Microsoft Excel 2007/2010

Microsoft Excel (MS Excel) is an important part of MS Office packages and it is windows based spread sheet (Work Sheet) package. Excel has a grid of columns and rows in which we can enter numerical, Textual and picture data. It performs Mathematical and Logical calculations. Its file extension name is **.xls** or **.xlsx**.

- **Electronic Spread sheet**: -Electronic Spread sheet is software which shows us in a tabular form, accepts data in the tabular form (Rows and Columns).
- **Workbook**: - A workbook is a collection of many worksheets. The workbook automatically opens with three worksheets and it can contain maximum 255 worksheets.
- **Worksheet**: -The worksheets are like pages in a File/folder, which can be inserted or deleted. We enter any data in workSheet. To enable us to explore massive amount of data in worksheets, Excel supports up to one million rows and 16 thousand columns per sheet, which provides us with 1,500% more rows and 6,300% more columns that we had available in MS Excel 2003. For those who are curious, column now ends at **XFD** instead of **IV**.
- **Row**: -A row is a horizontal block of cells (Left to right). There can be a maximum of 10,48,576 rows in an excel worksheet.
- **Column**: -A column is a vertical block of cells (Top to bottom). There can be a maximum of 16,384 columns in an excel worksheet.
- **Cell**: -A cell is the intersection of a row and column.

Advantage of an electronic SpreadSheet

- It processes data at speeds and can store huge amounts of data.
- Large Spreadsheet can be stored in MS Excel.
- Making changes is simpler.
- Extracting meaningful information is easy.
- Calculations on the electronic spreadsheets are almost error free.
- Electronic Spreadsheets have the important facility of automatic re-calculation.

Application of Spreadsheet

- Budgeting and forecasting
- Financial Accounting
- Annual Reports
- Purchase and Sale application
- Income Tax and Sales Tax applications
- Inventory control
- School/ college and Bank report/ Statement

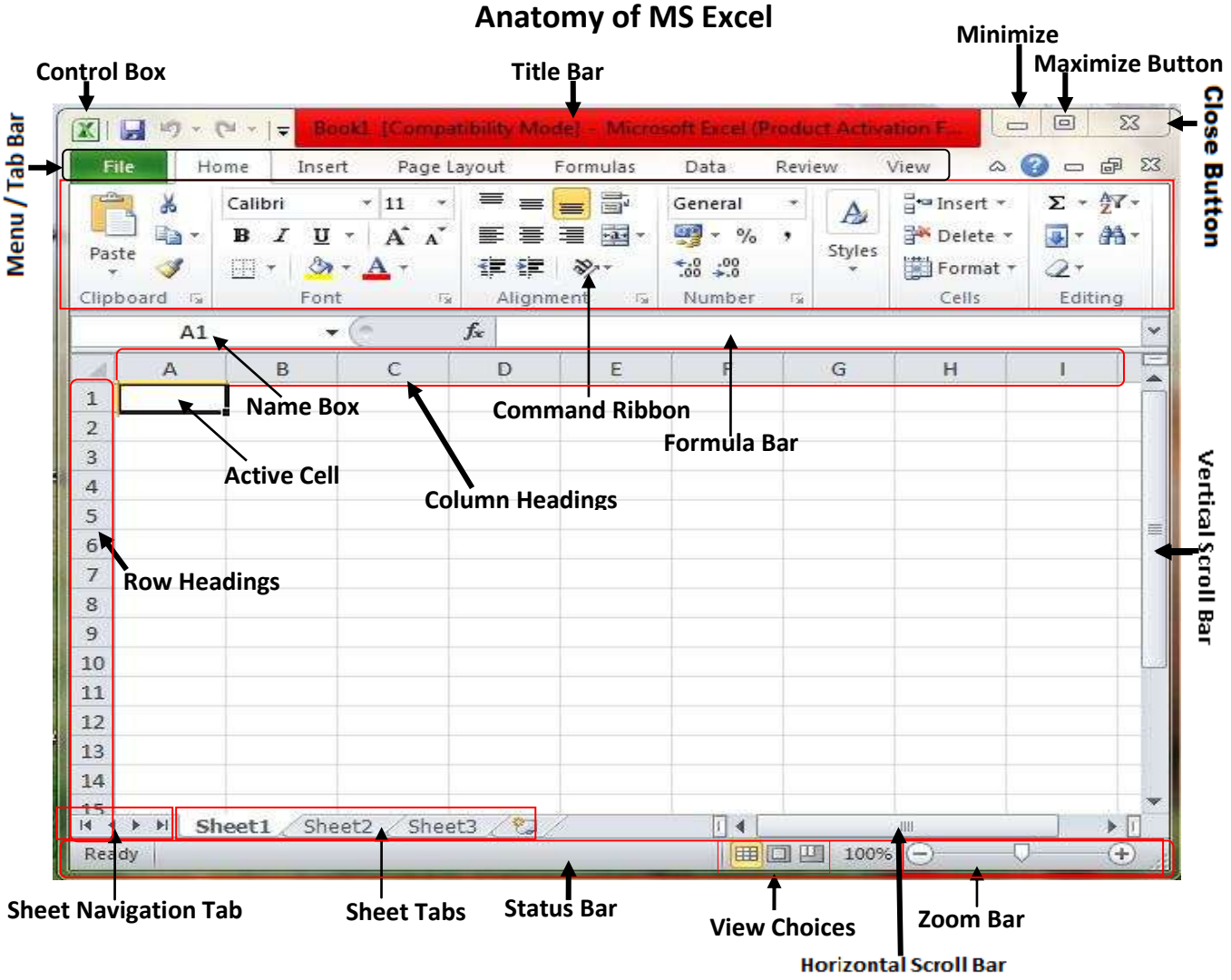
How to start MS Excel

(i) **Start > All Programs > Microsoft Office > Microsoft Excel 2010**

(ii) **Start > Search Box> Type Excel ↵ (Enter Key)**

(iii) **Desktop > Double Click on MS Excel Icon.**

Anatomy of MS Excel



Name Box: -The Name Box displays the address/ Name of the Active Cell

Formula Bar: -The Formula Bar displays the active cell contents/ Formula.

Active Cell:-The Active Cell is the current cell wherein data is entered.

Column Heading: -Displays the Name of the columns. Column Heading/ Name- A, B, C, D, E, F, G…XFD. The first Column name is **A** and the last Column name is **XFD**.

Row Heading: -Displays the name of the Rows. Row Heading/ Name- 1, 2, 3, 4, 5, 6…10,48,576. The first Row Name is **1** and the last Row name is **10,48,576**.

Sheet Navigation Tab: -Displays the Navigation Button by which we can move from one Sheet to another Sheet.

Sheet Tab: -The Sheet Tab displays the name of available Sheets in the workbook.

Working With Numbers

Excel uses the standard operators to perform calculations. There are three types of operator in Excel- Arithmetical Operator, Comparisonal Operator, and Reference Operator.

Operation	Operators	Example
Arithmetic		
Addition	+	2+3=5
Subtraction	-	5-2=3
Multiplication	*	3*3=9
Division	/	6/2=3
Percentage	%	5%
Comparison		
Equal To	=	5=5
Greater Than	>	5>4
Less Than	<	3<4
Greater Than Equal To	>=	>=5
Less Than Equal To	<=	<=5
Not Equal To	#, < >	5#6, 5< >6
Reference		
Range Operator	:	A1:B10
Union Operator	,	Sum(A1:B10,C1:C10)

Some important Short –Cut keys

Action	Keystroke	Action	Keystroke
Cell Dialog Box	Ctrl+1	Insert Row/ Column	Ctrl++
Bold	Ctrl+2	Delete Row/Column	Ctrl+-
Italic	Ctrl+3	Insert Sheet	Shift+F11
Underline	Ctrl+4	Activate Next Sheet	Ctrl+PgDn
Hide Row	Ctrl+9	Activate Previous Sheet	Ctrl+PgUp
Hide Column	Ctrl+0	Insert Current Date	Ctrl+;
New Line In the Cell	Alt+Enter	Insert Current Time	Ctrl+Shift+;

-:Reference: -

A Reference identifies a cell or a range of cells- on a worksheet and tells MS Excel where to look for values or data we want to use in a Formula. Creating References

1. **Relative References**: -Excel uses Relative Referencing for cell address when we enter a Formula.
   Ex: =B2+C2+D2+E2+F2
   All these References are Relative References.

2. **Absolute References**: -Excel uses absolute references in a formula, such as $A$1, always refer to a cell in a specific location. If the position of the cell that contains the formula changes, the Absolute Reference remains the same.
   Ex: =$A$1 (Absolute Reference)

3. **Mixed Reference**: -Mixed References contain both Relative and Absolute References.
   Ex: =$A1 (Absolute column and Relative row)
   =A$1 (Relative column and Absolute row)

4. **3- D Reference**: -We use 3-D References to refer to a cell range that includes two or more sheets in a work book, such as Sheet1!
   Ex: =Sum(Sheet1:Sheet2!a2:$A$6)
   Note:- **!** Exclamation Sign (Shift+1)

Function: - Function is the pre-defined formulas that perform calculations on specific values called arguments.

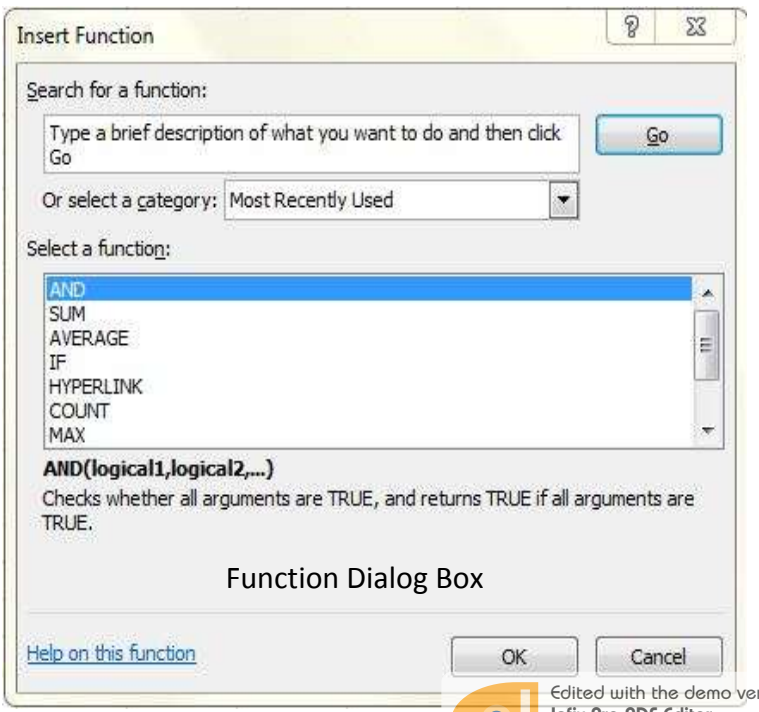
Ex: =Sum(**A1:A5**) or =sum(A1+A5

Arguments

To Enter a Function: -Select the cell wherein you want to enter the function

Formulas Menu
↓
Insert Function
↓


↓
Function Dialog box appears
↓
Select appropriate Function
↓
OK



Function Dialog Box

Some Important Functions

Mathematical Functions

- **Sum( )**: -Adds all the numbers in a range of cells.
  Ex: =Sum(3,2)= 5
  =Sum(A2:F2)
  =Sum(B2+C2+D2+E2+F2)

- **Sumif( )**: -Adds the cells specified by a given condition or criteria.
  Ex: =Sumif(Range,Criteria,Sum_Range)
  =Sumif(B3:B8,"Manager",C3:C8)

- **ABC**( ): -Returns the absolute value of a number.
  Ex: =ABS(-5) = 5
  =ABS(A1)

- **Sqrt (): -**It returns the Squire Root.
  Ex: =Sqrt(16) = 4
  =Sqrt(A1)

Statistical Function

- **Max( )**: -Returns the largest Value
  Ex: =Max(A1:A5)
  =Max(A1:A5)

- **Min( )**: -Returns the Smallest value.
  Ex: =Min(A1:A5)
  =Min(A1:A5)

- **Average( )**: -Returns the Average Values.
  Ex: =Average(A1:A5)
  =Average(A1:A5)

- **Count( )**: -Counts the number of cells that contain number.
  Ex: =Count(A1:A5)

- **CountA( ):** -Counts the number of cells that contain Numbers, Texts etc.
  Ex: =CountA(A1:A5)

- **CountBlank( )**: -Counts the number of cells that are empty.
  Ex: =CountBlank(A1:A5)

- **Median( ):** -Returns the Median or the number in the middle of the set of given numbers.
  Ex: =Median(A1:A5)

- **Mode():** -Returns the most frequently occurring or repetitive value in the range of data.
  Ex: =Mode(A1:A5)

➢ Date & Time Functions

- **Today ( )**: -Returns the current date of the system
  Ex: =Today( )
- **Now( )**: -Returns the current Date & time.
  Ex: =Now( )
- **Days360( )**: -Returns the number of Days between two dates based 360- Day year(Twelve 30- day months)

Logical Function

- **If( )**: -Checks whether a condition is met and returns one value If True and another value If false.

Ex: =If(Logical_test,value_if_true,value_if_false)
=If(A10>=50,"Pass","Fail")
=If(A10>=200,10,5)

For Grade

=If(J2>=89,"A",If(J2>=79,"B",If(J2>=69,"C",If(J2>=59,"D","E"))))

For Division

=If(J2>=60,"Ist",If(J2>=45,"IInd",If(J2>=30,"IIIrd","Fail"))

Financial Function

- **FV( )**: -Returns the Future Value of an investment based on a periodic, constant payment and a constant interest rate.

Ex: =**FV**(rate,nper,pmt,pv,type)
where,
Rate: -Interest Rate per period on a loan.
Nper: -Number of periods
Pmt: -Payment made each period.
PV: -Present Value
Type: -is the number 0 or 1 that indicates whether payments are due.

Note:- If Payments are :-

Monthly:- Divide Annual interest Rate by **12**
Quarterly: -Divide Annual Interest Rate by **4**
Half- Yearly: -Divide Annual Interest by **2**

	A	B
1	Interest Rate	5%
2	Years	3
3	Monthly Deposit	1000
4	Future Value	

=**FV**(5%/12,3*12,-1000,0,1)
=**FV**(B1/12,B2*12,-B3,0,1)

Pmt( ): -Calculate the payment for a loan based on constant payment and a constant interest rate.

	A	B
1	Interest Rate	5%
2	Years	10
3	Future Value	50000
4	Pmt	

=**Pmt**(rate, nper, pv, fv, type)

=**Pmt**(5%/12,10*12,0,I3,0)

=**Pmt**(B1/12,10*12,0,b3,0)

Mark sheet

	A	B	C	D	E	F	G	H	I	J	K	L
1	Name	Math	Hindi	Eng.	G. Science	S. Science	Total	Min	Max	%	Div.	Rank
2	A	70	59	68	59	76						
	B	79	45	76	87	69						
4	C	78	68	84	65	97						
5	D	68	74	64	24	75						
6	E	46	95	26	69	68						
7	F	84	87	87	48	87						
8	G	75	68	45	81	69						

-: Writing Formula :-

(Note: -All the formulas have to begin with an equal Sign '=')

(i) Total = Sum(B2:F2)

(ii) Min = Min(B2:F2)

(iii) Max = Max(B2:F2)

(iv) % = G2*100/500 (Obtained Marks *100/Full Marks)

(v) Div. = If(J2>=60,"1st",If(J2>=45,"2nd",If(J2>=30,"3rd","Fail")))

(vi) Rank=Rank(G2,G2:G8)

Salary sheet

	A	B	C	D	E	F	G	H	I	J	K
1		Payroll Statement for the month of January 2013, for ABC Company Pvt. Ltd.									
2	Emp. Name	Designation	B.S.	D.A.	H.R.A.	Bonus	P.F.	G.S.	Loan Amt.	Loan Amt. Paid	N.S.
3	John	Manager	30000							1683.57	
4	Rahul Bhatt	Accountant	25000								
5	Ajit Nair	Sales Man	15000								
6	P.K. Mathur	Peon	8000								
7	Mr. A Gupta	Director	26000								
8	AK Jain	Sales Man	14000								

-: Solve the above question:-

1) Calculate DA as 15 Percent of Basic Salary.

2) Calculate HRA as 12.5 Percent of Basic Salary.

3) Bonus will be given @15% of Basic Salary only to those employees whose Basic Salary is above 20000

4) PF is calculated as 10 Percent of Basic Salary.

5) The Gross Salary is calculated as BS+DA+HRA+Bonus-PF

6) Loan amount is calculated as 15 times of the Basic Salary for employees whose Gross Salary is >=16500.

7) The Loan Amount Paid column indicates the amount to be paid per month. Calculate the loan payment for per month if the loan is to be paid in 15 years at an interest rate of 5%.

8) Calculate the Net Salary of every employee as GS+Bonus-Loan.

-: Writing Formula:-

(i) **D.A**. = (15% of BS)
= (C3*15%)

(ii) **H.R.A**. = (12.5% of BS)
= (C3*12.5%)

(iii) **Bonus** = if(Basic Salary is greater than equal to 20000, BS*15%, else BS*0%
=if(c3>=20000,c3*15%,c3*0%)

(iv) **PF** = (10% of BS)
= C3*10%)

(v)**G.S**. = (BS+DA+HRA+Bonus) -PF)
=(C3+D3+E3+F3)-G3)

(vi) **Loan Amount** = If GS is greater than and equal to 16500, BS*15 else BS*0
= if (H3>=16500,C3*15,C3*0)

(vii)**Loan Amt. Paid** =Pmt(rate, nper, pv, fv, type)
=Pmt(5%/12,15*12,0,I3,0)

(viii) **N.S**. = (GS-Loan Amt. Paid)
= (H3-J3)

Stock sheet

	A	B	C	D	E	F	G	H
1	Name of Item	Opening Balance (Piece)	Purchase Price (Rs.)	Selling Price (Rs)	Selling Qty. (Piece)	Sales Amt. (Rs.)	P/L A/C (Rs.)	Closing Stock
2	Mouse	50	200	250	20			
3	Keyboard	100	250	300	50			
4	Monitor	10	5000	5000	8			
5	U.P.S.	15	3000	2800	10			

-: Writing Formula:-

(i) Sales Amt. =(Selling Price*Selling Qty.)
=(D2*E2)

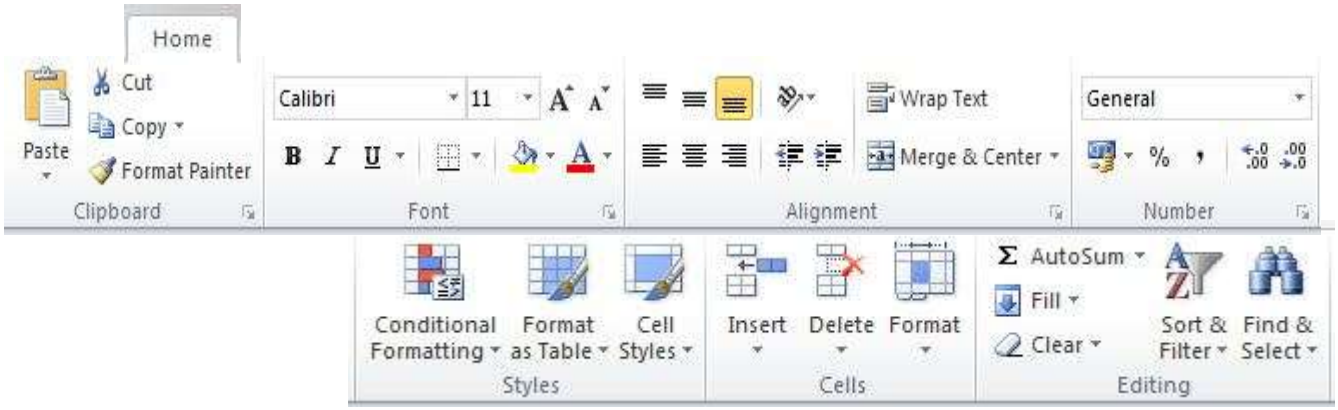
(ii) P/L A/c = Sales Amt-(Purchase Price*Selling Qty.)
= F2-(C2*E2)

(iii)Closing Balance =Opening Balance-Selling Qty.
=(B2-E2)

File Menu(Alt+F): -This menu is for File operations. The various options of this menu are…

- **New** (Ctrl+N): -Creates a New/ Blank workbook.
- **Open** (Ctrl+O): -Opens an existing File/workbook.
- **Save (Ctrl+S): -Saves the active workbook.**
- **Save As (F12): -Saves the active workbook with different file name.**
- **Close (Ctrl+W): -Closes the active workbook.**
- **Options: -Sets Various Options that are effective for all MS Office packages.**
- **Exit (Alt+F4): -Closes the MS Excel Window.**

Home(Alt+H): -This Menu ids for all editing & Formating operations of the Active Sheet.



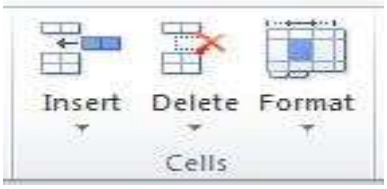
Conditional Formatting: -Highlights specified cells values based on desired criteria and condition.

Select the range of cells here, Select B2:F8 in the "Marksheet" Worksheet.

Insert Rows, Columns, Cells and Sheets in the active Worksheet

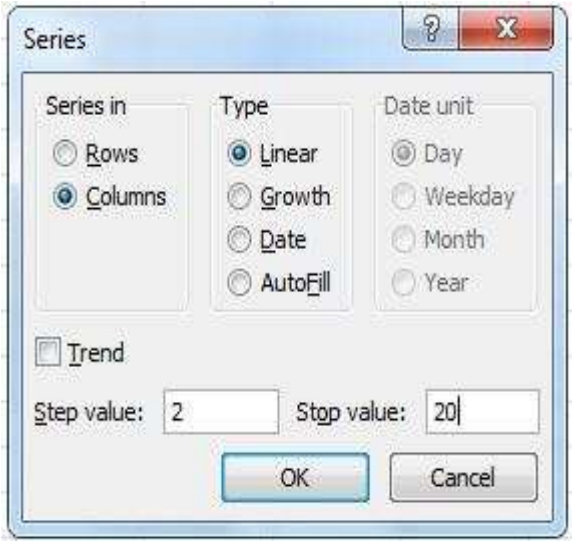
Select one or more than one Cells/ Rows/ Columns/ Sheets

Go to **Home Menu** ⟶ **Cells**



Fill: -Continues a pattern into one or more than one adjacent cells like-2 4 6 8 10 12 14 16 18 20 etc. Options available are…..**Left, Right, Up, Down, Series and Justify.**

Go to **Home Menu** ⟶ **Editing** ⟶ **Series**



Sort: -Arranges data or records so that it is easier to analyse. We can arrange data/ records in Ascending or Descending order, or we can temporarily filter out specified values

Ascending Order ⟶ A- Z, 1, 2, 3, 4, 5 etc.

Descending Order ⟶ Z- A, 100, 99, 98, 97 etc.

Select the range of cells here, Select B2:F8 in the "Marksheet" Worksheet

Go to **Home Menu** ⟶ **Editing** ⟶ **Sort**

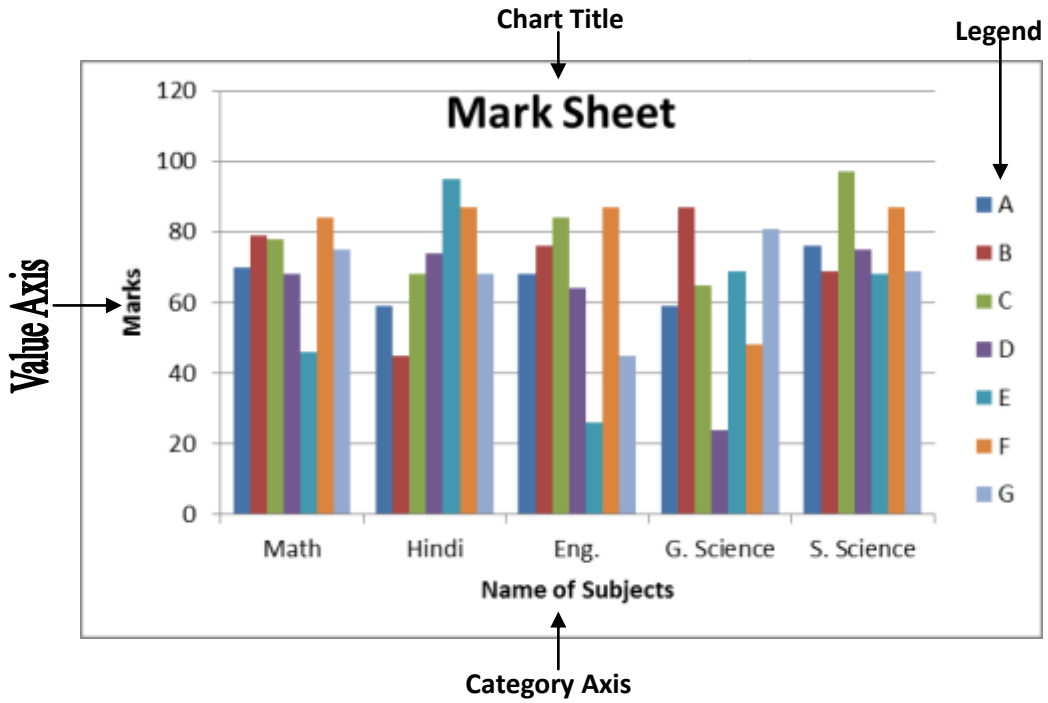
Insert Menu: - This Menu is for inserting **Chart, SmartArt, Header/ Footer, Page Number etc.**

Chart: -Chart is a Graphical Presentation of Numerical data by which we can Analyse and examine our mathematical or numerical data. Some of available Chart Types are. Column Chart, Line Chart, Bar Chart, Pie Chart, Surface Chart, Area Chart, Radar Chart etc.

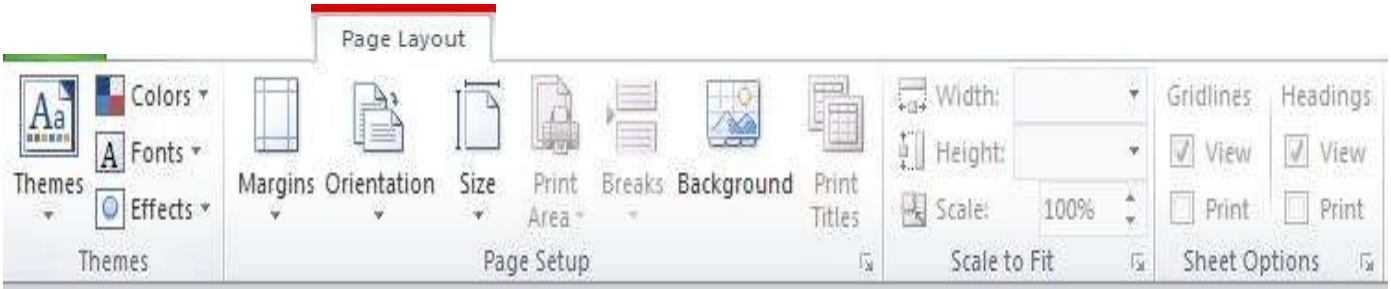
To Draw Column Chart Like Below. Do this…….

Select Cell Range **A2:F8** in Mark Sheet.

Go to **Insert Menu** → **Charts** → **Column Chart**



Page Layout Menu: -By Page Layout Menu, we can set Themes, Page Margins, Page Orientation, Print Area, Page Background etc.



Setting Page Margins, Orientation, Print Area and Background

To Set Page Margins

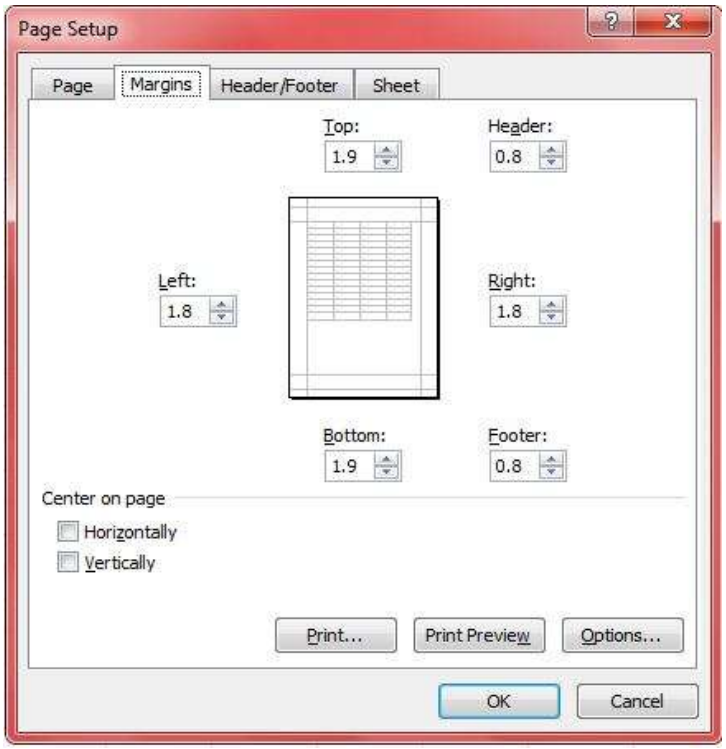
Click on **Page Layout Menu**

Page Setup

Margins

Custom Margins…

Page Setup Dialog Box Appears



To Set Page Orientation

Click on **Page Layout Menu**

Page Setup

Orientation

Setting/ Removing Print Area

Select Printable Area **A1:L8**

Click on **Page Layout Menu**

Print Area

Set Print Area/Clear Print Area

Setting/ Removing Background

Click on **Page Layout Menu**

Background

Select Appropriate Image/ Picture

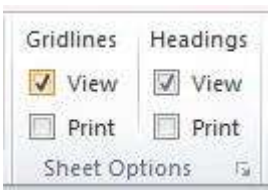
Insert

Showing/ Hiding Gridlines, Headings

Click on **Page Layout Manu**

Sheet Options

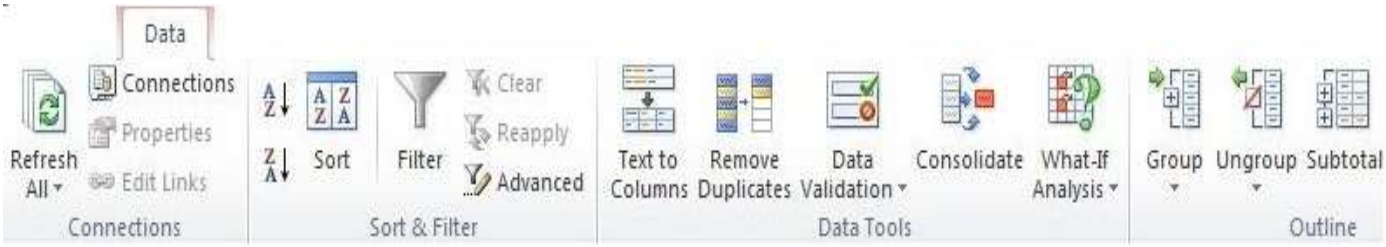
Gridlines



Formulas Menu: -This Menu consists all Excel Formulas and Formula Auditing Tools.

Formula Auditing: -This Tab shows / Hides arrows that indicate what cells are affected the calculated values.

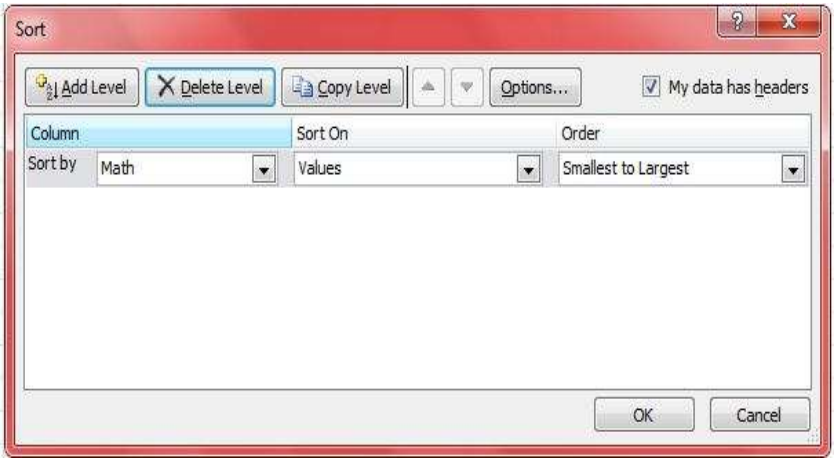
Data Menu



Sort: -Shows the Sort Dialog Box to short the data based on several criteria at once. We can sort/ Arrange the data in ascending/ Descending Order and Largest to Smallest/ Smallest to Largest Values.

To Sort **"Mark Sheet"** Based on Math Field and Criteria **"Smallest to Largest"**

Select Mark Sheet A1:L8
↓
Click on Data Menu
↓
Sort & Filter
↓
Sort
↓
Sort Dialog Box Appears
↓
Set Criteria as Given in the Dialog Box



Filter: -Filters the selected data based on specific criteria/ Condition.

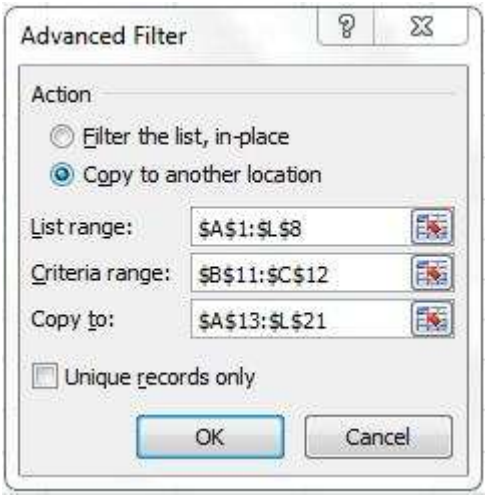
Select Mark Sheet A1:L8
↓
Click on Data Menu
↓
Sort & Filter
↓
Filter

Advance Filter: -Specify complex criteria to limit which records are included in the result.

To **Advance Filter** in the Mark Sheet

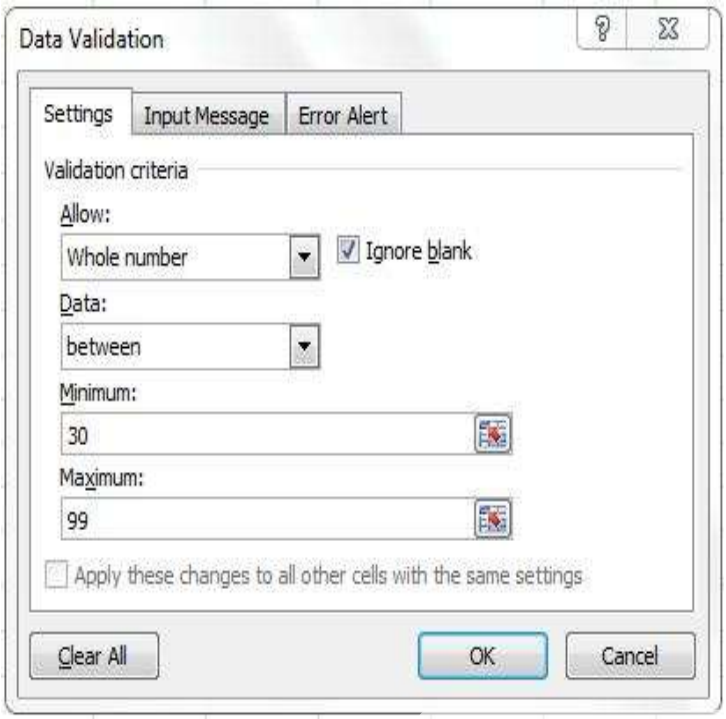
	B	C
11	Math	Math
12	>=60	<=90

Select Mark Sheet A1:L8
↓
Click on Data Menu
↓
Sort & Filter
↓
Advance Filter
↓
Advance Filter Dialog Box Appears
↓
Write criteria as given in the Advance Filter Dialog Box



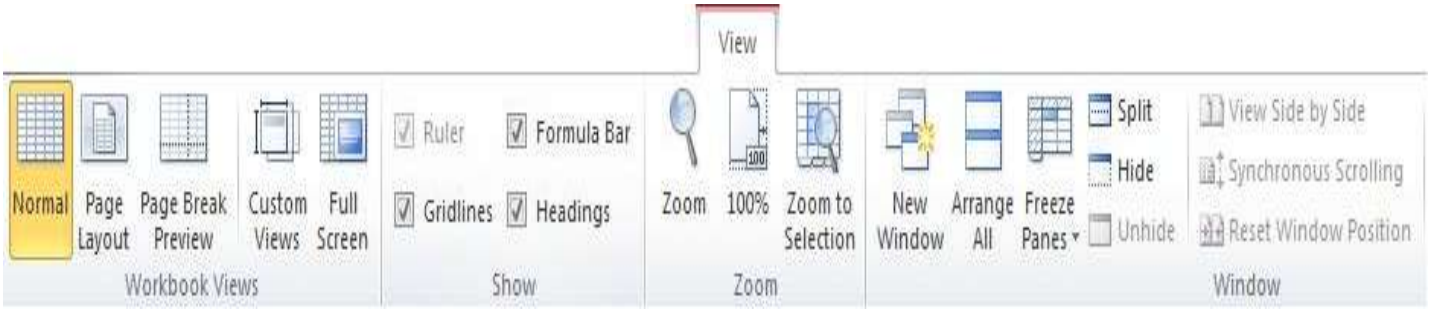
Data Validation: -Prevents invalid Data from being entered into a cell.

Select Mark Sheet A1:L8
↓
Click on Data Menu
↓
Data Tools
↓
Data Validation
↓
Data Validation Dialog Box Appears
↓
Write criteria as given in the Dialog Box



Review Menu: -Review Menu is for Checking Spelling & Grammar errors, Writing Comments and Setting Password.

View Menu: -View Menu is for Viewing/ Displaying the Current Work Sheet in different Views like- Normal View, Page Layout View, Custom Views, Full Screen, Zoom etc.



To View the active Work Sheet in and **Full Screen & Custom Views**

↓

↓

To View/ Show **Ruler, Formula Bar, Gridlines and Headings**

Click on View Menu

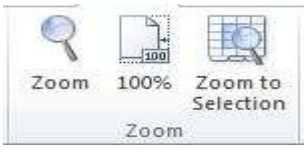
↓

Show

↓

Ruler/ Formula Bar/ Gridlines/ Headings

Zoom: -Shows the Zoom dialog Box to specify the Zoom level of the Work Sheet.



To **Freeze Panes** the contents of the active Work Sheet

Click on View Menu

↓

Freeze Panes