expansion Arrow

General Options Available in Common Tabs

- Home: Clipboard, Fonts, Alignment, Number, Styles, Cells, Editing
- Insert: Tables, Illustrations, Charts, Links, Text
- Page Layouts: Themes, Page Setup, Scale to Fit, Sheet Options, Arrange
- Formulas: Function Library, Defined Names, Formula Auditing,

Calculation

Data: Get External Data, Connections, Sort & Filter, Data Tools, Outline

Review: Proofing, Comments, Changes

View: Workbook Views, Show/Hide, Zoom, Window, Macros

3.3.4 Quick Access Toolbar

The quick access toolbar is a customizable toolbar that contains commands that you may want to use. You can place the quick access toolbar above or below the ribbon. To change the location of the quick access toolbar, click on the arrow at the end of the toolbar and click **Show Below the Ribbon**.

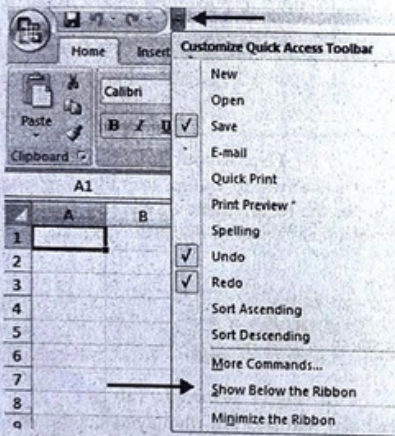


Fig. 13 : Quick Access Toolbar

You can also add items to the quick access toolbar. Right click on any item in the Office Button or the Ribbon and click Add to Quick Access Toolbar and a shortcut will be added.

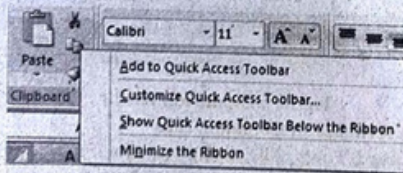


Fig.14 : Adding Button to Quick Access Toolbar

3.3.5 Mini Toolbar

A new feature in Office 2007 is the Mini Toolbar. This is a floating toolbar that is displayed when you select text or right-click text. It displays common formatting tools, such as Bold, Italics, Fonts, Font Size and Font Color.

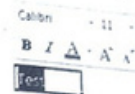


Fig.15 : Floating toolbar

3.4 Creating New Workbook

To create a new Workbook:

- Click the Microsoft Office Toolbar
- Click New
- Choose Blank Document

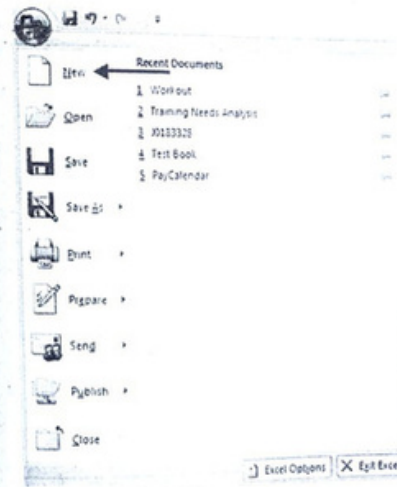


Fig. 16 : Creation of New Workbook

If you want to create a new document from a template, explore the templates and choose one that fits your needs.

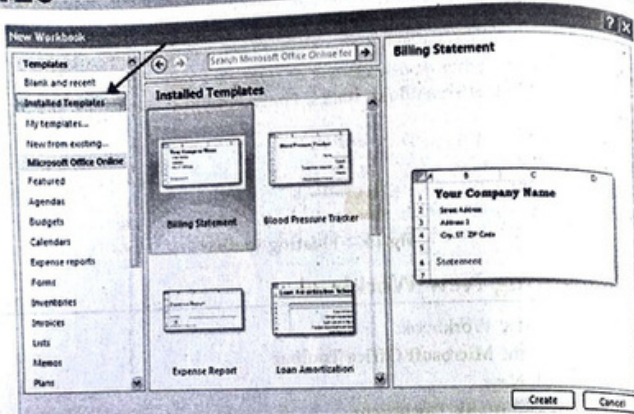


Fig. 17 : Templates of New workbook

3.5 Saving Workbook

When you save a workbook, you have two choices: **Save** or **Save As**. To save a document:

- Click the Microsoft Office Button
- Click **Save**

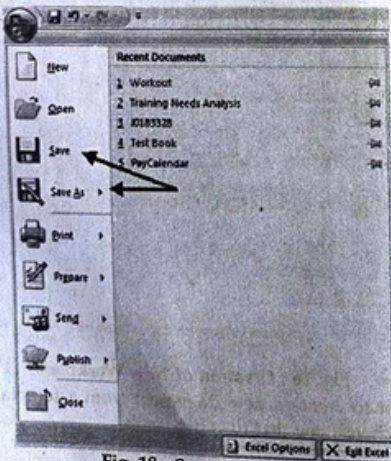


Fig. 18 : Save As button

You may need to use the **Save As** feature when you need to save a workbook under a different name or to save it for earlier versions of Excel. Remember that older versions of Excel will not be able to open an Excel 2007 worksheet unless you save it as an Excel 97-2003 Format. To use the **Save As** feature:

- Click the Microsoft Office Button
- Click **Save As**
- Type in the name for the Workbook
- In the **Save as Type** box, choose Excel 97-2003 Workbook

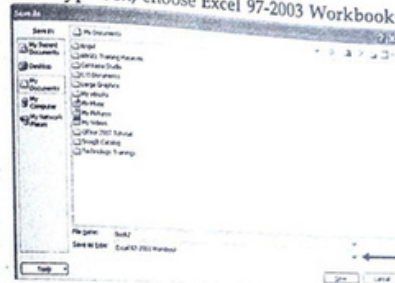


Fig. 19 : Save As window

3.6 Open a Workbook

To open an existing workbook:

- Click the Microsoft Office Button
- Click **Open**
- Browse to the workbook
- Click the title of the workbook
- Click **Open**



Fig. 20 : Open window

3.7 Entering Editing Data

3.7.1 Entering Data

There are different ways to enter data in Excel: in an active cell or in the formula bar.

To enter data in an active cell:

- Click in the cell where you want the data
- Begin typing

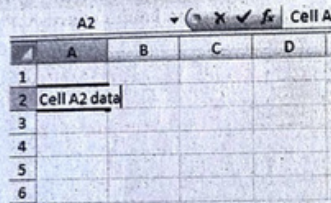


Fig. 21 : Entering Data in Cell

To enter data into the formula bar

- Click the cell where you would like the data
- Place the cursor in the Formula Bar
- Type in the data

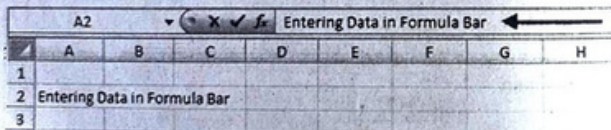


Fig.22 : Entering Data through Formula bar

3.7.2 Editing data of Cell

To change the text in cell A1, you can just click inside of the cell and start typing. Anything you had there previously would be erased. But if you just want to edit the text (if you've made a spelling mistake, for example), then this is not good. If you want to keep most of the text, and just make minor changes, then you need to do something else.

In the image below, you can see what's known as the **Formula Bar**. The Formula Bar is like a long textbox that you can click inside and start typing. Here's what it looks like in Excel:

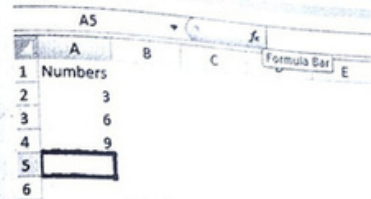


Fig. 23 : Formula bar

To edit a Cell in Excel, first click inside the cell you want to edit (A1 for us). Then click inside the formula bar. Notice where your cursor is now:

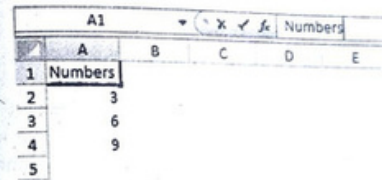


Fig. 24 : Editing text using formula bar

The image above shows that the cell A1 is active, but the cursor is inside of the formula bar.

With the cursor in the Formula Bar, try changing the text "Numbers" to "Add these Numbers". Press the Enter key when you've made the changes. Your spreadsheet should look like below:

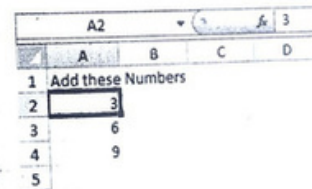


Fig. 25 : Edited text

Notice that the active cell is now A2, and that the Formula Bar has a 3 in it.

However, there's a problem. There's not enough width in cell A1 for our new text. Part of it seems to be in the B column.

The solution is to widen the whole of Column A. Try this:

- Move your mouse up to the start of the A Column
- The pointer will change shape and now be a black arrow

	A	B	C
1	Add these Numbers		
2	3		
3	6		
4	9		
5			

Fig. : 26

- Move your mouse over the line that separates Column A and Column B
- Your mouse pointer will change shape again, this time to a cross with arrows

	A	B	C
1	Add these Numbers		
2	3		
3	6		
4	9		
5			

Fig. 27 :

- When you see the new shape, hold down your left mouse button
- Keep the left mouse button held down, and drag your cross to the right
- Once you have all the text in the A column, let go of the left mouse button. The images below show the process in action:

A2		A2	
	A	B	
1	Add these Numbers		
2	3		
3	6		
4	9		
5			

Fig.28 : Increasing width of column

You can make the height of the Rows bigger or smaller by using exactly the same technique.

3.7.3 Alignment of Row Column

Centre Align Text and Numbers

We discussed that by clicking inside of a cell it makes it active, so that you can make changes. We want to centre all our numbers and the text. Here's the spreadsheet we have:

	A	B
1	Add these Numbers	
2	3	
3	6	
4	9	
5		

Fig.: 29

So we need cells A1, A2, A3 and A4 to be active. In Excel, you can do this by highlighting the cells.

- Place your mouse over cell A1
- Your pointer should now be in the shape of a white cross
- When your pointer changes to the white cross, hold your left mouse button down and drag to cell A4
- Let go of the left mouse button when cells A1, A2, A3 and A4 are highlighted
- The image below shows what you are aiming for

	A	B	C	D
1	Add these Numbers			
2	3			
3	6			
4	9			
5				

Fig. 30 : Selecting different cells

The cells highlighted in the image above have a different colour to the normal white colour of a cell. When you highlight cells, you can do things to all the cells as a group.

To centre the text and numbers in our highlighted cells, try this:

- From the Excel Ribbon at the top of the screen, locate the Alignment panel. Here's the Alignment panel in Excel:



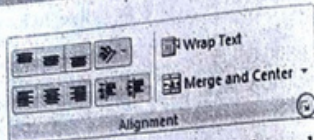
Fig. 31 : Alignment options

You can see the various alignment options laid out. These ones:



Hold your mouse over each alignment icon and you'll see an explanation of what they do. Click each icon and see what they do to your highlighted cells.

You can also click the arrow in the bottom right of the Alignment panel to bring up the Format Cells box (the one circled below).



When you click the arrow, you'll see this dialogue box:

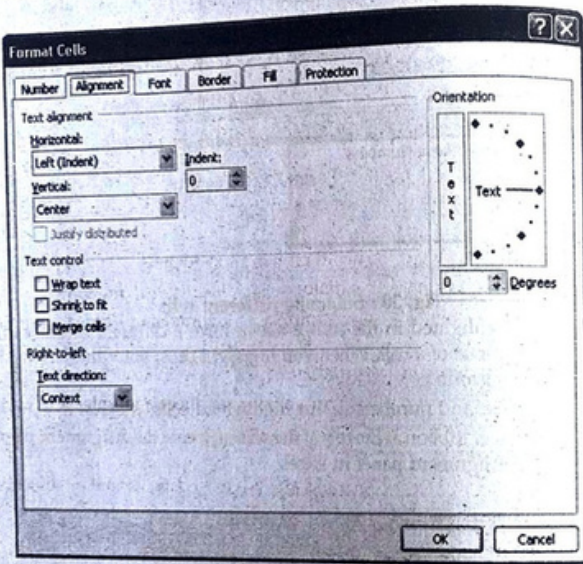


Fig. 32 : Alignment cell

Notice the Text Alignment section at the top of the Alignment tab. It has two drop down menus, one for Horizontal alignment and one for Vertical alignment.

- Click the arrow on the Horizontal drop down menu, the one with Left (Indent) on it
- You'll see the following:



As you can see, you have plenty of options to choose from in Excel. But click on **Center**. Do the same for the Vertical drop down menu. Then click OK at the bottom of the Format Cells dialogue box. The text and numbers in cells A1, A2, A3 and A4 should now be centred, and your spreadsheet will look like the one below:

	A	B
1	Add these Numbers	
2	3	
3	6	
4	9	
5		
6		
7		

Fig.33 : Formatted Alignment

Before moving on to other types of formatting you can do in Excel, you can try of this:

- Highlight the cells A5 and A6 on your spreadsheet
- Bring up the Format Cells dialogue box, just as you did above
- Make the alignment changes from the Horizontal and Vertical drop down menus
- Click OK to get rid of the dialogue box
- Now click inside of cell A5 on your spreadsheet and enter any number you like
- Hit the Enter key

The number you just entered should also be centred. So even if a cell is empty you can still apply formatting to it.

3.7.4 Font Formatting

After performing the formatting learnt above our excel spreadsheet will look like following figure.

	A	B
1	Add these Numbers	
2	3	
3	6	
4	9	
5		
6		
7		

Fig : 34

From Excel 2007 version much wider range of formatting options is available than previous versions and it's relatively easy to turn a dull spreadsheet into something that really shines. We will now discuss how to change the font.

Choosing a Font in Excel

You can pick a different font for the data you enter into cells, as well as choosing the size you want. The colour of the font, and the cell background, can be changed, too. From Excel 2007 onwards, Themes have been introduced, so that you can format your spreadsheets more easily. You'll meet these later. First, we'll see how to change the font type.

- Highlight cell A1 on your spreadsheet by simply clicking into it
- Locate the Font panel on the Excel Ribbon at the top of the page:

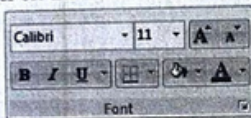


Fig. 35 : Font tab

The font in the panel above is set to Calibri. To see more fonts, click the black down arrow:



Fig. 36 : Font options

The good things about Excel 2007 and above versions is that when you move your mouse over one of the fonts on the list, the text in your selected cell (A1) will change automatically. This is just a preview, though. When you have decided on the font you want, click it with the left mouse button. You can change the size of the font in the same way - just choose a new font size from the list of numbers in the drop down box.

If you want to change the font via the Format Cells dialogue box, as you did in previous versions of Excel, you can click the small arrow in the bottom right of the Font panel :

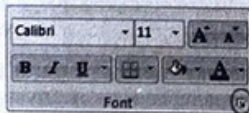


Fig. : 37

When you click the arrow, you'll see the Format Cells dialogue box. You can choose various options from this dialogue box: Font size, style, size, etc. The dialogue box looks like this:

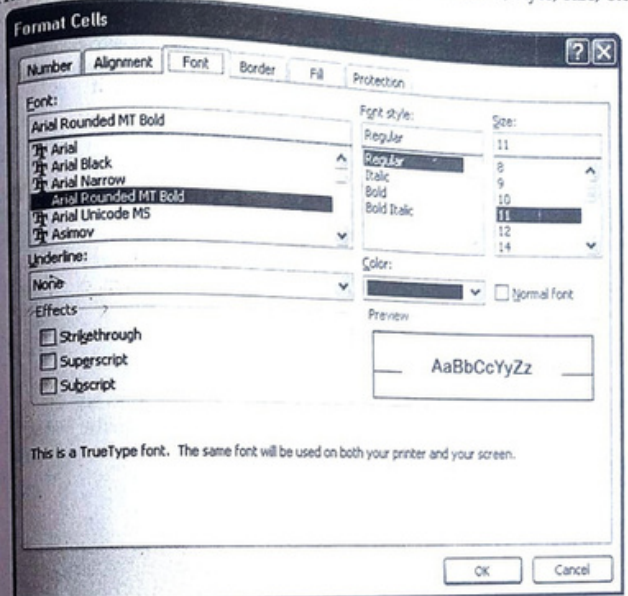


Fig. 38 : Format cell font tab

You can also set the font colour from here, and add text effects. Click OK when you have made your choices.

When you have changed the font and font size, your A1 cell might look something like this:

	A1	Add these Numbers		
	A	B	C	D
1	Add these Numbers			
2		3		
3		6		
4		9		
5		12		
6				

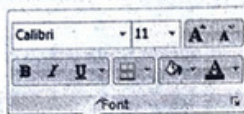
Fig. : 39

3.7.5 Change the Background Colour of a Cell

To change the background colour of cells, you first have to highlight the

ones you want to alter. We'll start with the cells A2 to A5. So highlight these cells on your spreadsheet.

- With the cells A2 to A5 highlighted, locate the Font panel on the Ribbon at the top of the Excel:



- Locate the Paint Bucket, and click the arrow just to the right of it. You'll see some colours appear:

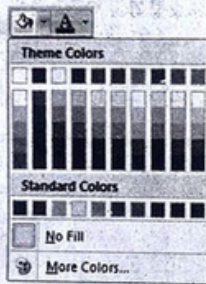


Fig. 40 : Color pallet

Move your mouse over any of the colours and the cells will change automatically. You can then see what the new colour looks like. Click with the left mouse button to set the colour you want. If you don't like any of the colours displayed, click on "More Colors".

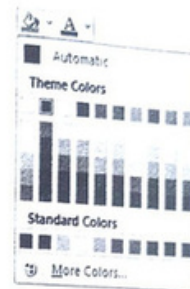
Once you have the number cells formatted in a different colour, click on the cell A1. Now do exactly the same thing, only this time choose a contrasting colour for the background of this cell. Your spreadsheet should then look something like the one below.

	A	B	C
1	Add these Numbers		
2	3		
3	6		
4	9		
5	12		
6			

Fig. 41 : Cells with background color

3.7.6 Change the Text colour

To change the colour of the text itself, click the down arrow just to the right of the letter A, which is just to the right of the Paint Bucket on the Font panel.



Select a colour just like you did for the background colour of the cell. Here's what your spreadsheet might look like with the background cell colour changes, and the text colour:

	A	B	C
1	Add these Numbers		
2	3		
3	6		
4	9		
5	12		
6			

Fig. 42 : Edited text color

3.8 Auto Fill

The Auto Fill feature fills cell data or series of data in a worksheet into a selected range of cells. If you want the series of some data copied into the other cells, you only need to complete one cell. If you want to have a series of data (for example, days of the week, Months of Year, Numbering, etc) fill in the first two cells in the series and then use the auto fill feature. To use the Auto Fill feature:

- Click the Fill Handle
- Drag the Fill Handle to complete the cells

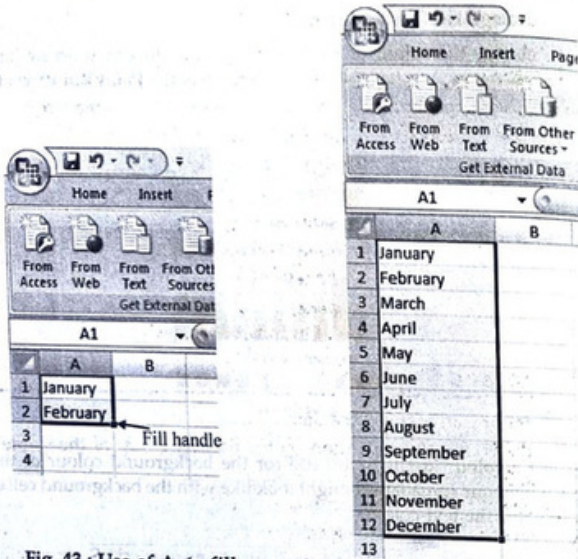


Fig. 43 : Use of Auto fill

In above example we have used Auto Fill to write name of months of year. Here we have written only first two months of year January and February in consecutive cells, then after that we have used fill handle to drag and all the other names of months of year automatically filled in the consecutive cells.

Fig.44 : Auto fill

3.9 Insert Cells, Rows, and Columns

To insert cells, rows, and columns in Excel:

- Place the cursor in the row below where you want the new row, or in the column to the left of where you want the new column
- Click the Insert button on the Cells group of the Home tab
- Click the appropriate choice: Cell, Row, or Column

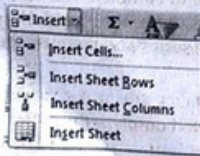


Fig. 45 : Options of Insert

Delete Cells, Rows and Columns

To delete cells, rows, and columns:

- Place the cursor in the cell, row, or column that you want to delete
- Click the Delete button on the Cells group of the Home tab
- Click the appropriate choice: Cell, Row, or Column

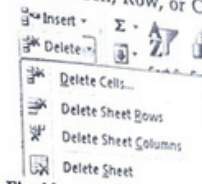


Fig.46 : Options of Delete

3.10 Find and Replace

To find data or find and replace data:

- Click the Find & Select button on the Editing group of the Home tab
- Choose Find or Replace
- Complete the Find What text box
- Click on Options for more search options

This command works same as we have discussed in M.S. word.

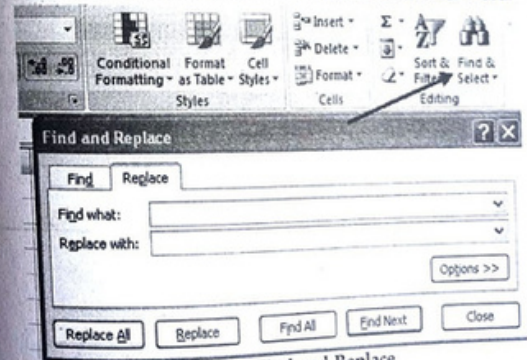


Fig. 47 : Find and Replace

Go To Command

The Go To command takes you to a specific cell either by cell reference (the Column Letter and the Row Number) or cell name.

- Click the Find & Select button on the Editing group of the Home tab
- Click Go To

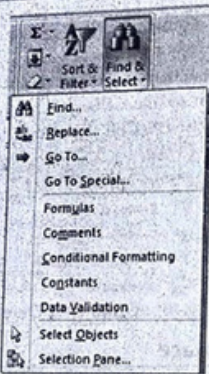


Fig.48 : Options of find & Replace

3.11 Spell Check

To check the spelling:

- On the Review tab click the Spelling button

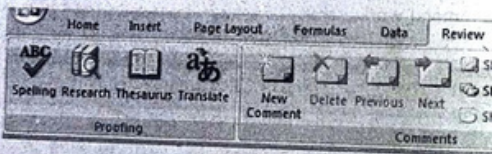


Fig. 49 : Spell check tab

3.12 Merge Cells

	A	B	C
1	Shopping Bill		
2			
3	Item	Quantity	Price (In Rs)
4	Soap	5	50
5	Cold Drink	5	75
6	Tea	2	100
7	Watch	1	2500
8	Mobile	1	20000

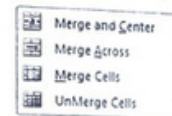
Fig.50 : Merge cells

If you look at Row 1, you'll see that the "Shopping Bill" heading stretches across three cells. This is not three separate cells, with a colour change for each individual cell. The A1, B1 and C1 cells were merged. To merge cells, do the following.

- Type the words Shopping Bill into cell A1 of a spreadsheet
- Highlight the cells A1, B1 and C1
- On the Alignment panel of the Excel Ribbon, locate the "Merge and Center" item:



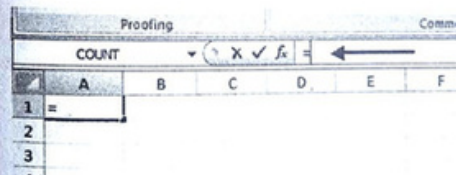
- Click the down arrow to see the following options:



Click on "Merge and Center". Your three cells will then become one - A1, to be exact!

3.13 Excel Formulas

A formula is a set of mathematical instructions that can be used in Excel to perform calculations. Formals are started in the formula box with an '=' sign.



There are many elements to and excel formula.

References: The cell or range of cells that you want to use in your calculation

Operators: Symbols (+, -, *, /, etc.) that specify the calculation to be performed

Constants: Numbers or text values that do not change

Functions: Predefined formulas in Excel

- To create a basic formula in Excel:
- Select the cell for the formula
- Type = (the equal sign) and the formula.
- Click Enter

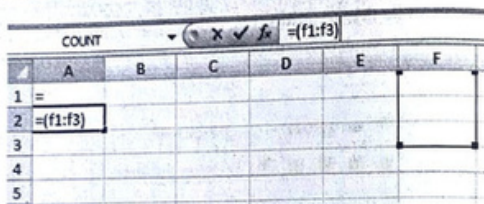


Fig. 51 : Entering Formula

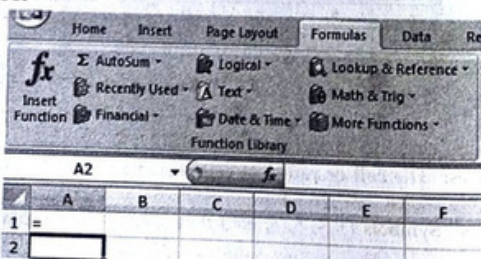
3.13.1 Calculate with Functions

A function is a built in formula in Excel. A function has a name and arguments (the mathematical function) in parentheses. Common functions in Excel:

- Sum:** Adds all cells in the argument
- Average:** Calculates the average of the cells in the argument
- Min:** Finds the minimum value
- Max:** Finds the maximum value
- Count:** Finds the number of cells that contain a numerical value within a range of the argument

To calculate a function:

- Click the cell where you want the function applied
- Click the **Insert Function** button
- Choose the function
- Click OK



- Complete the Number 1 box with the first cell in the range that you want

- calculated
- Complete the Number 2 box with the last cell in the range that you want calculated

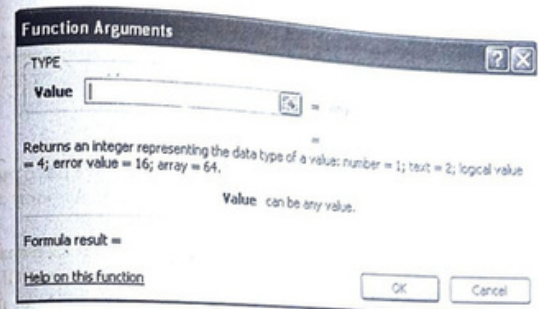


Fig. 52 : Function Argument

3.13.2 Function Library

The function library is a large group of functions on the Formula Tab of the Ribbon. These functions include:

- AutoSum:** Easily calculates the sum of a range
- Recently Used:** All recently used functions
- Financial:** Accrued interest, cash flow return rates and additional financial functions
- Logical:** And, If, True, False, etc.
- Text:** Text based functions
- Date & Time:** Functions calculated on date and time
- Math & Trig:** Mathematical Functions

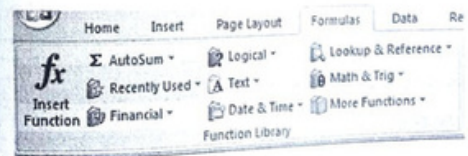


Fig.53 : Function library

Example

In the given example we will add the sales figure of individual salesman and total sales of company in a week.

Sales Man	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Total
Salesman 1	2	5	6	3	8	1	4	29
Salesman 2	5	8	1	3	2	4	9	32
Salesman 3	1	4	6	3	8	9	2	33
Salesman 4	5	6	8	5	8	6	4	42
Salesman 5	8	2	5	1	2	6	8	32
Total	21	25	26	15	31	26	27	169

Fig. 54 : Sales target

In this example we have applied sum formula on cell B9. We have put "=" sign and selected the range of cells starting from B4 till B8. As soon as we enter the total sales of all sales man will be displayed in cell B9.

Similarly if we want to check the total sales of individual salesman for whole week then we will apply same formula in cell I4. Here we will after putting = sign will define cells range from B4 till H4 and will get total in cell I4.

Steps to apply Formula using Auto Fill

To apply same formula in all other cells we can use **Auto Fill** function which will copy formula to other cells. For this we just have to drag the cursor from function cell to other cells where we have to copy the function. Following figures will display the results.

- Place your mouse pointer to the bottom right of cell B9
- The pointer will turn into a thin black cross:
- Hold down your left mouse button
- Keep it held down, and drag your mouse to cell H9:

Sales Man	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Total
Salesman 1	2	5	6	3	8	1	4	29
Salesman 2	5	8	1	3	2	4	9	32
Salesman 3	1	4	6	3	8	9	2	33
Salesman 4	5	6	8	5	8	6	4	42
Salesman 5	8	2	5	1	2	6	8	32
Total	21	25	26	15	31	26	27	169

Fig. 55 : Use of Auto fill for formulas

With your mouse pointer over cell H9, let go of the left button. Excel will AutoFill the rest of the formulas. It uses the same formula from cell B9 to get the answers, and just alters all the cell references. Without AutoFill, you'd have to type it all out yourself!

The answers on Row 9 of your spreadsheet should be the same as ours in the image below:

Sales Man	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Total
Salesman 1	2	5	6	3	8	1	4	29
Salesman 2	5	8	1	3	2	4	9	32
Salesman 3	1	4	6	3	8	9	2	33
Salesman 4	5	6	8	5	8	6	4	42
Salesman 5	8	2	5	1	2	6	8	32
Total	21	25	26	15	31	26	27	169

Fig. 56 : Total of sales

Notice the formula bar in the image. It shows the formula in cell H9. This is:

=Sum(H4:H8)

The formula we started with was:

=Sum(B4:B8)

Sales Man	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Total
Salesman 1	2	5	6	3	8	1	4	29
Salesman 2	5	8	1	3	2	4	9	32
Salesman 3	1	4	6	3	8	9	2	33
Salesman 4	5	6	8	5	8	6	4	42
Salesman 5	8	2	5	1	2	6	8	32
Total	21	25	26	15	31	26	27	169

Fig. : 57

Here in this example cell I9 represents total sales of the company by all 5 salesman in particular week. In this manner we can apply formulas in the cells for our calculations.

3.13.3 General Functions in Excel

3.13.3.1 The SUM Function in Excel : We have used sum function in earlier sections. You saw that the basic way to add things up was by doing this:

=A1 + B1 + C1

You've also used the in-built SUM function:
=SUM(A1:C1)

Whichever of these two you used, the answer was the same - Excel will add up whatever numbers you have in the cells A1, B1, and C1. The two methods above are adding up consecutive cells. But what if you want to add up the following, non-consecutive cells: A1, B1, C1, D9?

Well, you can combine the two methods. So you can do it like this:

= Sum(A1:C1) + D9

or you can do it like this:

= Sum(A1:C1, D9)

For the first method, just type a plus sign after your SUM function, followed by the cell you want to include:

= Sum(A1:C1) + D9

You can include as many other cells as you like:

= Sum(A1:C1) + D9 + E12 + G25

You can even use another SUM function:

= Sum(A1:C1) + SUM(G1:H1)

But you are just telling Excel which cells in your spreadsheet that you want to include in your addition formula.

The second method to add up non-consecutive cells starts in the same way: use a SUM function, and separate your consecutive cells with a colon:

= Sum(A1:C1)

To include the non consecutive cells, type a comma, followed by the cell you want to include:

= Sum(A1:C1, D9)

You can include other cells, as well:

= Sum(A1:C1, D9, E12, G25)

The thing to note is that all the cells are between the round brackets of the SUM function. Excel knows that SUM means to add up, so it sees each cell reference separated by commas, and then includes them in the addition.

To give you some practice, try this exercise.

Exercise

Create a simple spreadsheet with the number 3 in cells A1, B1, C1 and D1. Enter another number 3 in cell A2. Use one of the non consecutive addition formulas above to add up the values in all five cells. Your spreadsheet will then look like this, once you have the correct formula:

	A	B	C	D
1	3	3	3	3
2	3			
3				
4	15			
5				

Fig. : 58

In the picture above, cell A4 displays the correct answer.

Selecting Non Consecutive Cells

Another way to select non-consecutive cells for your SUM functions is by holding down the CTRL key on your keyboard, and then left click in the cell you want to add. Try this:

- Click inside a different cell in your spreadsheet (B4, for example). Then click inside the formula bar at the top
- Now type the following into the formula bar (Don't forget to add the colon at the end):

=SUM(A1:

- The cell A1 will be highlighted on the spreadsheet. It will have sizing handles, so that you can stretch the selection
- Hold your left mouse button over the bottom right blue square, and drag to cell D1. Your spreadsheet should look like this:

	A	B	C	D
1	3	3	3	3
2	3			
3				
4	15			
5				

Fig. : 59

Excel will add the cells to your formula. But it will also add a colon after D2. We don't want this, because a colon means "add up a range of cells". So delete the colon and type a comma instead.

Now that you have the cells A1 to D1 selected, hold down the left CTRL key on your keyboard. Keep it held down, and click inside cell A2 with your left mouse button:

	A	B	C	D
1	3	3	3	3
2	3			
3				
4	15			
5				

Fig. : 60

The cell A2 is highlighted, in the image above. Excel will add this to your formula.. To finish off, add the right bracket). Then press the enter key on your keyboard.

Using this method, you can add as many individual cells as you want for your formula.

Exercise

On a new sheet, enter the number 3 in the following cells: A1, B1, C1, D1, E1. Then type a 3 in the cells A3, C3 and E3. Using non-consecutive addition, display your answer in cell A5. The finished spreadsheet will then look like ours below:

	A	B	C	D	E	F
1	3	3	3	3	3	
2						
3	3		3		3	
4						
5	=SUM(A1:A5)					24
6						

Fig. : 61

The answer to the addition, 24, is displayed in A5. Only one Sum function was used here, with the other cells separated by commas.

Adding up shouldn't cause you too many problems. The tricky part is selecting all the cells that you want to include. In the next part, we'll at multiplication.

3.13.3.2 Multiply in Excel : In an earlier section, you saw how to multiply two numbers. You use the asterisk symbol between two cell references:

$$= A4 * B5$$

If you need to multiply more than two numbers, you don't have to do this:

$$= A4 * A5 * A6 * A7 * A8$$

You can use the colon (:) notation to shorten the formula. With addition, you used the word SUM, and placed your formula between round brackets:

$$= SUM(A4:A8)$$

With multiplication, you can use the word PRODUCT instead. Like this:

$$= PRODUCT(A4:A8)$$

The only thing that has changed here is the name of the inbuilt function: PRODUCT instead of SUM. But Excel 2007 will see the word Product and multiply whatever is between the round brackets.

You can use PRODUCT in the same way you did for SUM. For example, if you wanted to add up values in cells A4 to A8, and cells B4 and B5, you'd do it like this:

$$= PRODUCT(A4:A8, B4, B5)$$

To give you some practice, try these exercises.

Exercise

On a new worksheet, enter the number 1, 2, 3, 4 and 5. Put them into cells A1 to E1. Now use PRODUCT to multiply all five numbers. Place your answer in cell A3. If you get it right, your spreadsheet should look like ours:

	A	B	C	D	E	
1	1	2	3	4	5	
2						
3	=PRODUCT(A1:E1)					120
4						

Fig. : 62

Exercise

For this exercise, delete your answer in cell A3. (You can do this by clicking into cell A3, and then hitting the Delete key on your keyboard). Now type a 6 in cell A3, a 7 in cell C3, and an 8 in cell E3. Use PRODUCT to multiply all 8 numbers. Place your answer in cell A5. Your spreadsheet will look like ours below, when you have the correct answer:

	A	B	C	D	E	
1	1	2	3	4	5	
2						
3	6		7		8	
4						
5	=PRODUCT(A1:A5, B1:B5, C1:C5, D1:D5, E1:E5)					40320
6						

Fig. : 63

3.13.3.3 Subtract in Excel

In this part you'll see how to Subtract values of cells in Excel.

Subtraction in Excel : You saw that to subtract one number from another, you just use the minus sign:

$$= A1 - A2$$

The image below shows the value in cell A2 being deducted from the value in cell A1. The formula has been entered in cell A3. You can see the formula in formula bar.

	A	B	C	D	E	
1	25	14				
2						
3	=A1-B1					11
4						

Fig. : 64

If you want to subtract more than two cells you can do it like this:

$$= A1 - B1 - C1$$

Subtraction in Excel is fairly straightforward, and shouldn't cause you too many problems.

3.13.3.4 Division in Excel : Dividing one value from another involves using the forward slash symbol (/). An example of its use is this:

$$= A1 / C1$$

Here, we're just telling Excel to divide the cell value on the left of the slash symbol by the cell value on the right. Division is fairly straightforward, too.

3.13.4 Combining Arithmetic Operators

You can combine all the basic arithmetic operators to produce more complex formulas. We'll see how to do that now.

The basic operators you've just met can be combined to make more complex calculations. For example, you can add to cells together, and multiply by a third one. Like this:

$$= A1 + A2 * A3$$

Or this:

$$= A1 + A2 - A3$$

And even this:

$$= \text{SUM}(A1:A9) * B1$$

In the above formula, we're asking Excel to add up the numbers in the cells A1 to A9, and then multiply the answer by B1. You'll get some practise with combining the operators shortly. But there's something you need to be aware of called Operator Precedence.

Operator Precedence

Some of the operators you have just met are calculated before others. This is known as Operator Precedence. As an example, try this:

- Open a new Excel spreadsheet
- In cell A1 enter 25
- In cell A2 enter 50
- In cell A3 enter 2

Now click in cell A5 and enter the following formula:

$$=(A1 + A2) * A3$$

Hit the enter key on your keyboard, and you'll see an answer of 150.

The thing to pay attention to here is the brackets. When you place brackets around cell references, you section these cells off. Excel will then work out the answer to your formula inside of the brackets, $A1 + A2$ in our formula. Once it has the answer to whatever is inside of your round brackets, it will move on and calculate the rest of your formula. For us, this was multiply by 2. So Excel is doing this:

- Add up the A1 and A2 in between the round brackets
- Multiply that answer by A3

Now try this:

- Click inside A5 where your formula is
- Now click into the formula bar at the top
- Delete the two round brackets
- Hit the enter key on your keyboard

What answer did you get? The images below show the answers with brackets and without brackets:

	A	B	C	D	E
1	25				
2	50				
3	2				
4					
5	150				
6					

Fig. 65 : With brackets

	A	B	C	D	E
1	25				
2	50				
3	2				
4					
5	125				
6					

Fig. 66 : Without brackets

So why did Excel give you two different answers? The reason it did so is because of operator precedence. Excel sees multiplication as more important than adding up, so it does that first. Without the brackets, our formula is this:

$$A1 + A2 * A3$$

You and I may work out the answer to that formula from left to right. So we'll add $A1 + A2$, and THEN multiply by $A3$. But because Excel sees multiplication as more important, it will do the calculation this way:

- Multiply A2 by A3 first
- THEN add the A1

We have 50 in cell A2, and in cell A3 we have the number 2. When you multiply 50 by 2 you get 100. Add the 25 in cell A1 and the answer is 125.

When we used the brackets, we forced Excel to do the addition first:

$$(A1 + A2) * A3$$

Add the 25 in cell A1 to the 50 in cell A2 and you get 75. Now multiply by the 2 in cell A3 and you 150.

One answer is not more correct than the other. But because of operator precedence it meant that the multiplication got done first, then the addition. We had to use round brackets to tell Excel what we wanted doing first. Here's another example of operator precedence.

Substitute the asterisk symbol from your formula above with the division symbol. So instead of this:

$$= (A1 + A2) * A3$$

the formula will be this:

$$= (A1 + A2) / A3$$

When you hit the enter key on your keyboard, you should get an answer of 37.5.

Now click into cell A5, and then click into the formula bar. Delete the two round brackets, and hit the enter key again. What answer did you get this time? Here's the two images:

	A	B	C	D	E
1	25				
2	50				
3	2				
4					
5	37.5				
6					

Fig. 67 : With the brackets

	A	B	C	D	E
1	25				
2	50				
3	2				
4					
5	50				
6					

Fig. 68 : Without the brackets

Just like multiplication, division is seen as more important than addition. So this will get done first. Without the brackets, Excel will first divide A2 by A3. When it has the answer, it will then add the A1. We used the round brackets to force Excel to calculate things differently. Hence the two different answers. One final example.

Change you formula in cell A5 to this:

$$= (A1 * A2) / A3$$

Hit the enter key, and you should get an answer of 625.

Again remove the brackets, and hit the enter key. You'll still have an answer of 625. That's because Excel treats multiplication the same as division: they have equal importance. When this happens, Excel will work out the answer from left to right.

Addition and subtraction are also seen as equal to each other. Try this formula in cell A5:

$$= A1 + A2 - A3$$

Now put some round brackets in. Try this first:

$$= (A1 + A2) - A3$$

And then see what happens when you try this:

$$= A1 + (A2 - A3)$$

Was there any difference? There shouldn't have been. You should have the same answer.

So keep Operator Precedence in mind - all sums are not treated equally!

3.13.5 The Average Function in Excel

If you're trying to work out an average, you're trying to calculate what the most common value is. For example, if a class of eight students took exams, you may want to know what the average exam score was. In other words, what result most students can expect to get. In order to calculate an average, you'd add up all eight exam scores and divide by how many students took the exam. So if the total for all eight students was 400, dividing by 8 would get you 50 as the average grade. If any students were below the average, you can tell at a glance.

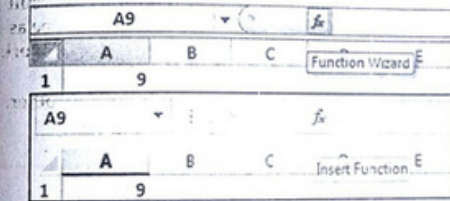
In Excel, there is an easy way to calculate the average of some numbers - just use the inbuilt Average function.

Start a new spreadsheet and enter the following exams scores in cells A1 to A8, as in the image below:

	A	B	C
1	9		
2	7		
3	6		
4	7		
5	8		
6	4		
7	3		
8	9		
9			

Click in cell A9, and we'll see how to use the Average function in Excel 2007. There are two ways we can do this. Try method 1 first.

Method 1 : Next to the formula bar, you'll see an FX button. This is the Formula Wizard:



When you click the FX button, you'll see the Insert Function dialogue box appear:

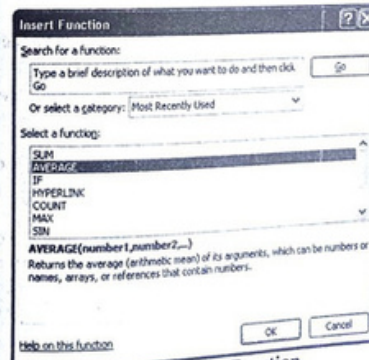


Fig. 69 : Insert Function

The Insert Function dialogue box shows a list functions. These are the just the common ones. To see more functions, click the drop down list to the right of Select a category. The one we want is displayed under Select a function, though - Average. Click on this, and then click OK.

When you click OK, another dialogue box appears. On this dialogue box, you select the data that you want to include in your function:

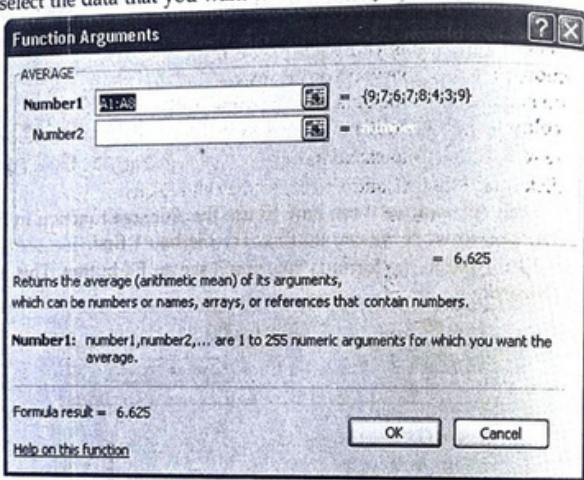


Fig. 70 : Average function

If you look in the Number1 box, you'll see Excel has guessed which cells we want to use for our Average function - A1:A8. It evens gives the answer to the Function - 6.625.

Click OK to insert the function.

Method 2: The second way to enter a Function in Excel is through the panels on the Ribbon. Try this:

- Click inside cell B9 on your spreadsheet. This is where we'll place the Average for the cells A1 to A8.
- Click the Formulas menu at the top of Excel
- Locate the Function Library panel. Here it is in Excel 2007

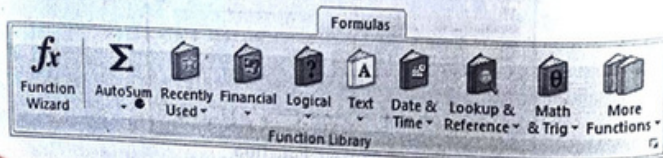
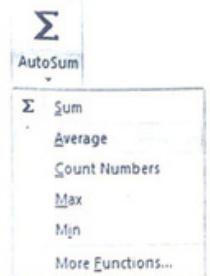


Fig. 71 : Fomula tab

As you can see, in Excel functions are split into categories. The Average function is in a few places. The easiest way to use Average is with AutoSum. Click the down arrow on AutoSum to see the following:



Now click Average from the menu. Because the answer is going in cell B9, Excel doesn't know which cells you want to use in the function, so it can't give you a quick answer. AutoSum is good when the data is in the same row or column. But when it's not, you have to tell it what to calculate.

Fig. 72 : Excel Function

So click inside cell A1 and you'll see the cell selected

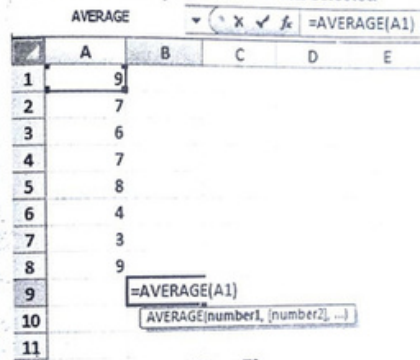


Fig. : 73

Hold down your left mouse button over the bottom right blue square, and drag to cell A8:

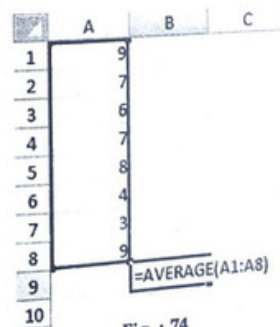


Fig. : 74

Excel fills in the cells for your function. Let go of the left mouse button, and then press the Enter key on your keyboard. The correct answer is placed in cell B9:

	A	B	C	D	E	F
1	9					
2	7					
3	6					
4	7					
5	8					
6	4					
7	3					
8	9					
9		6.625				
10						

You can also find the Average function on the More Functions menu. Click Statistical, and you'll see it there:

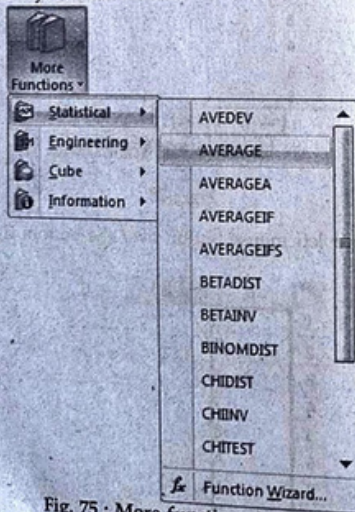


Fig. 75 : More functions in Excel

Of course, once you know the correct function, you could simply type it all out in the Formula bar yourself!

3.13.6 The IF Function

The IF function can be quite useful in a spreadsheet. It is used when you want to test for more than one value. For example, has a bill been paid or not? If it has, you can deduct the amount from the money you have left to spend; if it hasn't, keep it on your debt list. Later, you'll see how to use the IF Function to grade student exam scores. If the student has above 80, award an A grade; if the student has below 30, award a fail grade. First, here's what an IF Function looks like:

IF(logical_test, value_if_true, value_if_false,)

The thing to note here is the three items between the round brackets of the word IF. These are the arguments that the IF function needs. Here's what they mean:

logical_test

The first argument is what you want to test for. Is the number in the cell greater than 80, for example?

value_if_true

This is what you want to do if the answer to the first argument is YES. (Award an A grade, for example)

value_if_false

This is what you want to do if the answer to the first argument is NO. (Award a FAIL grade.)

If that's not clear, we will take an example clear things. Open a new spreadsheet, and do the following:

- Widen the B column a bit, as we'll be putting a message in cell B1
- Now click in cell A1 and type the number 6
- Type the following in the formula bar (The right angle bracket after A1 means "Greater Than".)

=IF(A1 > 5, "Greater than Five", "Less than Five")

Hit the enter key on your keyboard and your spreadsheet should look like ours below:

	A	B	C	D	E	F	G
1	6	Greater than Five					
2							
3							

Fig. : 75

(Make sure you have all the commas and double quotes in the correct place, otherwise Excel will give you an error message. That right angle bracket (>) is known as a Conditional Operator.)

But what we're saying in the IF function is this:

logical_test: Is the value in cell A1 greater than 5?

value_if_true: If the answer is Yes, display the text "Greater than Five"
 value_if_false: If the answer is NO, display the text "Less than Five"

So your first tell Excel what you want to check the cell for, then what you want to do if the answer is YES, and finally what you want to do if the answer is NO. You separate each part with a comma.

Exercise

Try this:

- Click into cell A1
- Change the 6 into a 4
- Hit the enter key on your keyboard

What happens?

Exercise

Now type the number 5 in cell A1. What happens now?

For the last exercise above, Excel should tell you that 5 is "Less than 5"! It does this because the answer to your logical test was NO. We were testing if the number in cell A1 was greater than 5. Since 5 is not greater than 5, the answer to the question is NO. We've told Excel to display a message of "Less than 5", if the answer was NO. In other words, we didn't tell Excel what to do if the value in cell A1 was the same as 5.

The solution to this is to use a different Conditional Operator. We used the Greater Than (>) operator. Here's some more:

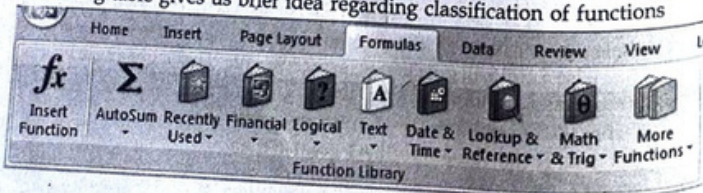
- < Less Than
- >= Greater than Or Equal To
- <= Less than Or Equal To
- <> Not Equal To

For the second and third operators above, you type an angle bracket followed by the equals sign. There are no spaces between the two. For the final one, it's a left angle bracket followed by a right angle bracket.

So for our exercise, the symbol we should have used was the one for Greater than Or Equal To. Change your IF function to this and try again:
 =IF(A1 >= 5, "Greater than or Equal to Five", "Less than Five")

There are many more use of if function. We can use it in more complex manner as per the requirement of user. We could also use nested if conditions and more complex conditions to get our results.

MS Excel provides us various types of functions based on categories. Following table gives us brief idea regarding classification of functions



	Function	Work	Available Functions
1	Auto Sum	These are group of functions that helps in adding, counting, finding max, minimum numbers.	SUM(), AVERAGE(), Count Number(), Max() Min()
2	Recently Used	These are group of functions which are used recently in a worksheet.	
3	Financial	These functions are used in financial analysis of data.	PV, RATE, PRICE, etc
4	Logical	These functions are used in calculating logical values of data.	AND, NOT, IF, TRUE, OR, FALSE
5	Text	These functions are used for text alterations and other functions related to text.	CLEAN, CODE, LOWER, CONCATINATE, UPPER
6	Date & Time	These functions are related to date and time calculations.	DATE, DAY, HOUR, TIME, MONTH
7	Lookup & Reference	These functions are used to look up various options in the data of worksheet.	INDEX, ROW, CHOOSE, AREA, MATCH
8	Maths & Trigonometry	These functions are used for mathematical and trigonometry calculations.	ABS, FACT, FLOOR, SIN, COS
9	More Functions	These functions have more groups of functions used for advanced calculations.	Statistical, Cube, Engineering

Table : Functions

We can get full information regarding these functions from help menu of Microsoft. We just have to bring our cursor on the icon of specific formula and then press F1 function key, Microsoft built in help will describe the function and all the options used under that category.

3.14 Cell Reference

Cell references can indicate particular cells or cell ranges in columns and rows.

Cell references identify individual cells in a worksheet. They tell Excel where to look for values to use in a formula.

Excel uses a reference style called A1, which refers to columns with letters and to rows with numbers. The letters and numbers are called row and column headings. The table shows how to refer to cells by using the column letter followed by the row number.

CELL REFERENCES	REFER TO VALUES IN
A10	the cell in column A and row 10
A10,A20	cell A10 and cell A20
A10:A20	the range of cells in column A and rows 10 through 20
B15:E15	the range of cells in row 15 and columns B through E
A10:E20	the range of cells in columns A through E and rows 10 through 20

Table : Cell References

Types of References

①	②
=C4*\$D\$9	
=C5*\$D\$9	
=C6*\$D\$9	
↓	↓

Relative Every relative cell reference in a formula automatically changes

when the formula is copied down a column or across a row. This is why in the below given example you could copy the January formula to add up February expenses. As the example illustrated here shows, when the formula =C4*\$D\$9 is copied from row to row, the relative cell references change from C4 to C5 to C6.

Absolute An absolute cell reference is fixed. Absolute references don't change if you copy a formula from one cell to another. Absolute references have dollar signs (\$) like this: \$D\$9. As the art shows, when the formula =C4*\$D\$9 is copied from row to row, the absolute cell reference remains as \$D\$9.

Mixed A mixed cell reference has either an absolute column and a relative row, or an absolute row and a relative column. For example, \$A1 is an absolute reference to column A and a relative reference to row 1. As a mixed reference is copied from one cell to another, the absolute reference stays the same but the relative reference changes.

Note : 1 Relative references change as they are copied.

2 Absolute references stay the same as they are copied.

SUM					
	A	B	C	D	E
1		Jan	Feb		
2	Entertainment				
3	Cable TV	52.98	52.98	①	②
4	Video rentals	7.98	15.96	=C4*\$D\$9	
5	Movies	16.00	32.00	=C5*\$D\$9	
6	CDs	18.98	29.98	=C6*\$D\$9	
7	Totals	95.94	130.92		
8					
9				③	0.07
10					

Fig. 76 : Example

1. Relative cell references change from row to row.
2. Absolute cell reference always refers to cell D9.
3. Cell D9 contains the value for the 7 percent discount.

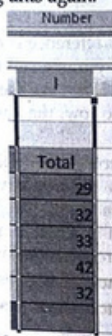
Use absolute references to refer to cells that you don't want to change as the formula is copied. References are relative by default, so you would have to type dollar signs, as shown at number 2 in the example, to change the reference type to absolute.

3.15 Paste Special in Excel

We have the used sum function to get the weekly totals for each salesman

in the I column, under the Individual Totals heading.

- So highlight your four totals in the I column of your spreadsheet
- From the Clipboard panel, click Copy
- You'll see the marching ants again:



- Now, under the Total Sales heading, click into cell C15
 - Press the enter key on your keyboard to paste the numbers across
- What you should notice is that something has gone wrong!

	A	B	C	D	E	F	G	H	I
13									
14									
15			Total Sales						
16			#REF!						
17			#REF!						
18			#REF!						
19			#REF!						
20			#REF!						

Fig : 77

So what happened? Why have all those strange #REF comments appeared in the cells?

If you hold your mouse over the exclamation mark in the yellow diamond, you'll see this:

Moving or deleting cells caused an invalid cell reference, or function is returning reference error.

That complex error message means that Excel tried to paste the formulas over. But the cell references it has are all for the J column.

- To solve the problem, we can paste the values over and not the formula.
- Click the left curved arrow at the very top of Excel to Undo (or press CTRL + Z on your keyboard)



Fig : Undo

- Highlight the four cells in the I column again
- From the Clipboard panel, click copy
- Highlight the cells C15 to C18



- Using your right mouse button, click anywhere in the highlighted area. You'll see the following menu :

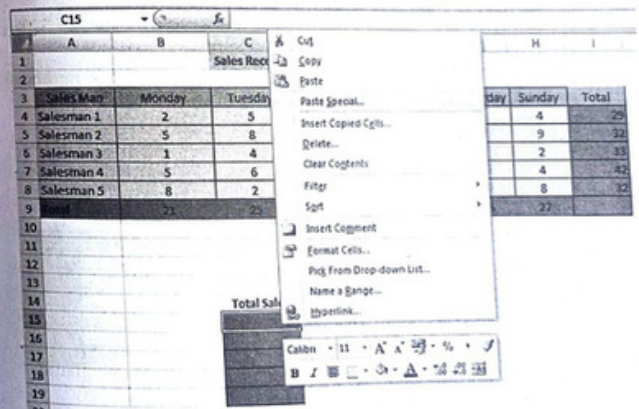


Fig.78 : Use of paste special

- From the menu, click Paste Special with your left mouse button
- The Paste Special dialogue box will appear:

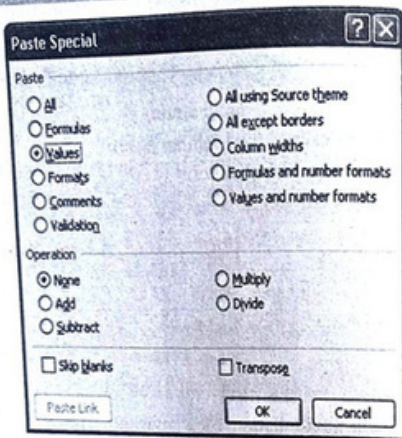


Fig. 79 : Paste special option

The item that is selected by default is All, under the Paste option at the top. Select the Values option instead. Then click the OK button.

Select Paste Special to see the submenu above. From the submenu select the Values option, which is circled in red in our image.

What you've just done is to tell Excel to paste only the Values (the numbers) across, and not the formulas we used to get these values.

If you did it correctly, your spreadsheet should look ours below:

CIS		F 29							
	A	B	C	D	E	F	G	H	I
1	Sales Record of Company Product								
2									
3	Sales Man	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Total
4	Salesman 1	2	5	6	3				
5	Salesman 2	5	8	1	3	8	1	4	
6	Salesman 3	1	4	6	3	2	4	9	
7	Salesman 4	5	6	8	5	8	9	2	
8	Salesman 5	8	2	5	1	2	6	4	
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									

Fig. 80 : Result of paste special

Of course, it would have been easy just to type out the values again, since we only have 4. But if you have a lot of values to paste over then the Paste Special dialogue box or menu can save you a lot of time.

3.16 Add a Comment to a Cell

A comment can be added to any cell on your spreadsheet. When you hover your mouse pointer over a cell that contains a comment, you'll see the comment appear in a sort of Sticky-Note. To see how they work, study the spreadsheet below:

	A	B	C	D
1	First Lottery Ball	34		
2				

The formula in cell B1 above gives you a random number from 1 to 49. A new number can be had by clicking the "Calculate Now" button on the Formula menu.

To let users know what to do, we'll add a comment to cell B1.

First, create the spreadsheet above. In cell B2, enter the following formula:
=RANDBETWEEN(1, 49)

The formula will generate a Random number between 1 and 49. Once you have the above spreadsheet up and running, click inside B1 and try it out:

- From the menu bars on the Ribbon at the top of Excel, click on Formula
- Locate the Calculation panel, and then click on Calculate Now:



Fig. 81 : Calculation panel

Excel 2007 and above version will refresh the calculation and enter a new random number for you. To let people know about this, you can add your comment to the cell. To add a comment to cell B1, do the following:

- Click inside cell B1 on your spreadsheet
- From the tabs on the Ribbon at the top of Excel, click on Review
- Click on New Comment

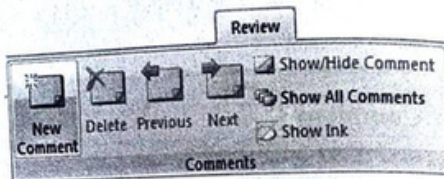
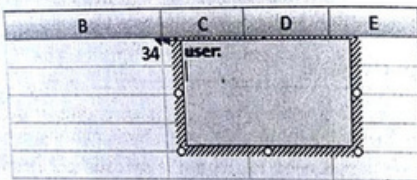


Fig. 82 : Comment tab

A greenish textbox will appear to the right of cell B1, as in the image below:



The word "user" in the image above is placed there by Excel. This is the name of the user account that was set up in Windows. Press the backspace on your keyboard to delete this.

To add your comment, just start typing. The size of the comment area can be increased or decreased by moving your mouse over the white circles. Hold down the left mouse button and drag.

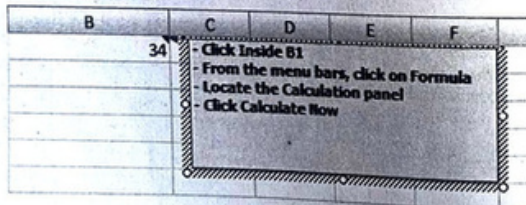


Fig. 83 : Comment box

When you have finished typing your comment, click on any other cell. The comment will disappear. Notice that the cell now has a red triangle in the top right. This indicates that it contains a comment:

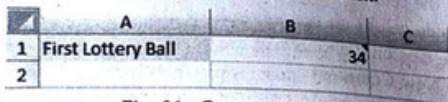
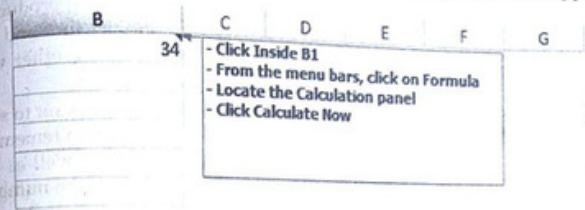


Fig. 84 : Commented cell

If you move your mouse pointer over cell B1 the comment will appear:



To get rid of a comment, right click the cell that contains the comment. Then, from the menu that appears, select Delete Comment.

3.17 Sorting Data

Sorting means arranging the given data in ascending or descending order on the basis of a particular column.

To make a start, you need to create the spreadsheet below. You don't need to use the same colours as ours, but reproduce the data and the headings exactly as they are in this one:

	A	B	C	D	E	F	G
1		One Month's Sales figure of Electronic Showroom at Jaipur					
2							
3		Sony			Samsung		
4		Product	Sales		Product	Sales	
5		LED TV	3		LED TV	5	
6		Plasma TV	5		Plasma TV	8	
7		Cyber Shot Camera	25		Cyber Shot Camera	29	
8		SLR Camera	7		SLR Camera	13	
9		Mobile	37		Mobile	42	
10		Computer	16		Computer	28	
11		Laptop	29		Laptop	24	
12		HeadPhone	40		HeadPhone	27	
13		Tablet	17		Tablet	8	
14		Ipod	31		Ipod	25	
15		Music System	9		Music System	18	
16							

Fig. 85 : Sales figure

Our spreadsheet is all about the viewing sales figures for the Electronic showroom where two main companies products are sold in particular month at Jaipur. The data is a just example, but that's not important. As long as we have some nice information to sort, that's what matters.

Descending Sort

We want to sort the Sony viewing figures from highest selling product to lowest selling product. We'll put the highest selling product first and the lowest last. This is called a **Descending Sort**. If you do it the other way round, it's known as an **Ascending Sort**.

The first thing to do is to highlight the information that you want to sort. In your spreadsheet, highlight cells B4 to C15. The crucial thing to remember when you want to sort data in Excel is to include the text as well as the numbers. If you don't, you'll end up with a spreadsheet where the numbers don't relate to the information, which could spell disaster in bigger spreadsheets!

Your highlighted spreadsheet, though, should look like this one:

One Month's Sales figure of Electronic Showroom at Jaipur					
Sony			Samsung		
Product	Sales		Product	Sales	
LED TV	3		LED TV	5	
Plasma TV	5		Plasma TV	8	
Cyber Shot Camera	25		Cyber Shot Camera	29	
SLR Camera	7		SLR Camera	13	
Mobile	37		Mobile	42	
Computer	16		Computer	28	
Laptop	29		Laptop	24	
HeadPhone	40		HeadPhone	27	
Tablet	17		Tablet	8	
Ipod	31		Ipod	25	
Music System	9		Music System	18	

Fig. 86 : Selected Range

To sort your Sony's sales figures, do the following:

- From the Excel tabs at the top of the screen, click **Data**:



Fig. 87 : Sorts filter

From the Sort & Filter panel, click **Sort**

- A dialogue box appears:

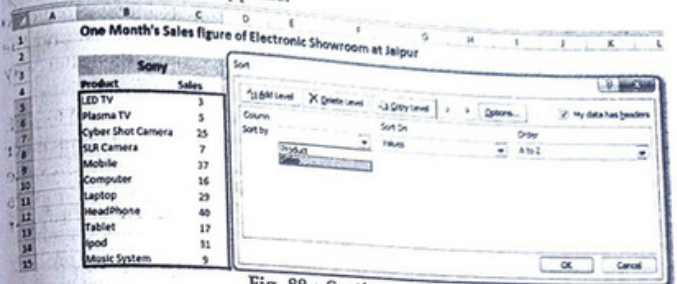


Fig. 88 : Sorting options

The **Sort By** drop-down list seems empty. Click the down arrow to reveal the columns you selected:

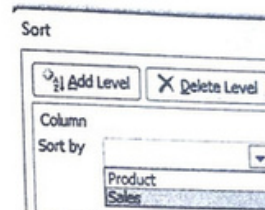


Fig.89 : Sort by options

We want to sort this by the values in the sales column. So select sales from the Sort by list.

Sort On is OK for us - it has Values. But click to see the options in the drop down list:

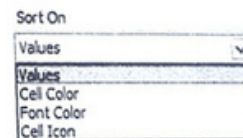


Fig.90 : Sort on

Values is the one you'll use the most. Once we have a **Sort By** and **Sort On** option selected, we can then move on to the Order.

Click the down arrow to see the options on the Order list:

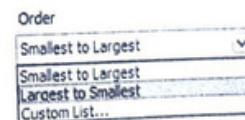


Fig. 91 : Order option

Select Largest to Smallest. Your Sort dialogue box should then look like this:

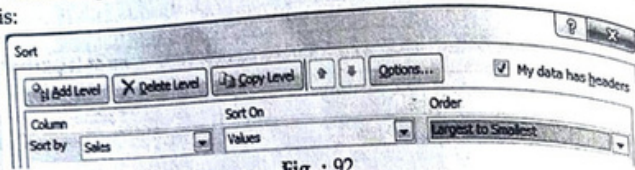


Fig. : 92

If you clicked OK, your data would be sorted. But the level buttons at the top can come in handy. If two items in your data have the same numbers, then you can specify what to sort by next. For example, if we have two product that have sales of 31 items each we could specify that the names of the product be sorted alphabetically.

To do this, click the Add Level button, and you'll see some additional choices appear. You'll see the same lists as the Sort By box. If you select Column A, and then Descending, Excel will do an alphabetical sort if two items have the same viewing figures.

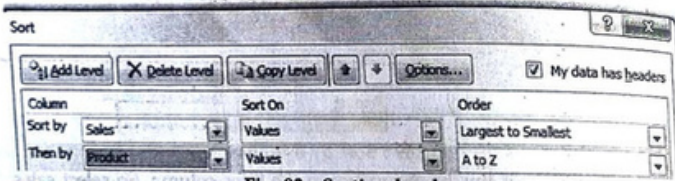


Fig. 93 : Sorting levels

In the image above, we've added a "Then By" part, just in case there is a tie. You don't have to do this, as we have no numbers that are the same. Click OK to sort your data, though.

If everything went well, your sorted data should look like this:

One Month's Sales figure of Electronic Showroom at Jaipur							
Sony			Samsung				
Product	Sales	Product	Sales	Product	Sales	Product	
HeadPhone	40	LED TV	5	Mobile	37	Plasma TV	8
Mobile	37	Plasma TV	8	Cyber Shot Camera	29	Computer	28
Ipod	31	Cyber Shot Camera	29	SLR Camera	13	Laptop	24
Laptop	29	SLR Camera	13	Mobile	42	HeadPhone	27
Cyber Shot Camera	25	Mobile	42	Computer	28	Tablet	8
Tablet	17	Computer	28	Laptop	24	Ipod	25
Computer	16	Laptop	24	Music System	18	Music System	9
Music System	9	HeadPhone	27	SLR Camera	7	SLR Camera	7
SLR Camera	7	Tablet	8	Plasma TV	5	Plasma TV	5
Plasma TV	5	Ipod	25	LED TV	3	LED TV	3
LED TV	3	Music System	18				

Fig. 94 : Sorted sales products

Similarly if we apply same steps on Samsung products sales we will have the data sorted in following manner.

One Month's Sales figure of Electronic Showroom at Jaipur							
Sony			Samsung				
Product	Sales	Product	Sales	Product	Sales	Product	
HeadPhone	40	LED TV	5	Mobile	42	Plasma TV	8
Mobile	37	Plasma TV	8	Cyber Shot Camera	29	Computer	28
Ipod	31	Cyber Shot Camera	29	SLR Camera	13	Laptop	24
Laptop	29	SLR Camera	13	Mobile	42	Music System	18
Cyber Shot Camera	25	Mobile	42	Computer	28	SLR Camera	13
Tablet	17	Computer	28	HeadPhone	27	Plasma TV	8
Computer	16	Laptop	24	Ipod	25	Tablet	8
Music System	9	Music System	18	Laptop	24	Music System	9
SLR Camera	7	SLR Camera	13	Music System	18	SLR Camera	13
Plasma TV	5	Plasma TV	8	SLR Camera	13	Plasma TV	8
LED TV	3	Tablet	8	Plasma TV	8	Tablet	8
		LED TV	5	Tablet	8	LED TV	5

Fig.95 : Sorted sales Report

3.18 Data Filter

Filtering

Filtering allows you to display only data that meets certain criteria. To filter:

- Click the column or columns that contain the data you wish to filter
- On the Home tab, click on Sort & Filter
- Click Filter button
- Click the Arrow at the bottom of the first cell
- Click the Text Filter
- Click the Words you wish to Filter
- To clear the filter click the Sort & Filter button
- Click Clear

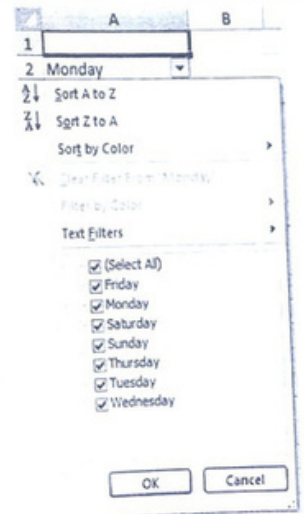


Fig. 96 : Filter options

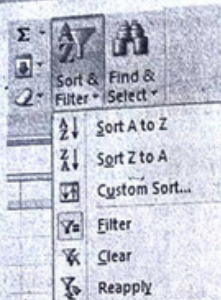


Fig. 97 : Filter tab

Filtered data displays only the rows that meet criteria that you specify and hides rows that you do not want displayed. After you filter data, you can copy, find, edit, format, chart, and print the subset of filtered data without rearranging or moving it.

You can also filter by more than one column. Filters are additive, which means that each additional filter is based on the current filter and further reduces the subset of data.

When you use the Find dialog box to search filtered data, only the data that is displayed is searched; data that is not displayed is not searched. To search all the data, clear all filters.

The three types of filters

Using AutoFilter, you can create three types of filters:

- by a list values,
- by a format,
- by criteria

Each of these filter types is mutually exclusive for each range of cells or column table. For example, you can filter by cell color or by a list of numbers, but not by both; you can filter by icon or by a custom filter, but not by both.

Reapplying a filter

To determine if a filter is applied, note the icon in the column heading:

- A drop-down arrow means that filtering is enabled but not applied. When you hover over the heading of a column with filtering enabled but not applied, a screen tip displays "(Showing All)".
- A Filter button means that a filter is applied.

When you hover over the heading of a filtered column, a screen tip displays the filter applied to that column, such as "Equals a red cell color" or "Larger than 150".

When you reapply a filter, different results appear for the following reasons:

- Data has been added, modified, or deleted to the range of cells or table column.
- The filter is a dynamic date and time filter, such as Today, This Week, or Year to Date.
- Values returned by a formula have changed and the worksheet has been recalculated.

3.19 Difference between Data Sorting and Data Filtering

When we use Sort to sort data in Excel, it sorts the entire table - which makes sense. Sort is generally used for arranging a client list alphabetically for example, or sorting from lowest value to the highest value - but it may not be the best method as data can still be buried among the other rows and columns of detail.

Autofilter gives us the option to view the bits of data, and filter out the ones that we don't want to view. So we can spot the trends, or analyse costs, or spot duplicate entries etc. It means we can easily find the data we require.

Example

In our previous example when we click on Sort and Filter tab and apply AutoFilter tab following screen will appear

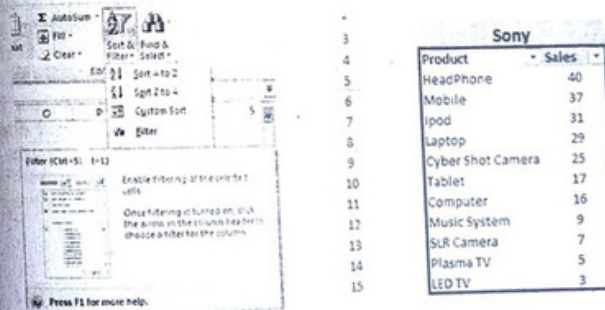


Fig. 98 : Use of Auto filter

As soon as we click filter button we will see the above picture on our data indicating Filter needs to be applied.

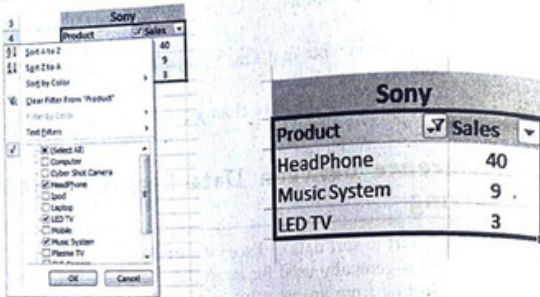


Fig. 99 : Filtered sales Report

Thus using filter we can squeeze our data and view only those data which fulfill our conditions.

3.20 Graphs and Charts

Graphical representation of data posted in worksheet is called Chart. We can make charts of data available in worksheet as per our requirement. A chart gets your point across — fast. Using a chart we can transform worksheet data to show comparisons, patterns, and trends.

For example, you can show at a glance whether sales are falling or rising this quarter. All charts made in a worksheet depends upon data of that worksheet, so as soon as we make changes in the data of the worksheet chart will automatically reflects the changed values.

Charts allow us to present information contained in the worksheet in a graphic format. MS Excel provides us many types of predefined charts including: Column, Line, Pie, Bar, Area, Scatter and more. These charts are available in 2D and 3D view. To view the charts available click the Insert Tab on the Ribbon. There you will find Chart Tab, with the help of this we can insert charts in our worksheet.

3.20.1 Create a Chart

To create a chart:

- Select the cells that contain the data you want to use in the chart
- Click the Insert tab on the Ribbon
- Click the type of Chart you want to create



Fig. 100: Chart options in Insert tab

3.20.2 Modify a Chart

Once you have created a chart you can do several things to modify the chart.

To move the chart:

- Click the Chart and Drag it another location on the same worksheet, or
- Click the Move Chart button on the Design tab
- Choose the desired location (either a new sheet or a current sheet in the workbook)

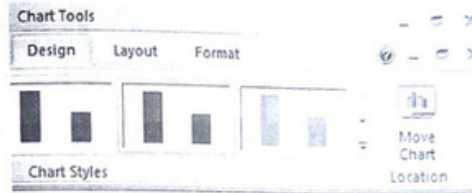


Fig. 101 : Move chart

To change the data included in the chart:

- Click the Chart
- Click the Select Data button on the Design tab



Fig.102 : Change chart types

To reverse which data are displayed in the rows and columns:

- Click the Chart
- Click the Switch Row/Column button on the Design tab

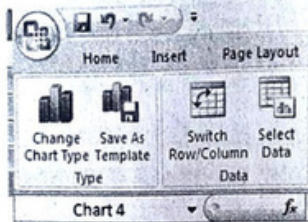


Fig. 103 : Switch Row/column

To modify the labels and titles:

- Click the Chart
- On the Layout tab, click the Chart Title or the Data Labels button
- Change the Title and click Enter

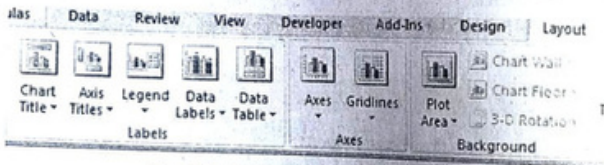


Fig. 104 : Data labels and other options

3.20.3 Chart Tools

The Chart Tools appear on the Ribbon when you click on the chart. The tools are located on three tabs: Design, Layout, and Format.

Within the Design tab you can control the chart type, layout, styles, and location.

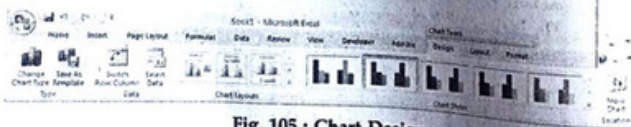


Fig. 105 : Chart Design

Within the Layout tab you can control inserting pictures, shapes and text boxes, labels, axes, background, and analysis.



Fig. 106 : Chart layout

Within the Format tab you can modify shape styles, word styles and size of the chart.



Fig. : Chart format

Copy a Chart to Word

- Select the chart
- Click Copy on the Home tab
- Go to the Word document where you want the chart located
- Click Paste on the Home tab



Fig. 107 : Paste chart

3.20.4 Chart Styles

You can easily change the Style of your chart. If you can't see the Styles, click anywhere on your chart to select it, and you should see the Ribbon change. The Styles will look like fig. given below



Click on any chart style, and your chart will change. To see more styles, click the arrows to the right of the Chart Styles panel:



You'll then see a drop down sheet of new styles :

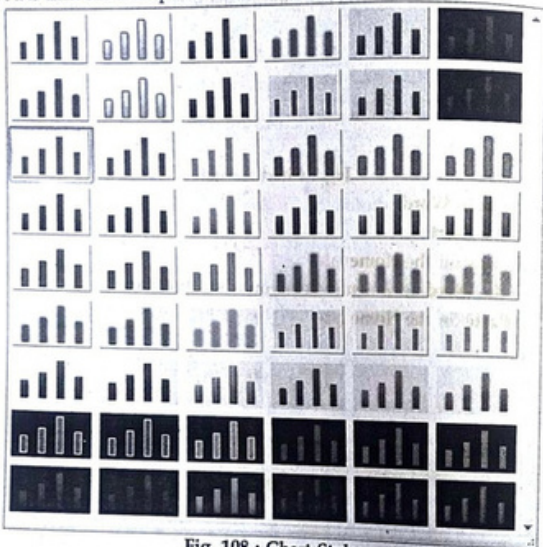
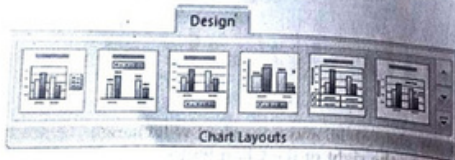


Fig. 108 : Chart Styles

Work your way through the Styles, and click on each one in turn. Watch what happens to your chart when you select a style.

3.20.5 Chart Layouts

You can also change the layout of your chart in the same way. Locate the Chart Layout panel on the Design tab of the Excel Ribbon bar.



Click the down arrow to the right of the Chart Layouts panel to see the available layouts you can choose from:

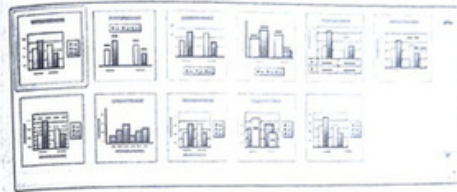
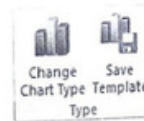


Fig.109 : Chart layouts

3.20.6 Changing the Chart Type - 2D Bar Charts

You can change the type of chart, as well. Instead of having a 2D column chart, as above, you can have a 2D bar chart. To change the chart type, locate the Type panel on the Excel Ribbon bar (you need to have your chart selected to see it):



Then click Change Chart Type. You'll see a dialogue box appear.

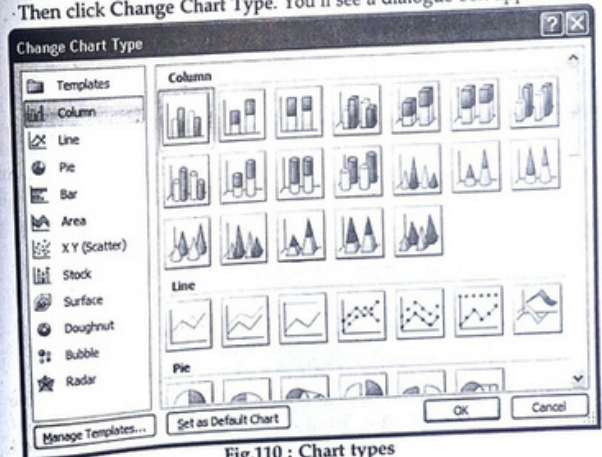


Fig.110 : Chart types

You can experiment with the types of chart in the dialogue box. But reset it to Bar chart, as above.

Example

We will now apply these options of charts in our sales reports example. We're now going to create a chart from our Sony sales figures. In previous example of sorting data we have some sorted sales figures to create a chart from.

To start making your chart, highlight the Sony Sales report. If you have just finished the sorting section, this data should still be highlighted, and look like this:

One Month's Sales figure of Electronic Showroom at Jaipur					
Sony			Samsung		
Product	Sales	Product	Sales	Product	Sales
HeadPhone	40	Mobile	42		
Mobile	37	Cyber Shot Camera	29		
Ipod	31	Computer	28		
Laptop	29	HeadPhone	27		
Cyber Shot Camera	25	Ipod	25		
Tablet	17	Laptop	24		
Computer	16	Music System	18		
Music System	9	SLR Camera	13		
SLR Camera	7	Plasma TV	8		
Plasma TV	5	Tablet	8		
LED TV	3	LED TV	5		

Fig : 111

With your sales figures highlighted, do this:

- From the tabs on the Excel Ribbon, click on Insert
- Locate the Charts panel. It looks like this in Excel :



For this first one, we'll create a Column Chart. So, in Excel 2007, click the down arrow on the Column item of the Chart Panel. You'll see a list of available charts to choose from. Select the first one, the chart highlighted below (2D Column):

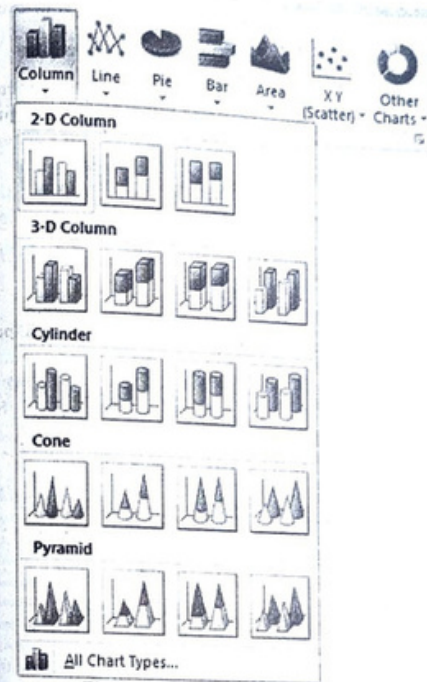
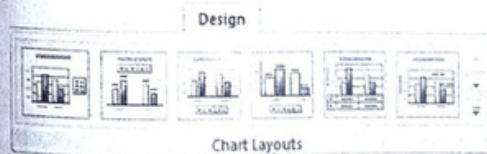


Fig.112 : Available types of charts

When you make your selection, a new chart appears on the same spreadsheet that you have open. The chart should look the same as the one at the top of this page.

But notice that the Excel Ribbon has changed. The design menu is selected, along with options for Chart Layouts:



Also on the Design Ribbon, you'll see options for Chart styles:

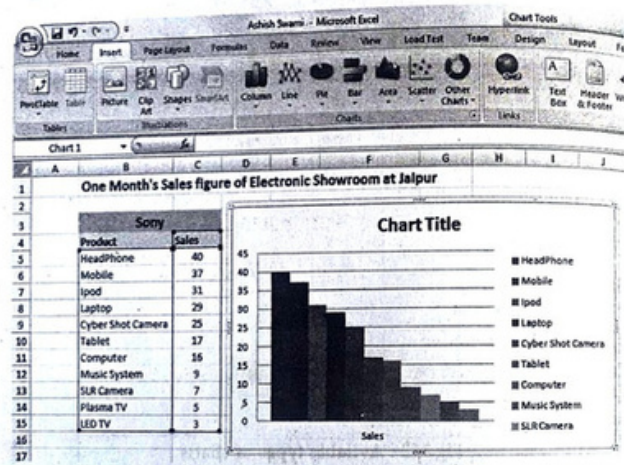
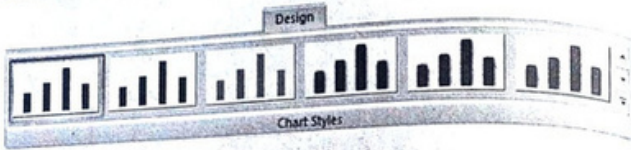


Fig. 113 : Chart

3.21 Graphics

3.21.1 Adding a Picture

- To add a picture:
- Click the **Insert** tab
 - Click the **Picture** button
 - Browse to the picture from your files
 - Click the name of the picture
 - Click **Insert**
 - To move the graphic, click it and drag it to where you want it

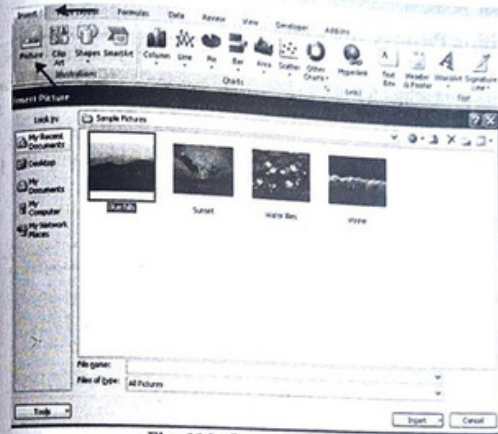


Fig. 114 : Inserting graphic

3.21.2 Adding Clip Art

To add Clip Art:

- Click the **Insert** tab
- Click the **Clip Art** button
- Search for the clip art using the search Clip Art dialog box
- Click the clip art
- To move the graphic, click it and drag it to where you want it

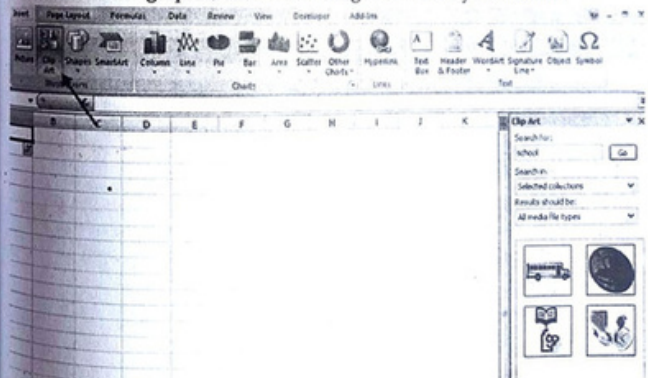


Fig. 115 : Inserting clipart

3.21.3 Editing Pictures and Clip Art

When you add a graphic to the worksheet, an additional tab appears on the Ribbon. The Format tab allows you to format the pictures and graphics. This tab has four groups:

- Adjust:** Controls the picture brightness, contrast, and colors
- Picture Style:** Allows you to place a frame or border around the picture and add effects
- Arrange:** Controls the alignment and rotation of the picture
- Size:** Cropping and size of graphic

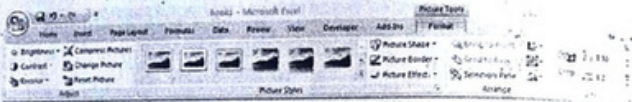


Fig. 116 : Picture Editing tool

3.21.4 Adding Shapes

To add Shape:

- Click the **Insert** tab
- Click the **Shapes** button
- Click the shape you choose

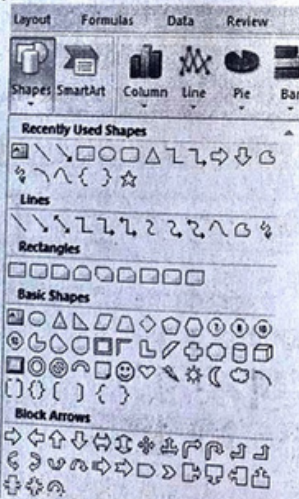
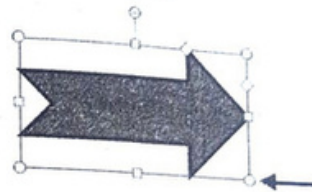


Fig. 117 : Shapes

- Click the **Worksheet**
- Drag the cursor to expand the Shape



To format the shapes:

- Click the **Shape**
- Click the **Format** tab



Fig.118 : Format shapes

3.21.5 Adding SmartArt

SmartArt is a feature in Office 2007 that allows you to choose from a variety of graphics, including flow charts, lists, cycles, and processes. To add SmartArt:

- Click the **Insert** tab
- Click the **SmartArt** button
- Click the **SmartArt** you choose

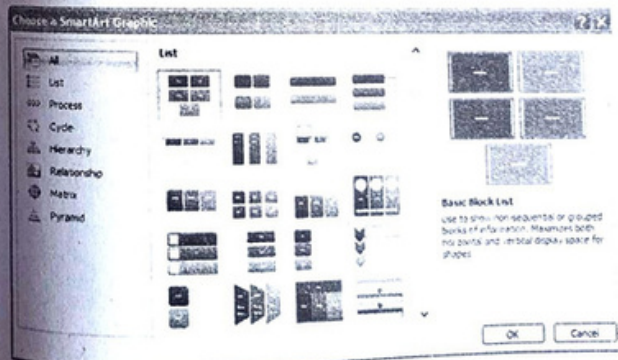


Fig. 119 : Smart Art

- Select the Smart Art
- Drag it to the desired location in the worksheet
- To format the SmartArt:
 - Select the SmartArt
 - Click either the Design or the Format tab
 - Click the SmartArt to add text and pictures.



Fig. : 120

3.22 Macros

Macros are advanced features that can speed up editing or formatting you may perform often in an Excel worksheet. They record sequences of menu selections that you choose so that a series of actions can be completed in one step.

3.22.1 Recording a Macro

To record a Macro:

- Click the View tab on the Ribbon
- Click Macros
- Click Record Macro
- Enter a name (without spaces)
- Enter a Shortcut Key
- Enter a Description

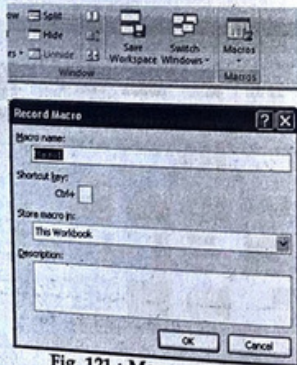
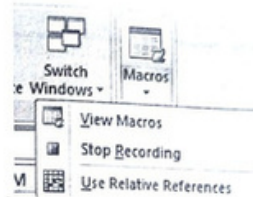


Fig. 121 : Macro recoding

- Perform the Macro
- Click Macros
- Click Stop Recording



3.22.2 Running a Macro

To run a Macro from the Keyboard shortcut, simply press the keys that you have programmed to run the Macro. Or you can view all macros and run by:

- Click Macros
- Click View Macros
- Choose the Macro and click Run

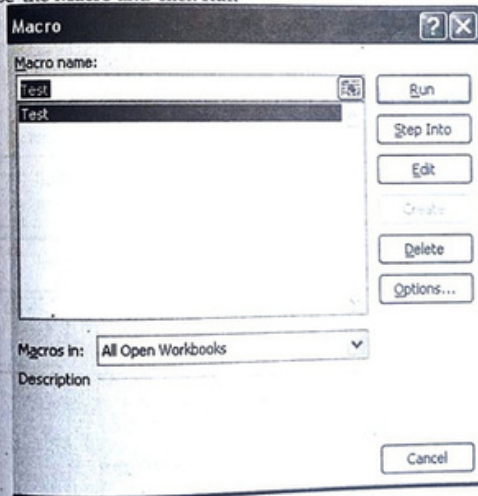


Fig. 122 : Running a macro

3.23 Formatting Wrok Sheet

3.23.1 Convert Text to Columns

Sometimes you will want to split data in one cell into two or more cells. You can do this easily by utilizing the Convert Text to Columns Wizard.

- Highlight the column in which you wish to split the data
- Click the Text to Columns button on the Data tab
- Click Delimited if you have a comma or tab separating the data, or click fixed widths to set the data separation at a specific size.

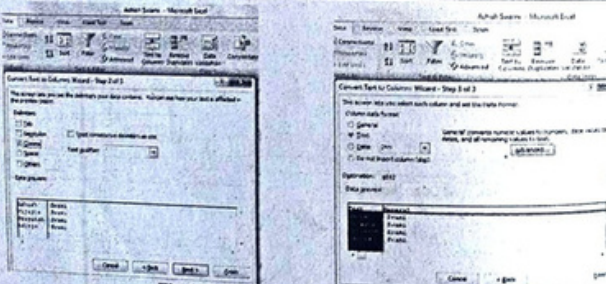
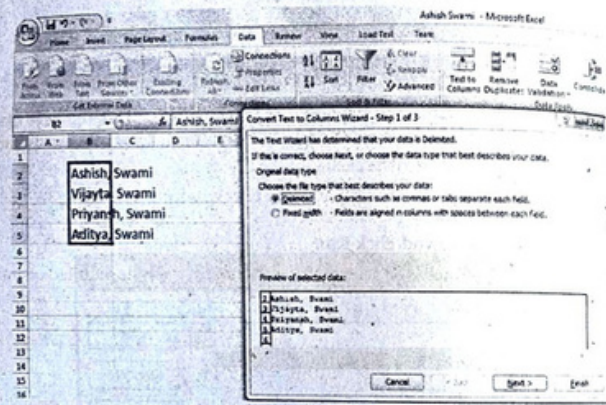


Fig.123 : Converting text to column

3.23.2 Modify Fonts

Modifying fonts in Excel will allow you to emphasize titles and headings. To modify a font:

- Select the cell or cells that you would like the font applied
- On the Font group on the Home tab, choose the font type, size, bold, italics, underline, or color

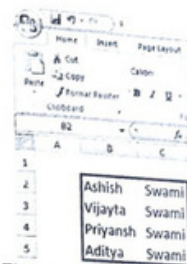


Fig. 124 : Changing Font

3.23.3 Format Cells Dialog Box

In Excel, you can also apply specific formatting to a cell. To apply formatting to a cell or group of cells:

- Select the cell or cells that will have the formatting
- Click the Dialog Box arrow on the Alignment group of the Home tab

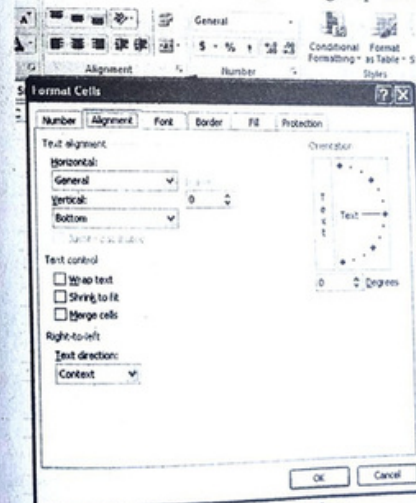


Fig. 125 : Format cell options

There are several tabs on this dialog box that allow you to modify properties of the cell or cells.

Number: Allows for the display of different number types and decimal places

Alignment: Allows for the horizontal and vertical alignment of text, wrap text, shrink text, merge cells and the direction of the text.

Font: Allows for control of font, font style, size, color, and additional features

Border: Border styles and colors

Fill: Cell fill colors and styles

3.23.4 Add Borders and Colors to Cells

Borders and colors can be added to cells manually or through the use of styles. To add borders manually:

- Click the Borders drop down menu on the Font group of the Home tab
- Choose the appropriate border

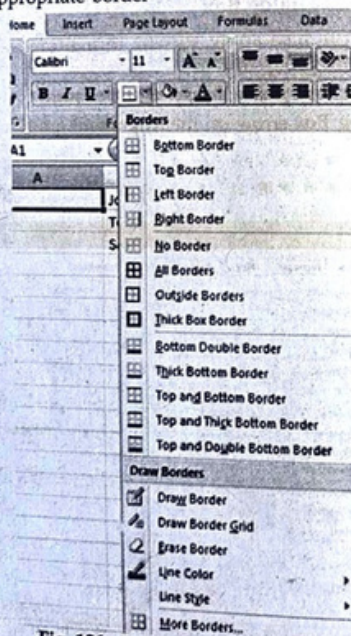


Fig. 126 : Borders & colors option

To apply colors manually:

- Click the Fill drop down menu on the Font group of the Home tab
- Choose the appropriate color

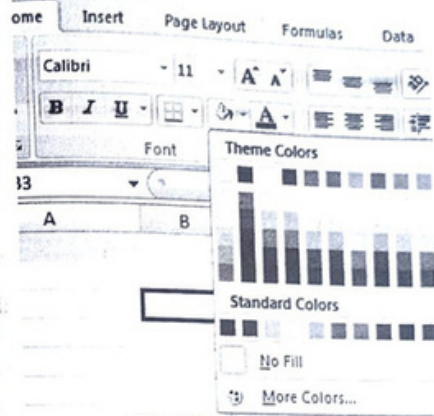


Fig. 127 : Fill cell color

To apply borders and colors using styles:

- Click Cell Styles on the Home tab
- Choose a style or click New Cell Style



Fig. 128 : Cell styles

3.23.5 Change Column Width and Row Height

To change the width of a column or the height of a row:

- Click the Format button on the Cells group of the Home tab

- Manually adjust the height and width by clicking **Row Height** or **Column Width**
- To use AutoFit click **AutoFit Row Height** or **AutoFit Column Width**



Fig.129 : Cell size options

3.23.6 Hide or Unhide Rows or Columns

To hide or unhide rows or columns:

- Select the row or column you wish to hide or unhide
- Click the **Format** button on the **Cells** group of the **Home** tab
- Click **Hide & Unhide**

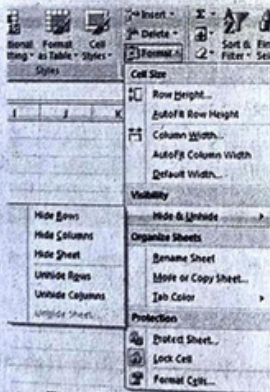


Fig. 130 : Cell format

3.23.7 Merge Cells

To merge cells select the cells you want to merge and click the **Merge & Center** button on the **Alignment** group of the **Home** tab. The four choices for merging cells are:

- Merge & Center:** Combines the cells and centers the contents in the new, larger cell
- Merge Across:** Combines the cells across columns without centering data
- Merge Cells:** Combines the cells in a range without centering
- Unmerge Cells:** Splits the cell that has been merged

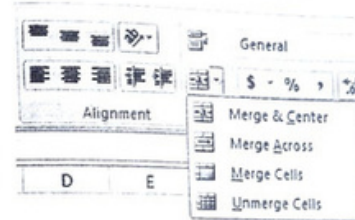


Fig. 131 : Merge cell options

3.23.8 Align Cell Contents

To align cell contents, click the cell or cells you want to align and click on the options within the **Alignment** group on the **Home** tab. There are several options for alignment of cell contents:

- Top Align:** Aligns text to the top of the cell
- Middle Align:** Aligns text between the top and bottom of the cell
- Bottom Align:** Aligns text to the bottom of the cell
- Align Text Left:** Aligns text to the left of the cell
- Center:** Centers the text from left to right in the cell
- Align Text Right:** Aligns text to the right of the cell
- Decrease Indent:** Decreases the indent between the left border and the text
- Increase Indent:** Increase the indent between the left border and the text
- Orientation:** Rotate the text diagonally or vertically



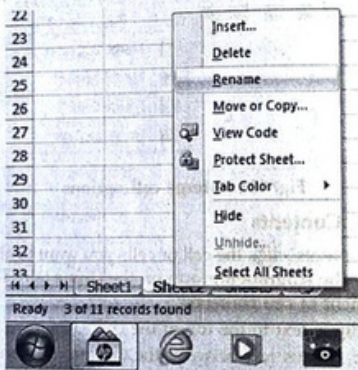
Fig. 132 : Cell alignment

3.23.9 Naming a Work Sheet

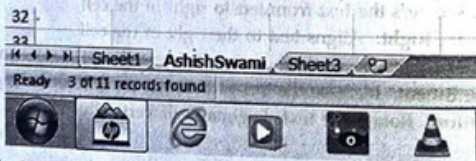
We can rename work sheet by double clicking the sheet name or by right click in Sheet name. Following screen will appear if we apply later
 You can rename a worksheet or change the color of the tabs to meet your needs.

To rename a worksheet:

- Open the sheet to be renamed
- Click the **Format** button on the **Home** tab
- Click **Rename sheet**
- Type in a new name
- Press **Enter**



Now we can change the name of work sheet as per our requirement. After changing the name it will look like this...



Workbook is collection of many related worksheets. Whenever we would save our work in Excel it will save in the form of Work book.

3.23.10 Format Worksheet Tab

To change the color of a worksheet tab:

- Open the sheet to be renamed
- Click the **Format** button on the **Home** tab
- Click **Tab Color**
- Click the color

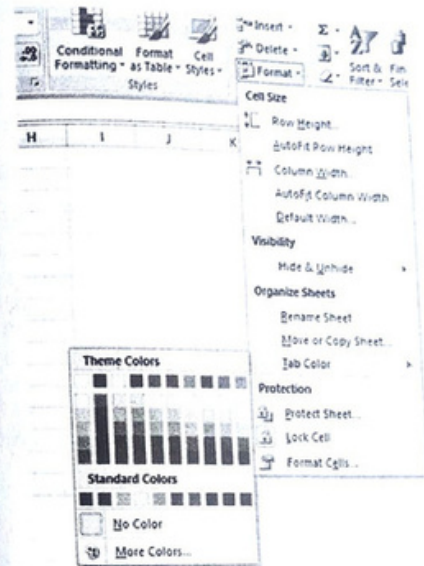


Fig. 133 : Changing tab color

Reposition Worksheets in a Workbook

To move worksheets in a workbook:

- Open the workbook that contains the sheets you want to rearrange
- Click and hold the worksheet tab that will be moved until an arrow appears in the left corner of the sheet
- Drag the worksheet to the desired location



Fig. 134 : Repositioning worksheet

3.23.11 Insert and Delete Worksheets

To insert a worksheet

- Open the workbook
- Click the Insert button on the Cells group of the Home tab
- Click Insert Sheet

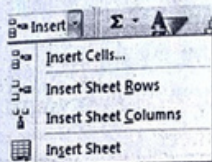


Fig. 135 : Insert options

To delete a worksheet

- Open the workbook
- Click the Delete button on the Cells group of the Home tab
- Click Delete Sheet

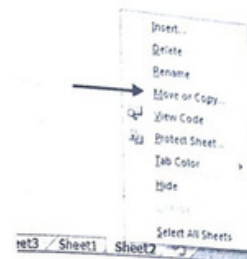


Fig. 136 : Delete options

3.23.12 Copy and Paste Worksheets:

To copy and paste a worksheet:

- Click the tab of the worksheet to be copied
- Right click and choose Move or Copy
- Choose the desired position of the sheet
- Click the check box next to Create a Copy
- Click OK



3.24 Printing Work sheet

3.24.1 Set Print Titles

The print titles function allows you to repeat the column and row headings at the beginning of each new page to make reading a multiple page sheet easier to read when printed. To Print Titles:

- Click the Page Layout tab on the Ribbon
- Click the Print Titles button
- In the Print Titles section, click the box to select the rows/columns to be repeated
- Select the row or column
- Click the Select Row/Column Button
- Click OK

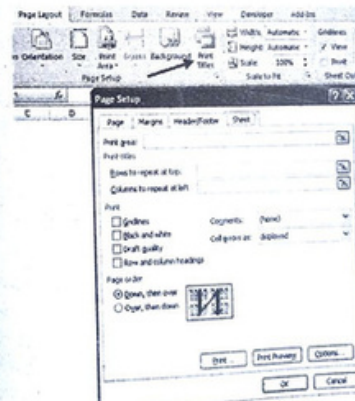


Fig. 137 : Print titles options

3.24.2 Create a Header or Footer

To create a header or footer:

- Click the **Header & Footer** button on the **Insert** tab
- This will display the **Header & Footer Design Tools Tab**
- To switch between the Header and Footer, click the **Go to Header** or **Go to Footer** button



Fig. 138 : Insert options

- To insert text, enter the text in the header or footer
- To enter preprogrammed data such as page numbers, date, time, file name or sheet name, click the appropriate button
- To change the location of data, click the desired cell

3.24.4 Set Page Margins

To set the page margins:

- Click the **Margins** button on the **Page Layout** tab
- Select one of the give choices, or

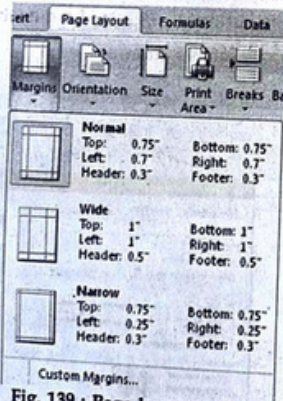


Fig. 139 : Page layout options

- Click **Custom Margins**
- Complete the boxes to set margins
- Click **Ok**

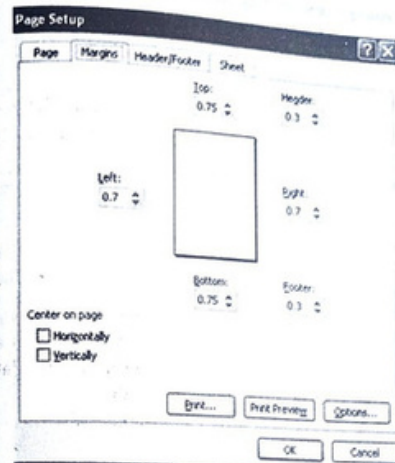


Fig.140 : Margin setup options

3.24.4 Change Page Orientation

To change the page orientation from portrait to landscape:

- Click the **Orientation** button on the **Page Layout** tab
- Choose **Portrait** or **Landscape**



Fig.141 : Page orientation

3.24.5 Set Page Breaks

You can manually set up page breaks in a worksheet for ease of reading when the sheet is printed. To set a page break:

- Click the **Breaks** button on the **Page Layout** tab
- Click **Insert Page Break**



Fig. 142 : Page break

3.24.6 Print a Range

There may be times when you only want to print a portion of a worksheet. This is easily done through the Print Range function. To print a range:

- Select the area to be printed
- Click the **Print Area** button on the **Page Layout** tab
- Click **Select Print Area**



Fig.143 : Range print option

Split a Worksheet

You can split a worksheet into multiple resizable panes for easier viewing of parts of a worksheet. To split a worksheet:

- Select any cell in center of the worksheet you want to split
- Click the **Split** button on the **View** tab
- Notice the split in the screen, you can manipulate each part separately

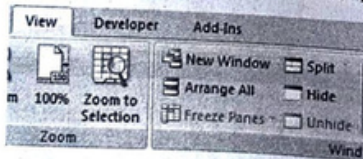


Fig. 144 : Zoom options

3.25 Freeze Rows and Columns

You can select a particular portion of a worksheet to stay static while you work on other parts of the sheet. This is accomplished through the Freeze Rows and Columns Function. To Freeze a row or column:

- Click the **Freeze Panes** button on the **View** tab
- Either select a section to be frozen or click the defaults of top row or left column
- To unfreeze, click the **Freeze Panes** button
- Click **Unfreeze**

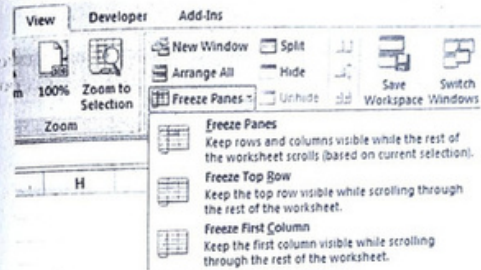


Fig. 145 : Freeze panes

3.26 Hide Worksheets

To hide a worksheet:

- Select the tab of the sheet you wish to hide
- **Right-click** on the tab
- Click **Hide**

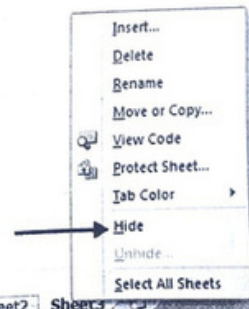
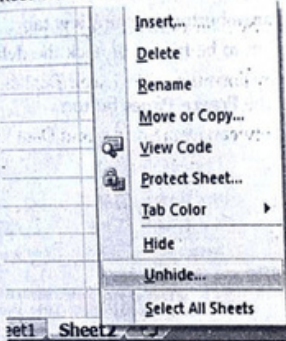


Fig. 146 : Hide worksheet

To unhide a worksheet:

- Right-click on any worksheet tab
- Click Unhide
- Choose the worksheet to unhide



Exercises

Very Short Questions (upto 20 words) (2 marks each)

1. What do you mean by Cell in MS Excel?
2. What is use of Formula Bar?
3. How will you insert Picture in MS Excel?
4. What is use of Auto Sum Function?
5. How many rows and columns are available in MS Excel 2007 or above version?
6. What do you mean by merge cells ?
7. How will you insert row or column in MS Excel?
8. What do you mean by Paste Special?
9. What do you mean by Freeze Panes ?
10. What is use of Auto Fill Command in MS Excel?

Short Questions (upto 80 words) (4 mark each)

1. What do you mean by Macro?
2. What is difference between Work sheet and Work book?
3. How many types of charts are available in MS Excel?
4. What do you mean by Auto Filter?
5. What are the different options available in Cell Formatting?

Long Answer Questions

(12 marks each)

1. What are the applications of Spreadsheet program?
2. What do you mean by charts? Describe the steps to insert chart in MS Excel?
3. What do you mean by Cell Referencing? Explain different types of Cell Referencing?
4. What do you mean by Formula in MS Excel? Explain the use of "If" formula with example?
5. What is difference between Data Sorting and Data Filtering? Explain using suitable examples?

