Microsoft Excel

Microsoft Excel is an electronic spreadsheet program for organizing and managing data into rows and columns. Using Microsoft Excel application we can create Databases, Charts, MIS Reports, Pivot Tables and more data entry work. This application includes rich features to work on any database like – Sort & Filter, Conditional Formatting, Data validation, Goal Seek, Lookup, Data Entry Form & Macros etc. In Microsoft Excel application many formulas and functions are available to calculate and manage the databases like Text, Financial, Math and logical etc. Microsoft Excel is most useful application in every offices for data entry work, because many types of databases can be create using this application. This application is developed by Microsoft Corporation and its extension name is *.xlsx.
In this article we are going to explain basic overview of Microsoft Excel application.

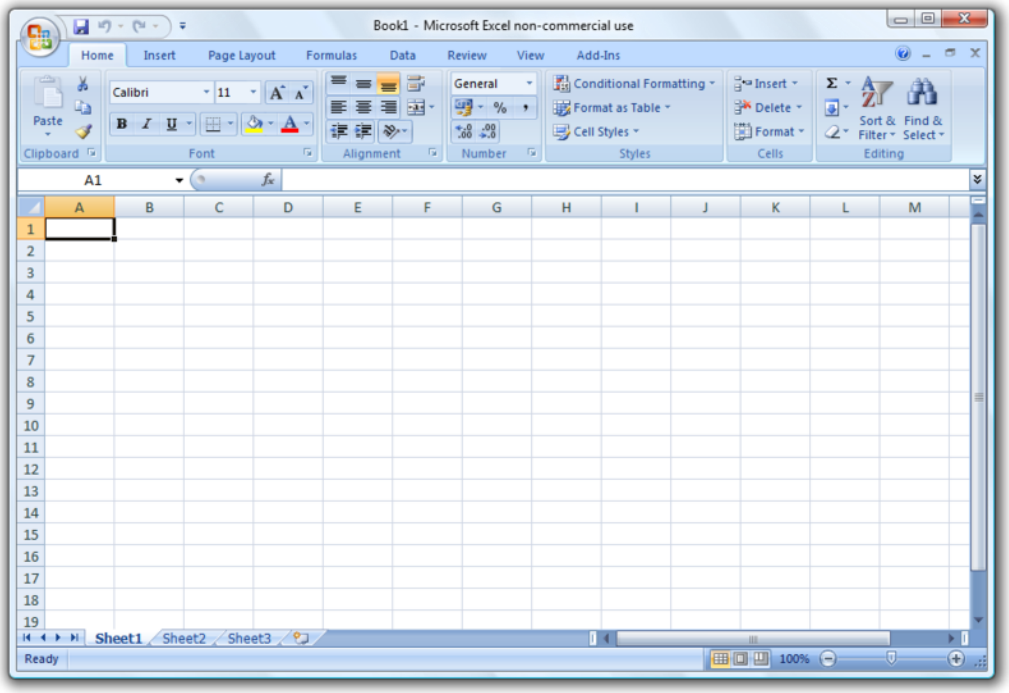
How to open Microsoft Excel on Personal Computer

Many methods to open Microsoft Excel on personal computer, but main two methods defined below.

- Start menu> All Programs> Microsoft Office> Microsoft Excel 2007> Enter
- Start menu> Run> Type: “excel”> Enter

After entering any of above method, Microsoft PowerPoint application window will be displayed

Microsoft Excel Application Window



Microsoft Excel application is different to compare the look of Previous Versions. It has new style to make work so easy and fast. In previous versions Microsoft Excel depends on menus, options and toolbars, but with this version Microsoft made some changes that are given below.

Microsoft Excel Window Components Overview

Office Button – The Microsoft Excel Office Button replaces the File Menu used in previous versions. Here you will find commonly known options such as New, Open, Save, Print and Recent Workbooks and settings.

Quick Access Toolbar – A customizable toolbar at the top of an active Workbook that keeps those options, that we use frequently.

Title Bar – This is a horizontal bar displayed at the top of application window. This bar displays the name of the active workbook. Minimize, Restore and Close buttons are appear at the right end of the Title Bar.

Tabs – An area over the ribbon that contain multiple tabs which are organized in groups. The default tabs is Home and others are Insert, Page Layout, Formulas, Data, Review and View.

Ribbon – An area under the tabs that contain options related to selected tab. The Ribbon can be hide/unhide by pressing CTRL + F1.
Formula Bar – It displays the data or applied formula in the active cell. It is located below the ribbon.
Name Box – Name Box displays the name or address of the active cell. It is located left side of the formula bar.
Status Bar – This is a horizontal bar at the bottom of an active window, It displays the details about the active Workbook.
View Toolbar – This toolbar allows to change the layout of the spreadsheets. It is located on the right side of the status bar.
Zoom Button – It is used to magnifies or reduces the spreadsheet zooming level. It is located on the right side of the status bar.

Basic Knowledge about Microsoft Excel 2007

Workbook – Workbook is an excel file that contain many spreadsheets.
Spreadsheet – Spreadsheet is also known as worksheet. It is the collection of pages which is gridded by row and columns. The default worksheets in a new workbook are 3.
Row – Rows are the Horizontal lines in a spreadsheet. Rows are identified by numerical numbers located left side of the spreadsheet. Total number of rows in a worksheet are 1048576.
Columns – Columns are the vertical lines in a spreadsheet. Columns are identified by alphabetical character located above of the spreadsheet. Total number of columns in a worksheet are 16384.
Cell – Cells are the blocks generated by dividing row and columns in a spreadsheet. A cells is identified by column and row number. Ex-A1. Total cells in a worksheet are 17179869184.

More about Microsoft Excel Workbook and Spreadsheet

Features	Maximum Limits
Workbooks	Depends on memory
Sheets in a workbook	Depends on memory
Column width	255 Characters
Row height	409 points
Total number of characters in a cell	32767
Undo Levels	100

Zoom Range	10 to 400 Percent
Characters in a header or footer	255
Maximum number of line feeds per cell	253

What is the use of Microsoft Excel Office Button?

Microsoft Excel Office Button

Microsoft Excel Office Button located top-left corner of the application window, It looks like same as MS Office logo. Office Button contain many options for workbook management like opening and saving workbook, printing and publishing workbook etc. Using Office Button we can configure the options related to display, proofing, spelling & grammar, add-in etc. The detailed explanation about Microsoft Excel Office Button is given below.

Options of Microsoft Excel Office Button

- **New (ctrl+n) –** This option is use to insert a new blank workbook or template.
- **Open (ctrl+o)-** This option is use to open any existing workbook saved in memory.
- **Save (ctrl+s) –** This option is use to save the current workbook.
- **Save As –** This option is use to re-save the edited workbook with a new name or save the workbook in other versions like 97, 2000, 2003 format etc.
- **Print (ctrl+p)-** This option prepares the workbook for printing and print preview.
- **Prepare –** This option use to enter the property of the workbook, make encrypt the workbook and apply restrict permissions etc.
- **Send –** This option use to send the workbook to anyone using E-mail but the outlook must be configured for using this feature.
- **Publish –** This option used to publish the workbook for blogs or a website.
- **Close –** This option use to close the current active workbook.
- **Excel Option –** This option use to manage the settings about Excel application.
- **Exit Excel (alt+f4) –** This option is use to close the Excel application.

Home Tab in Microsoft Excel

Home Tab in Microsoft Excel is the default tab for editing and formatting a worksheet or workbook. The ribbon of Home Tab is divided in to multiple sections with the name Clipboard, Font, Alignment, Number, Styles, Cells and Editing. Detailed explanation about Home Tab in Microsoft Excel is given below.

Clipboard

- **Cut (ctrl+x) –** This option is use to cut the selected data.
- **Copy (ctrl+c) –** This option is use to copy the selected data.
- **Paste (ctrl+v) –** Basically this option is use to paste the cut or copied data, But this option contain many other options to paste data in various form, some of them given below.

1. **Paste Special (alt+ctrl+v) –** This option is use to paste the data by creating a link from source data, and allow to recovering the changement between source and target data.
2. **Transpose –** Using this option we can paste a data range by converting row into column and column into row.
3. **As Picture –** This option paste the copied data in the form of picture.
4. **Paste as Hyperlink –** This option is use to create hyperlink of copied data with a text matter.

- **Format Painter –** This option is use to copy and paste formatting.

Font

- **Font (ctrl+d) –** This option is use to choose and select the different fonts for the selected text.
- **Font Size**– This option is use to change the size of the selected text.
- **Grow Font –** This option is use to increase the font size of the selected text.
- **Shrink Font –** This option is use to decrease the font size of the selected text.
- **Bold (ctrl+b) –** This option makes selected text bold.
- **Italic (ctrl+i) –** This option makes selected text italic.
- **Underline (ctrl+u) –** This option draw a line under the selected text.
- **Border –** This option apply the border of line to the selected cells.
- **Fill Color –** This option fills the color to the background of the selected cells.

- **Font Color** – This option is use to change the text color.

Alignment

- **Align Left (ctrl+l) –** This option move the text left side in the selected cell.
- **Align Center (ctrl+e) –** This option move the text center in the selected cell.
- **Align Right (ctrl+r) –** This option move the text right in the selected cell.
- **Top Align –** This option move the text top in the selected cell.
- **Middle Align –** This option move the text middle in selected cell.
- **Bottom Align –** This option move the text bottom in the selected cell.
- **Orientation –** This option rotate the text to a diagonal angel or vertical orientation.
- **Decrease Indent –** This option decrease the margin between the left border and text in cell.
- **Increase Indent –** This option increase the margin between the left border and the text in cell.
- **Wrap Text –** This option wrap the long text in a cell into multiple lines.
- **Merge and center –** This option merge the multiple cells into one cell.

Number

- **Number Format –** This option allows to select a data format to the cell, there are multiple data formats as General, Number, Text, Date, Time, Percentage etc. Default data format of the cell is General.
- **Accounting Number format –** This option display the accounting value in a cell with a currency symbol.
- **Percentage Style (Ctrl+Shift+%) –** This option is use to display the value as percentage.
- **Comma Style –** This option display the values with separators.
- **Increase Decimal –** This option show more precise value by showing more decimal places.
- **Decrease Decimal –** This option show less precise value by showing less decimal place.

Styles

- **Conditional Formatting –** This option is use to format the cell or a range of data with condition rules, cells can be format with colors, styles and other formatting option by comparison the values or text etc.

- **Format as Table –** This option is use to format a range of cells with predefined table styles.
- **Cells Styles –** This option is use to format a range of cells with predefined cell styles.

Cells

- **Insert –** This option is use to insert the cells, rows, columns, and sheets.
- **Delete –**This option is use to delete the cells, rows, columns, and sheets.
- **Format –**This option is use to adjust the rows height and columns width, hide or unhide the row, column and sheets. This option also use for move or copy sheet, protect sheet with password, lock and format cells etc.

Editing

- **AutoSum –** This option contain a list of formulas for calculating one or more range of values in a worksheet, We can calculate values and find answers such as – total of values, big value, small value, average of values and count values etc.
- **Fill –** This option fills the series of values as up, down, right, left. We can create series of step values, date, month or days etc.
- **Clear –** This option is use to clear the content, comments, formats of the selected data.
- **Sort & Filter –** This option is use to sort the values or a range of data with ascending or descending order. This option also arrange, analyze and filter the data according to user conditions.
- **Find (ctrl +f) –**This option is use to find any text or value in spreadsheet or whole workbook.
- **Replace (ctrl +h)** – This option is use to replace any matter with new matter. For example user wants to replace the name "UP" that used in spreadsheet too many times and can replace with "Uttar Pradesh" at a time in whole Workbook.
- **Go To (ctrl +g) –** This option is use to navigate formulas, bookmarks, footnotes, comments, blank cells or last cell etc.
- **Select Object –** This option activate the selection mode for selecting one or more objects in the spreadsheet.

Insert Tab in Microsoft Excel

Insert Tab in Microsoft Excel is use for inserting the Pivot Tables, Charts, Pictures, Smart Arts, Shapes, Links and more. The ribbon of Insert Tab is divided in to multiple sections with the name Tables, Illustrations, Charts, Links and Text. The detailed explanation about Insert Tab in Microsoft Excel is given below.

Tables

- **Pivot Tables –** This option insert a pivot table to display selected data in summarized manner. Pivot Table make easy to summarize and analyze the complicated data, like calculate the values total with grand total. In Pivot Table report we can show specific data using condition and formulas.
- **Table –** This option is use to create a table to manage, sort and filter the data with pre specified table formats.

Illustrations

- **Picture –** This option is use to insert the picture in the current worksheet from the computer memory.
- **Clip Art –** This option is use to insert the readymade Clip Arts in the Workbook. Clip Arts are the drawings, movies, sounds, or stock photography to illustrate a specific concept.
- **Shapes –** This option is use to insert the ready-made shapes; such as rectangular and circle, line and arrows, flow charts, symbols and callout etc.
- **Smart Art –** With this option user can insert the graphical ready-made smart arts in the worksheet. Using smart arts, data can be represent with more understandable form. Inserted Smart Art can be related to any Tree Type, Organizations, Hierarchy, Cycle, Pyramid etc.

Charts

- **Chart –** This option is use to insert charts for illustrate and comparing data in a worksheet. User can add many types of charts such as – Column, Pie, Bar, Line, Area and Surface etc.

Links

- **Hyperlink (ctrl + k) –** This option is use to creates link of worksheets, web pages, files, folders, Pictures or programs for the selected information.

Text

- **Text Box –** This option is use to insert the pre-formatted text box in the worksheet.
- **Header –** This option is use to edit the header of the worksheet page. User can specify the header with any short information; such as – page number, date and time or any other text or graphical information. It appear top of the each printed page.
- **Footer** – The use and features of this option is same as header, but footer is located bottom of the each printed pages.
- **Signature Line –** This option is use to insert a signature line, that specifies the individual person who must sign.
- **Object –** This option is use to insert the embedded object of any program or application installed on computer.

Symbols

- **Symbols –** This option is use to insert many different types symbols that are not present in keyboard.

Page Layout Tab in Microsoft Excel

Page Layout Tab in Microsoft Excel is use for setting appearance of the sheet page using themes, page orientation, page size, margins, effect, border and align objects etc. The ribbon of Page Layout Tab is divided into multiple sections with the name Themes, Page Setup, Scale to Fit, Sheet Options and Arrange. Detailed explanation about Page Layout Tab in Microsoft Excel is given below.

Themes

- **Themes –** By using this option user can change overall appearance of the entire workbook including colors, fonts and effects.
- **Colors –** This option is use to change the color for current theme.
- **Fonts –** This option is use to change the font for current theme.
- **Effect –** This option is use to change the effect for current theme.

Page Setup

- **Margins –** This option is use to change the margins size for the entire sheet pages.
- **Orientation –** With this option user can switch the page orientation between landscape and portrait mode.
- **Size –**This option is use to choose the paper size to print the current worksheet data.
- **Print Area –** This option contain two options, First is “set print area” and second is “clear print area”. Using set print area, we can set the specific range of cells for printing. If set print area option is activated then no other print will perform unless the set print area not cleared, So we use clear print area to clear the set print area.
- **Breaks –** This option is use to break the sheet page from above and left side of the active cell.
- **Background –** This option is use to set the color or a picture to the sheet background.
- **Print Titles –** This option is use to specify the row or column as a title to repeat each printed page.

Scale to Fit

- **Width –** This option set the width of data to fit in page for printing. We can set it automatic, one page, two page or more pages.
- **Height –** This option set the height of data to fit in page for printing. We can set it automatic, one page, two page or more pages.
- **Scale –** By a percentage value, this option shrinks or stretch the data to fit in page. This option works when height and width option set to Automatic.

Sheet Options

- **Gridlines –** This option enable or disable the gridlines for viewing and printing on worksheet.
- **Headings –** This option enable or disable the row and column headings for viewing and printing on worksheet.

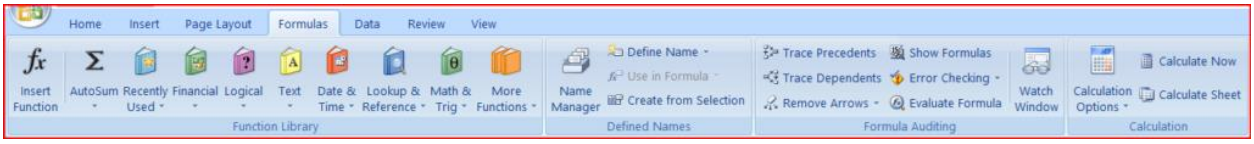
Arrange

- **Bring to Front –** This option is use to bring the selected object one level forward or bring front of all objects.
- **Send to Back –** This option is use to send the selected object one level backward or send behind of all objects.
- **Selection pane –** This option display a pane window that help to select the individual objects.
- **Align –** This option is use to align the multiple selected objects as top, bottom, right, left, center or middle.
- **Group –** This option is use to group the multiple objects together, so that they can behave like a single object.
- **Rotate –** This option rotates the selected object as 90 degree right or left, or flip the selected object as vertical or horizontal.

Size

- **Height –** This option is use to increase or decrease the selected object height.
- **Width –** This option is use to increase or decrease the selected object width.

Formula Tab in Microsoft Excel



Formula Tab in Microsoft Excel contain many functions, formulas and options to calculate the data values of the worksheets. The ribbon of Formula Tab is divided in to multiple sections with the name Function Library, Defined Names, Formula Auditing and Calculations. The detailed explanation about Formula Tab in Microsoft Excel is given below.

Function Library

- **Insert Function** – In this section we can use large number of predefined Excel functions. There are Auto Sum, financial, logical, text, date and time, lookup and reference, math and trig, and additional functions. It also provides a section for recently used functions, so we can get back to the ones that we use the most quickly. Some of the most useful functions given below.

Excel Operators

Before working with functions and formulas, it is most important to know various types of operators used in Excel.

Operator Name	Operator		Example
Plus (Add)	+		=A1+B1
Minus (Subtract)	–		=A1-B1
Astric (Multiply)	*		=A1*B1
Divide	/		=A1/B1
Equal To	=		=A1=B1
Greater Than	>		=A1>B1
Greater Than Equal To	>=		=A1>=B1
Less Than	<		=A1<B1
Less Than Equal To	<=		=A1<=B1
Not Equal To	<>		=A1<>B1
Percent	%		=A1%
And	&		=A1&B1
Colon	:		=A1:A10
Power	^		=A1^B1
Comma	,		=Sum(A1:A10,B1:B5)

Microsoft Excel Formula List

1. Sum

To sum a range, use the SUM formula. Range is a selection of values, all the values that come in it are added. For adding more than one range, use a comma.
Formula : =sum(range1,range2,range3…)

Example : =SUM(A1:A5,C1:C5)

2. Sum If

The SUMIF formula is used to sum a range based on a criteria. Criteria can be any name or value, that is repeated many times in a range and we want to add their values. In given table we will total of rent using sumif.

	A	B
1	**Expense**	**Amount**
2	Rent	2000
3	Food	900
4	Rent	2500
5	Recharge	700
6	Rent	3500

Formula : =sumif(criteria_range, criteria, sum_range)

Example : =SUMIF(A2:A6,A2, B2:B6)

Ans : 80000

To add the values in given range which are greater than 1000.

Example : =SUMIF(B2:B6,">1000")

3. Count

To count the cells that contains only values.

Formula : =count(range)

Example : =COUNT(A2:A10)

4. Count Blank

To count only blank cells in given range.

Formula : =countblank(range)

Example : =COUNTBLANK(A2:A10)

5. Count A

To count cells that contains text.

Formula : =counta(range)

Example : =COUNTA(A2:A10)

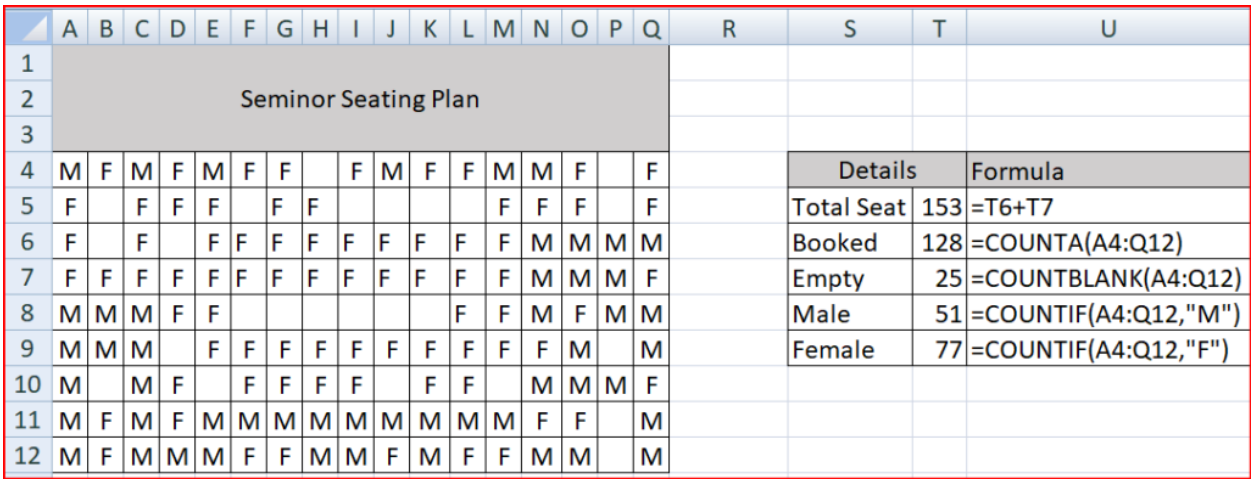
6. Count If

To count the specific text or value in given range.

Formula : =countif(range,"text or value")

Example : =COUNTIF(A2:A10,"M")

An Example given below to use all count functions.



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1																	
2	Seminor Seating Plan																
3																	
4	M	F	M	F	M	F	F		F	M	F	F	M	M	F		F
5	F		F	F	F		F	F					F	F	F		F
6	F		F		F	F	F	F	F	F	F	F	F	M	M	M	M
7	F	F	F	F	F	F	F	F	F	F	F	F	F	M	M	M	F
8	M	M	M	F	F							F	F	M	F	M	M
9	M	M	M		F	F	F	F	F	F	F	F	F	F	M		M
10	M		M	F		F	F	F	F		F	F		M	M	M	F
11	M	F	M	F	M	M	M	M	M	M	M	M	M	F	F		M
12	M	F	M	M	M	F	F	M	M	F	M	F	F	M	M		M

Details		Formula
Total Seat	153	=T6+T7
Booked	128	=COUNTA(A4:Q12)
Empty	25	=COUNTBLANK(A4:Q12)
Male	51	=COUNTIF(A4:Q12,"M")
Female	77	=COUNTIF(A4:Q12,"F")

7. Max

To find the maximum value in given range.

Formula : =max(range1,range2,...)

Example : =MAX(A2:A10)

8. Min

To find the minimum value in given range.

Formula : =min(range1,range2,...)

Example : =MIN(A2:A10)

9. Average

To find the average value in given range.

Formula : =average(range1,range2,...)

Example : =AVERAGE(A2:A10)

10. Average If

To find the average of specific criteria in given range. In given table you can find the average of rent using "AVERAGEIF" formula.

	A	B
1	**Expense**	**Amount**
2	Rent	2000
3	Food	900
4	Rent	2500
5	Recharge	700
6	Rent	3500

Formula : =averageif(criteria_range, criteria, average_range)

Example : =AVERAGEIF(A2:A6,A2,B2:B6)

Ans : 2666.66

11. If

In if formula we can define a condition to calculate the values. Here is an example to calculate result of students. The condition is, if percentage marks is greater than 50 then student will be passed otherwise fail.

	A	B	C
1	**Name**	**Marks**	**Result**
2	Amit	78	Pass
3	Ajay	42	Fail

Formula : =if(logical_condition,"True_Msg","False_Msg")

Example : =IF(B2>50,"Pass","Fail")

12. Nested If

When we define multiple if conditions in a if formula, that is called nested if. Here is an example to calculate the division of students according to percentage value using nested if.

conditions : Marks<33 = Fail, Marks<45 = Third, Marks<60 = Second otherwise First.

	A	B	C
1	**Name**	**Marks**	**Result**
2	Amit	78	First
3	Rohit	43	Second
4	Prateek	25	Fail
5	Ravi	39	Third

Formula : =if(logical_condition,"True_Msg",if(logical_condition,"True_Msg","False_Msg"))

Example : =IF(B2<33,"Fail",IF(B2<45,"Third",IF(B2<60,"Second","First")))

13. Concatenate

To join the multiple cells or text into one cell. Text always written in formula with double quote. Ex – "text"

	A	B	C
1	**First Name**	**Last Marks**	**Full Name**
2	Amit	Singh	Amit Singh

Formula : =concatenate(text1,text2...)

Example : =CONCATENATE(A2," ",B2)

14. Upper

To convert the cell text with UPPER case.

	A	B
1	**Name**	**Upper Result**
2	Amit singh	AMIT SINGH

Formula : =upper(text)

Example : =UPPER(A2)

15. Lower

To convert the text with lowercase.

	A	B
1	**Name**	**Lower Result**
2	AMIT SINGH	amit singh

Formula : =lower(cell no or "text")

Example : =LOWER(A2)

16. Proper

To convert the text with proper case.

	A	B
1	**Name**	**Proper Result**
2	AMit SinGH	Amit Singh

Formula : =proper("text" or cell_no)

Example : =PROPER(A2)

17. Left

To collect numbers or characters from the left side of the cell value, we can give the value in num_chars to collect number of character. In given example, Left formula is use to collect country code from the phone number.

	A	B
1	**Phone Number**	**Left Result**
2	+918843211143	+91

Formula : =left(cell_no, num_chars)

Example : =LEFT(A2, 3)

18. Right

To collect numbers or characters from the right side of the cell value. In given example, Left formula is use to collect 10 digit phone number.

	A	B
1	**Phone Number**	**Right Result**
2	+918843211143	8843211143

Formula : =right(cell no, num_chars)

Example : =RIGHT(A2,10)

19. Middle

To pick the characters or numbers from the cell value, start_num means starting character number from where to pick and num_chars means how many character to pick.

	A	B
1	**Phone Number**	**Middle Result**
2	+918843211143	8843

Formula : =mid(text or cell_no, start_num, num_char)

Example : =MID(A2, 4, 4)

20. Find

To find any text or character in any cell.

	A	B
1	**Email**	**Find Result**
2	amar112@gmail.com	8

Formula : =find("char", cell_no)

Example : FIND("@", A2)

21. Replace

To replace the text or character from the cell, start_num means starting character number from where to replace and num_chars means how many character to replace.

	A	B
1	**Email**	**Replace Result**
2	amar112@gmail.com	amar112@hotmail.com

Formula : =replace(cell_no, start_num, num_chars, "text")

Example : = REPLACE(A2, 9, 5, "hotmail")

22. Repeat

To repeat the character according to the given number_times.

	A	B
1	**Channel Name**	**Repeat Result**
2	Star Plus	*****
3	Sony Tv	***

Formula : =rept("char", number or cell_no)

Example : = REPT("*", 5)

23. Substitute

To change any symbol or spaces in another data.

	A	B	C

1	**Data**	**Formula**	**Substitute Result**
2	jan-feb-march	=substitute(A2,"-"," ")	jan feb march
3	jan,feb,march	=substitute(A3,",","-")	jan-feb-march
4	pin 241303	=substitute(A4," ","-")	pin-241303

24. Now

To check the current time and date.
Formula : =NOW()

25. Today

To check the current date.
Formula : =TODAY()

26. Dated If

Using this formula we can check the age of person. To calculate age uses "y" for years, "ym" for months and "md" for days.
To check the days of age.
=DATEDIF(birth_date_cell_no, today(),"md")
To check the months of age.
=DATEDIF(birth_date_cell_no, today(),"ym")
To check the years of age.
=DATEDIF(birth_date_cell_no, today(),"y")

27. Transpose

=transpose(range)
Using this formula we can convert the data of rows in to columns and columns into rows. To use this formula follow these steps.

- Select criteria where want to paste
- On the first cell of selected criteria write formula =TRANSPOSE(Data_array)
- In data array select range of data
- After writing formula press ctrl+shift+enter to action.

Alternatively use this function from paste special option.

28. Power

To raises a number to a user specified power. It is same as using the ^ operator, such as 3^4, which result is 81. Both the power() function and the ^ operator are the same as using 3*3*3*3.
Formula : =power(number, power)
Example : =POWER(3, 4)

29. Even

To find next even value of the given odd value.
Formula : =even(value or cell_no)

Example : =EVEN(13)
Ans : 14

30. Odd

To find next odd value of the given even value.
Formula : =odd(value or cell_no)
Example : ODD(14)
Ans : 15

31. Modulus

This function calculates the remainder of a value after divided by a number.
Formula : =mod(number, diviser_value)
Example : =MOD(30, 4)
Ans : 2

32. Round

The round formula round a value by given num_digits.
Formula : =round(number, num_digits)

	A	B	C
1	**Values**	**Formula**	**Result**
2	12.789	=ROUND(A2,2)	12.79
3	240.436	=ROUND(A3,0)	240
4	526.5	=ROUND(A4,-3)	1000

- If num_digits is greater than 0 (zero), then number is rounded to the specified number of decimal places.
- If num_digits is 0, the number is rounded to the nearest integer.
- If num_digits is less than 0, the number is rounded to the left of the decimal point. -1 returns nearest to 10, -2 returns nearest to 100 and -3 returns nearest to 1000.

33. Integer

This function rounds a number down to the nearest whole number.
Formula : =int(value or cell_no)
Example : =INT(13.66)
Ans : 13

34. Length

To check the length of the text or number, it count the characters with spaces.

	A	B
1	**Email**	**Length Result**
2	amar112@gmail.com	19

Formula : =len("text" or cell_no)
Example : =LEN(A2)

35. Char

This formula is use to find ASCII character of the value between 0 to 255.
Formula : =char(value)
Example : =CHAR(65)
Ans : A

36. Trim

To remove extra spaces between words.

	A	B
1	**Address**	**Trim Result**
2	Near B. N. Inter College, Chauk, Kanpur	Near B. N. Inter College, Chauk, Kanpur

Formula : =trim("text" or cell_no)
Example : =TRIM(A2)

37. Frequency

=frequency(data_array, bins_array)
With the help of FREQUENCY formula, we can find out how many times a value is repeated in any range. Let's assume that in an Age column, it is to be found that the maximum age of the person is there. Follow the steps below to use the formula.

- First of all, in the range we want to see, we will select that range and copy it, then paste it in a new column, which will be named Unique.
- Then remove duplicate value from unique column.
- Now put the formula in the new column =FREQUENCY(data_array, bins_array)
- We will give the range of age column in Data_array and Unique column range in bins_array.
- After entering formula, drag down for all, and let the value remain selected, now press f2 to first cell in which the formula is applied and press ctrl+shift+enter.
- In this way we will be able to see which number is repeated how many times.
- Below table showing the example of above method

Person	**Age**	**Unique**	**Frequency Result**
A	33	33	3
B	23	23	1

C	54	54	2
D	33	65	1
E	65	76	1
F	76		
G	33		
H	54		

38. PMT

To calculate EMI of a Loan, we can use PMT Formula. In given table we use PMT Formula to calculate Installment.

	A	B	C
1	Loan Amount	100000	Pv(Principal Value)
2	Period in Month	10	Nper (No of Period)
3	Interest Rate	10%	Rate
4	EMI	₹10,464.04	=PMT(B3/12,B2,-B1)
5	Total Paid	₹1,04,640.38	=B4*B2
6	Total Interest	₹4,640.38	=B5-B1

39. Simple and Compound Interest

	A	B	C
1	Principal Amount	500	
2	Interest Rate Monthly	10	
3	Time in Month	6	
4	Simple Interest	300	=B1*B2*B3/100
5	Compound Interest	885.7805	=B1*(1+B2/100)^B3

40. Index

To find a value or text in a range.

	A	B	C
1	**Time**	**Sony**	**Star Plus**
2	8 am	movie	cricket
3	9 am	news	ramayan
5	10 am	cid	cartoon

Formula : =index(array, row_no, column_no)

Example : =INDEX(A1:C5, 3, 3)

Ans : ramayan

41. Match

To find a column or row number by given a value or text in a row or column range.
Match type is 0 for exact match, 1 is less than, -1 is greater than.
Formula : =match(lookup_value, lookup_array, match_type)
To find column number
Example : =MATCH("news", A3:C3, 0)
Result : 2
To find row number
Example : =MATCH("news", B1:B5, 0)
Result : 3

42. Index and Match

	A	B	C
1	**Time**	**Sony**	**Star Plus**
2	8 am	movie	cricket
3	9 am	news	ramayan
5	10 am	cid	cartoon

=index(a1:c5,match("9 am", a1:a5, 0), match("star plus", a1:c1, 0))

Answer : ramayan

43. Vlookup

=vlookup(lookup_value, table_array, column_index_no, range_lookup)
To show values vertically from database by given lookup_value, table_array, column_index_no.

	A	B	C	D	E
1	**Time**	**Sony Liv**	**Star Plus**	**Colors**	**Star Bharat**
2	07:00 AM	Sath Nibhana	CID	Ulta Chasma	Movie
3	08:00 AM	Astha Gyan	News	Bihar Live	Sports
4	09:00 AM	News	Movie	Cortoon	Shaktimaan
5	10:00 AM	Radha Krishna	Mahabharat	News	Sindoor
6	11:00 AM	News	Cricket	Ramayan	Movie
7	12:00 PM	Cooking Tips	News	Chota Bheem	Mahadev
8					
9	**Time**	**Sony Liv**	**Star Plus**	**Colors**	**Star Bharat**
10	09:00 AM	News	Movie	Cortoon	Shaktimaan
11					
12					

=VLOOKUP(A10,A1:E7,2,0)

44. Hlookup

=hlookup(lookup_value, table_array, row_index_no, range_lookup)

To show values horizontally from database by given lookup_value, table_array, row_index_no.

	A	B	C	D	E	F	G
1	**Time**	07:00 AM	08:00 AM	09:00 AM	10:00 AM	11:00 AM	12:00 PM
2	**Sony Liv**	Sath Nibhana	Astha Gyan	News	Radha Krishna	News	Cooking Tips
3	**Star Plus**	CID	News	Movie	Mahabharat	Cricket	News
4	**Colors**	Ulta Chasma	Bihar Live	Cortoon	News	Ramayan	Chota Bheem
5	**Star Bharat**	Movie	Sports	Shaktimaan	Sindoor	Movie	Mahadev
6							
7	**Time**	09:00 AM					
8	**Sony Liv**	News					
9	**Star Plus**	Movie					
10	**Colors**	Cortoon					
11	**Star Bharat**	Shaktimaan					

=HLOOKUP(B7,A1:G5,2,0)

Defined Names

- **Name Manager-** This option is use to create, edit, delete and find all the names used in the workbook. Name can be used in formulas as substitute of cell reference. Ex- =sum(sale) instead of =sum(A1:A10)
- **Define Names-** Define name is used to define a name of the cell range.
- **Used in formula-** This function use to choose a defined name to paste with formula in the workbook.

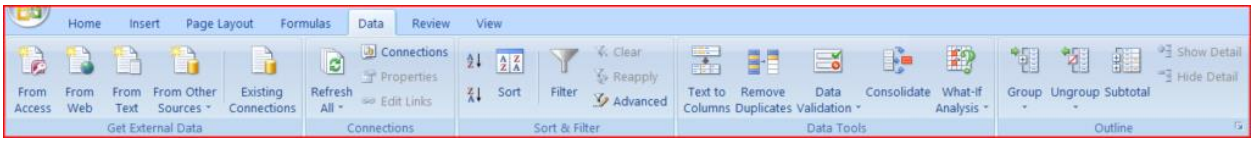
Formula Auditing

- **Trace Precedents-** This option shows the arrow to the formulated cell that indicates how many cells are affected.
- **Trace Dependence-** This option shows the arrows to the selected cells from a formulated cell.
- **Remove Arrows-** This option removes all the arrows.
- **Show Formulas-** This option shows the formulas of the calculated values.
- **Error Checking-** This option check the common errors that occurs in formulas or cells.
- **Evaluate Formula-** This option opens a dialog box that displays how formula calculated the value step by step.
- **Watch Window-** This option add a watch option to the active cell that display the information as- cell no, sheet no, workbook no, value and applied formula.

Calculation

- This section use to turn on or off automatic calculations to formulas in worksheet or workbook. If you turn off automatic calculations then you can use this area to calculate the current cell or the whole sheet manually.

Data Tab in Microsoft Excel



Data Tab in Microsoft Excel is use for importing data from external sources, generating and refreshing data connections, sort & filtering data and many other data management tools. The ribbon of Data Tab is divided into multiple sections with the name Get External Data, Connections, Sort & Filter, Data Tools and Outline. The detailed explanation about Data Tab in Microsoft Excel is given below.

Get External Data

- This section provides multiple options to import data from external sources. We can import data on worksheet from Access, from web, from text files or from other possible external sources.

Connection

- This section is use to refresh all data sources and manage connections to outside sources. Using this option we can edit links and check properties of the imported data source.

Sort & Filter

- **Sort –** We can sort a range of data with this option as alphabetical or number order. This option provides multiple options as ascending or descending sorting, sorting data with text or number conditions etc.
- **Clear –** This option is use to clear the filtered and sorted state for the current range of data.
- **Reapply –** This option is use to reapply the new filter and modified data. New or modified data won't be filtered or sorted until you click reapply.

- **Advanced –** Advanced Filter can be used to extract a list from a database with predefined criteria. It gives a lot of control as compared to regular filter.

Data Tools

- **Text to Column –** This option is use to convert the text in to column. For example a full name "Gyanendra Prasad Tomar" written in cell, and want to separate the each part as first name, middle name and last name; so this option can distribute each part of the name in to other columns. This option easily convert text in to columns using spaces, tabs, commas etc.
- **Remove Duplicate –** This option is use to delete the duplicate data in the selected range.
- **Data Validation**
- **Data Validation –** This option prevent the invalid data being entered in the cell. We can specify different data formats with multiple conditions.
- **Circle Invalid Data –** This option make circles on the invalid Data.
- **Clear Validation Circles –** This options removes all the circles of invalid data.
- **Consolidate :** This option is use to combine and sum multiple range of multiple worksheets in to new worksheet.
- **What-If Analysis**
- **Scenario Manager –** A scenario is a collection of values, that allows to create, analyze and compare data results in different situations. We can store multiple versions of data within the same cell, and change them depending on a scenario's goal to see results.
- **Goal Seek –** This option is use to find a future value. For example we can use Goal Seek to find what Loan amount we can take based on interest rate, period and EMI.
- **Data Table –** A data table is a range of cells in which we can change values in some of the cells to calculate different answers to a problem. An example to use data table is PMT function, it can be use to calculate different EMIs using Data Table by given loan amount, Period and interest rate.

Outline

- This section provide tools for group or ungroup rows or columns, collapse and expand the grouped rows and columns, hides or unhide details and obtains total and subtotals for grouped items.

Review Tab in Microsoft Excel

Review Tab in Microsoft Excel is use for checking spelling & grammatical mistakes in the document, write comments, track the data changes and sheet or workbook protection etc. The ribbon of Review Tab is divided in to multiple sections with the name Proofing, Comments and Changes. The detailed explanation about Review Tab in Microsoft Excel is given below.

Proofing

- **Spelling –** This option is use to check the spelling & grammar mistakes of the text written in the worksheet.
- **Research –** This option is use to open the research pane for searching the reference materials such as- dictionaries, encyclopedias, and translation services etc.
- **Thesaurus –** This option searches the suggested word with more similar meanings.
- **Translate –** With this option we can translates the selected text in to different language. To use this option, languages must be installed on computer.

Comments

- **New Comment –** This option is use to add a comment (text info about the matter) on a cell.
- **Delete –** Using this option we can delete the selected comment or delete all the comments in the Workbooks.
- **Previous –** This option is use to navigate the previous comment.
- **Next –** This option is use to navigate the next comment.
- **Show/Hide Comment:** This option is use to hide and show the comments.
- **Show All Comment:** This option use to show all the comments in the worksheet.

Changes

- **Protect Sheet –** This option is use to prevent the unwanted changes in a sheet by protecting sheet with a password.

- **Protect Workbook –** This option is use to set the restrict permissions and prevent the structure and window changes by given a password, so that unauthorized user cannot make changes in workbook**.**
- **Share Workbook –** This option is use to share the current workbook in network, so that multiple users on network can open it.
- **Protect and Share Workbook –** This option allows to protect the workbook by specifying a password and share protected workbook at the same time. Users on network who know the password can open it.
- **Allow Users to Edit Ranges –** This option is use to set a selected range password in a sheet, so that local/network user can make changes by entering range password only in allowed range.
- **Track Changes –** This option is use to track all the changes in workbook including insertion, deletion and formatting changes. If we have activated track change option, we can recover unwanted changes.

View Tab in Microsoft Excel

View Tab in Microsoft Excel is use for changing the sheet layouts, show/hide viewing contents, zoom in/out sheet, arranging and adding multiple window and record a macro etc. Ribbon of View Tab is divided in to multiple sections with the name Workbook Views, Show/Hide, Zoom, Window and Macros. The detailed explanation about View Tab in Microsoft Excel is given below.

Workbook Views

- **Normal Layout –** This is by default layout view of the worksheet. This layout is use for creating database.
- **Page Layout –** This layout distribute the sheet in to multiple pages.
- **Page Break Preview –** This layout display the pages with page numbers and pages break lines.
- **Custom Views –** This option allows to saving multiple area of sheet with names, so that we can jump anywhere in sheet or whole workbook using the custom views.
- **Full Screen –** This option is use to view the worksheet in full screen mode.

Show/Hide

- **Ruler –** This option is use to show or hide the ruler.
- **Gridlines –** This option is use to show or hide the gridlines. It is use to display row and column lines on a worksheet to make content easier to read.
- **Message bar –** This option show or hide Message bar.
- **Formula Bar –** This option use to show or hide formula bar.
- **Headings –** This option is use to show or hide worksheet headings (Column and Row numbers).

Zoom

- **Zoom –** This option is use to set the zoom level for the worksheet according to the preset size or custom size.
- **100% Zoom –** This option set the 100% zoom level of the sheet.
- **Zoom to Selection –** This option zooms as much as the worksheet area is selected.

Window

- **New Window –** This option insert a new window of the current active workbook.
- **Arrange All –** This option arranges the multiple workbooks side by side on the screen.
- **Split –** This option splits the current workbook in to two parts, so that user can view different section of the workbook at the same time.
- **Hide –** Using this option we can hide the current workbook window.
- **Unhide –** Using this option we can unhide the window window.
- **View Side by Side –** This option is use to view two workbooks side by side, so that we can compare their data.
- **Synchronous Scrolling –** This option synchronize the scrolling of two Workbooks, so that they scroll together.
- **Reset Window Position –** This option reset the window position of the workbooks being compared side by side; so that they share the screen equally.
- **Save Workspace –** This option is use to save the current layout of all workbooks window as a workspace, so that it can be restored later.
- **Switch Window –** This option switches the current workbook in another opened workbook window.

Macros

- **Macros –** Macro is a function that works with excel vba. This option record a macro and run a recorded macro. Macro is a program in View Tab in MS Excel, that is use to record a work including mouse actions and keystrokes. Macro feature is a most useful for repeatable work. If any work in excel we repeat time to time, we can record it using macro and run when it require.