

Computer

First Stage
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Doctor

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Introduction to Computer

Computer

A computer is an electronic device, operating under the control of instructions stored in its own memory that can accept data (input), process the data according to specified rules, produce information (output), and store the information for future use.

Functionalities of a computer

Any digital computer carries out five functions in gross terms:

- ✓ Takes data as input
- ✓ Stores the data / instructions in its memory and use them when required
- ✓ Processes the data and converts it into useful information.
- ✓ Generates the output.
- ✓ Controls all the above four steps.

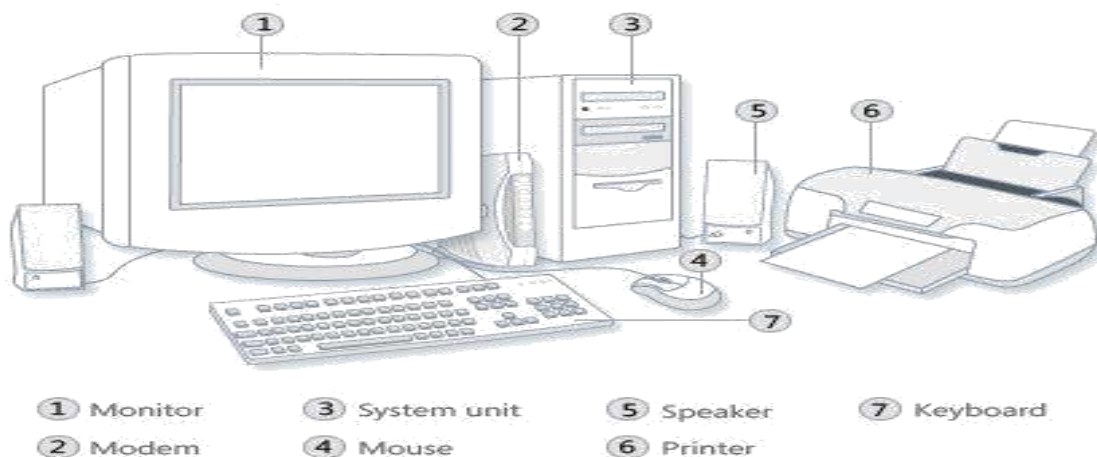


Computer Components

Any kind of computers consists of **Hardware** and **Software**.



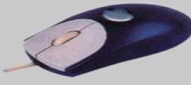









Hardware:

Computer hardware is the collection of physical elements that constitutes a computer system. Computer hardware refers to the physical parts such as the monitor, mouse, keyboard, computer data storage, hard drive disk (HDD), system unit (graphic cards, sound cards, memory, motherboard and chips), etc.



Input Devices

Input device is any peripheral . Input device Translate data from **form** that humans understand to one that the computer can work with. Most common are keyboard and mouse

Examples of Manual Input Devices			
Keyboard 	Numeric Keypad 	Pointing Device 	Remote Control 
Joystick 	Touch Screen 	Scanner 	Graphics Tablet 
Microphone 	Digital Camera 	Webcams 	Light Pens 

Example of Input Devices:-

Keyboard	Mouse(Pointing device)	Microphone
Touch screen	Scanner	Web camera
Touchpads	MIDI keyboard	Graphics Tablets
Cameras	Pen Input	Electronic Whiteboard
Video Capture Hardware	Microphone	Trackballs
Barcode reader	Digital camera	Joystick

Central Processing Unit (CPU)

A CPU is brain of a computer. It is responsible for all functions and processes. The CPU is the most important element of a computer system.

The CPU is comprised of three main parts :

- * **Arithmetic Logic Unit (ALU):** Executes all arithmetic and logical operations. Arithmetic calculations like as addition, subtraction, multiplication and division. Logical operation like compare numbers, letters, or special characters
- * **Control Unit (CU):** controls and co-ordinates computer components.
 1. Read the code for the next instruction to be executed.
 2. Increment the program counter so it points to the next instruction.
 3. Read whatever data the instruction requires from cells in memory.
 4. Provide the necessary data to an ALU or register.
 5. If the instruction requires an ALU or specialized hardware to complete, instruct the hardware to perform the requested operation.

* **Registers** :Stores the data that is to be executed next, "very fast storage area".

Primary Memory:-

1. **RAM:** Random Access Memory (RAM) is volatile in nature, which means that data will be erased once supply to the storage device is turned off. RAM stores data randomly and the processor accesses these data randomly from the RAM storage.
2. **ROM (Read Only Memory):** ROM is a permanent form of storage. ROM devices do not allow data stored on them to be modified.

Secondary Memory:-

Stores data and programs permanently :its retained after the power is turned off

1. **Hard drive (HD):** A hard disk is part of a unit, often called a "disk drive," "hard drive," or "hard disk drive," that store and provides relatively quick access to large amounts of data on an electromagnetically charged surface or set of surfaces.
2. **Optical Disk:** an optical disc drive (ODD) is a disk drive that uses laser light as part of the process of reading or writing data to or from optical discs. Some drives can only read from discs, but recent drives are commonly both readers and recorders, also called burners or writers. CDs can store up to 700 megabytes (MB) of data and DVDs can store up to 8.4 GB of data.

3. Flash Disk

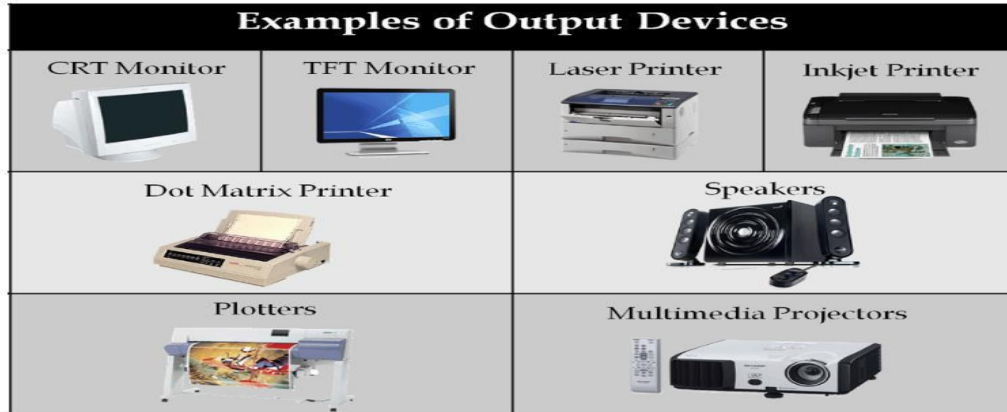
A storage module made of flash memory chips. A Flash disks have no mechanical platters or access arms, but the term "disk" is used because the data are accessed as if they were on a hard drive.

Comparison between Main memory (RAM) and Secondary Memory (Hard disk)

RAM	Hard Disk (Hard Drive)
Memory	Storage
Smaller amount (typically 500 MB-6 GB)	Much larger amount (typically 80GB to 1000 GB)
Temporary storage of files and programs	Permanent storage of files and programs
A little like your real desktop - has only your current work on it (which could be ruined by a spill of Coke or coffee!)	Like a file cabinet - has long-term storage of work (it's safe from spills!)
Contents disappear when you turn off power to the computer and when the computer crashes	Contents remain when you turn off the power to the computer (they don't disappear unless you purposely delete them), and when the computer crashes
Consists of chips (microprocessors)	Consists of hard disks (platters)
When you want to use a program, a temporary copy is put into RAM and that's the copy you use	Holds the original copy of the program permanently

Output devices

An output device is any piece of computer hardware equipment used to communicate the results of data processing carried out by an information processing system (such as a computer) which converts the electronically generated information into human-readable form.



Example on Output Devices:

Monitor	LCD Projection Panels
Printers(all types)	Computer Output Microfilm (COM)
Plotters	Speaker(s)
Projector	

Note Basic types of monitors are a.Cathode Ray Tube (CRT). B. Liquid Crystal Displays (LCD). c.light-emitting diode (LED). Printer types: 1-Laser Printer. 2-Ink Jet Printer. 3-Dot Matrix Printer

Software

Software is a generic term for organized collections of computer data and instructions, often broken into two major categories: system software that provides the basic non-task-specific functions of the computer, and application software which is used by users to accomplish specific tasks.

Software Types

A. System software Generally, system software consists of an operating system and some fundamental utilities such as disk formatters, file managers, display managers, text editors, user authentication (login) and management tools, and networking and device control software.

B. Application software Application software may consist of a single program, such as an image viewer; a small collection of programs (often called a software package) that work closely together to accomplish a task.

Comparison Application Software and System Software

	System Software	Application Software
	Computer software, or just software is a general term primarily used for digitally stored data such as computer programs and other kinds of information read and written by computers. App comes under computer software though it has a wide scope now.	Application software, also known as an application or an "app", is computer software designed to help the user to perform specific tasks.
Example:	1) Microsoft Windows 2) Linux 3) Unix 4) Mac OSX 5) DOS	1) Opera (Web Browser) 2) Microsoft Word (Word Processing) 3) Microsoft Excel (Spreadsheet software) 4) MySQL (Database Software) 5 Microsoft PowerPoint (Presentation Software) 6) Adobe Photoshop (Graphics Software)
Interaction:	Generally, users do not interact with system software as it works in the background.	Users always interact with application software while doing different activities.
Dependency:	System software can run independently of the application software.	Application software cannot run without the presence of the system software.

Unit of Measurements

Storage measurements: The basic unit used in computer data storage is called a bit (binary digit). Computers use these little bits, which are composed of ones and zeros, to do things and talk to other computers. All your files, for instance, are kept in the computer as binary files and translated into words and pictures by the software (which is also ones and zeros). This two number system, is called a “binary number system” since it has only two numbers in it. The decimal number system in contrast has ten unique digits, zero through nine.

Computer Storage units

Bit	BIT	0 or 1
Kilobyte	KB	1024 bytes
Megabyte	MB	1024 kilobytes
Gigabyte	GB	1024 megabytes
Terabyte	TB	1024 gigabytes

Speed measurement: The speed of Central Processing Unit (CPU) is measured by Hertz (Hz), which represent a CPU cycle. The speed of CPU is known as Computer Speed.

CPU SPEED MEASURES	
1 hertz or Hz	1 cycle per second
1 MHz	1 million cycles per second or 1000 Hz
1 GHz	1 billion cycles per second or 1000 MHz

Computers classification

Computers can be generally classified by size and power as follows, though there is Considerable overlap:

- Personal computer: A small, single-user computer based on a microprocessor. In addition to the microprocessor, a personal computer has a keyboard for entering data, a monitor for displaying information, and a storage device for saving data.
- workstation : A powerful, single-user computer. A workstation is like a personal computer, but it has a more powerful microprocessor and a higher-quality monitor.

- minicomputer : A multi-user computer capable of supporting from 10 to hundreds of users simultaneously.
- mainframe : A powerful multi-user computer capable of supporting many hundreds or thousands of users simultaneously.
- supercomputer : An extremely fast computer that can perform hundreds of millions of instructions per second.

Laptop and Smartphone Computers

LAPTOP: A laptop is a battery or AC-powered personal computer that can be easily carried and used in a variety of locations.

Netbook: A netbook is a type of laptop that is designed to be even more portable. Netbooks are often cheaper than laptops or desktops. They are generally less powerful than other types of computers, but they provide enough power for email and internet access, which is where the name "netbook" comes from.

Mobile Device: A mobile device is basically any handheld computer. Some mobile devices are more powerful, and they allow you to do many of the same things you can do with a desktop or laptop computer.

Tablet Computers: Like laptops, tablet computers are designed to be portable. However, they provide a very different computing experience.

Smartphones: A smartphone is a powerful mobile phone that is designed to run a variety of applications in addition to phone service.

Characteristics of Computer

- Speed: The computer can process data very fast, at the rate of millions of instructions per second..
- Accuracy: Computer provides a high degree of accuracy. For example, the computer can accurately give the result of division of any two numbers up to 10 decimal places.
- Diligence: When used for a longer period of time, the computer does not get tired or fatigued.
- Storage Capability: Large volumes of data and information can be stored in computer and also retrieved whenever required.

Computer Viruses

Viruses: A virus is a small piece of software that piggybacks on real programs.

For example, a virus might attach itself to a program such as a spreadsheet program. Each time the spreadsheet program runs, the virus runs, too, and it has the chance to reproduce (by attaching to other programs) or wreak havoc.

- E-mail viruses: An e-mail virus travels as an attachment to e-mail messages, and usually replicates itself by automatically mailing itself to dozens of people in the victim's e-mail address book.
- Trojan horses: A Trojan horse is simply a computer program. The program claims to do one thing (it may claim to be a game) but instead does damage when you run it (it may erase your hard disk). Trojan horses have no way to replicate automatically.
- Worms: A worm is a small piece of software that uses computer networks and security holes to replicate itself. A copy of the worm scans the network for another machine that has a specific security hole. It copies itself to the new machine using the security hole, and then starts replicating from there, as well.

What are some tips to avoid viruses and lessen their impact?*

- Install anti-virus software. Update it and use it regularly.
- Use a virus scan before you open any new programs or files that may contain executable code. This includes packaged software that you buy from the store as well as any program you might download from the Internet.
- If you are a member of an online community or chat room, be very careful about accepting files or clicking links that you find or that people send you within the community.
- Make sure you back up your data (documents, bookmark files, important email messages, etc.) on disc so that in the event of a virus infection, you do not lose valuable work.

Microsoft Excel 2010

Excel is a spreadsheet program in the Microsoft Office system. You can use Excel to create and format workbooks (a collection of spreadsheets) in order to analyze data and make more informed business decisions. Specifically, you can use Excel to track data, build models for analyzing data, write formulas to

perform calculations on that data, pivot the data in numerous ways, and present data in a variety of professional looking charts.

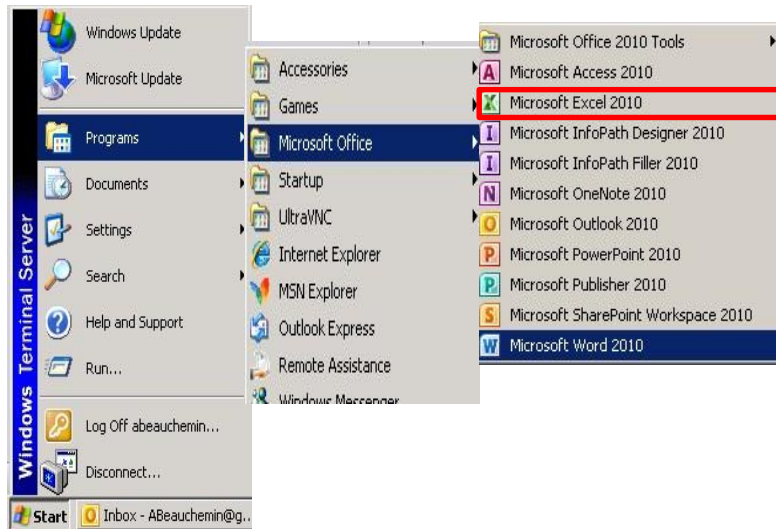
Getting Started

Now that you have an understanding of where things are located, let's look at the steps needed to create an Excel document.

Opening Outlook

You may have a shortcut to Word on your desktop, if so double click the icon and Word will open. If not follow the steps below:

1. Click on the Start button
2. Highlight Programs
3. Highlight Microsoft Office
4. Click on Microsoft Excel 2010



Create a New Workbook

1. Click the **File** tab and then click **New**.
2. Under **Available Templates**, double click **Blank Workbook** or Click **Create**.

Find and Apply Template

Excel 2010 allows you to apply built-in templates and to search from a variety of templates on

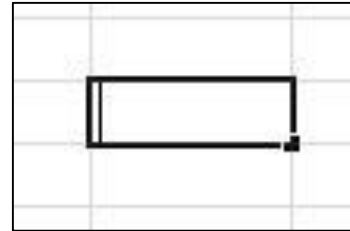
Office.com. To find a template in Excel 2010, do the following:

1. On the **File** tab, click **New**.
2. Under **Available Templates**, do one of the following:

- a. To reuse a template that you've recently used, click **Recent Templates**, click the template that you want, and then click **Create**.
 - b. To use your own template that you already have installed, click **My Templates**, select the template that you want, and then click **OK**.
 - c. To find a template on Office.com, under **Office.com Templates**, click a template category, select the template that you want, and then click **Download** to download the template from Office.com to your computer.
3. Once you click on the template you like it will open on your screen as a new document.

Enter Data in a Worksheet

1. Click the cell where you want to enter data.
2. Type the data in the cell.
3. Press enter or tab to move to the next cell.



Save a Spreadsheet

To save a document in the format used by Excel 2010 and Excel 2007, do the following:

1. Click the **File** tab.
2. Click **Save As**.
3. In the **File name** box, enter a name for your document.
4. Click **Save**.

To save a document so that it is compatible with Excel 2003 or earlier, do the following:

1. Click the **File** tab.
2. Click **Save As**.
3. In the **Save as type** list, click **Excel 97-2003 Document**. This changes the file format to .xls.
4. In the **File name** box, type a name for the document.
5. Click **Save**.

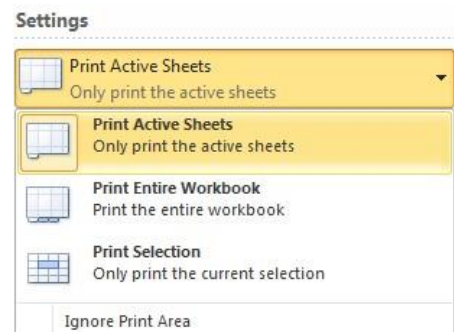
Print Preview

Print Preview automatically displays when you click on the **Print** tab. Whenever you make a change to a print-related setting, the preview is automatically updated.

1. Click the **File** tab, and then click **Print**. To go back to your document, click the **File** tab.
2. A preview of your document automatically appears. To view each page, click the arrows below the preview.

Print a Worksheet

1. Click the worksheet or select the worksheets that you want to print.
2. Click File
3. Click Print.
4. Once you are on the Print screen you can select printing options:
 - To change the printer, click the drop-down box under Printer, and select the printer that you want.
 - To make page setup changes, including changing page orientation, paper size, and page margins, select the options that you want under Settings.
 - To scale the entire worksheet to fit on a single printed page, under Settings, click the option that you want in the scale options drop-down box.
 - To print the specific information, select Print Active Sheets or Print Entire Workbook

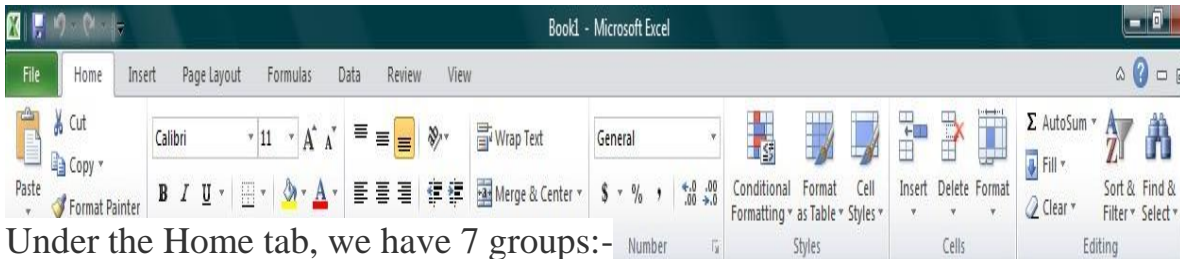


The Ribbon

Understanding the Ribbon is a great way to help understand the changes between Microsoft 2003 to Microsoft 2010. The ribbon holds all of the information in previous versions of Microsoft Office in a more visual stream line manner through a series of tabs that include an immense variety of program features.

Home Tab

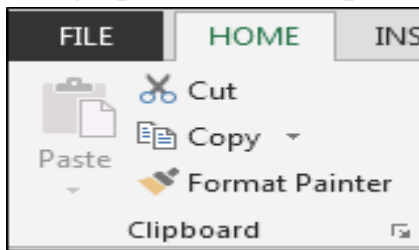
This is the most used tab; it incorporates all text and cell formatting features such as font and paragraph changes. The Home Tab also includes basic spreadsheet formatting elements such as text wrap, merging cells and cell style.



Under the Home tab, we have 7 groups:-

- 1- Clipboard
- 2 – Font
- 3 – Alignment
- 4- Number
- 5- style
- 6- cell
- 7- editing

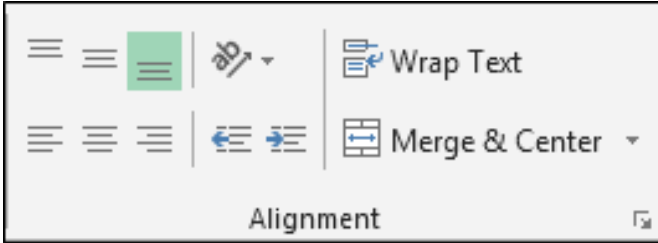
1) **Clipboard:** – This group contains frequently used commands: Cut, Copy, Paste and Format painter. Clipboard option allows us to collect text and graphic items and paste it.



2) **Font:** – We use this option to change the font style and font-size. We can make it bold, italic and underline. Also, this group contains border styles, fill color, font color.

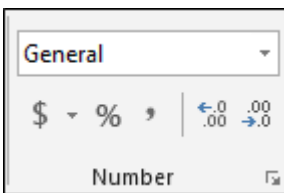


3) **Alignment:** – We use this option to change the alignment of cell's text to the right, left and middle. Also, we can subject the text to top, bottom, and middle alignment. In this group, we have Wrap text option to adjust and make the text visible within a cell, and we can also merge 2 or more cells, using merge option.

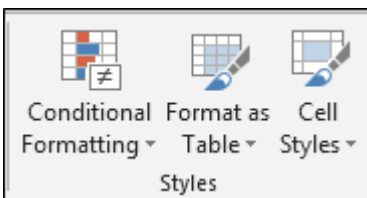


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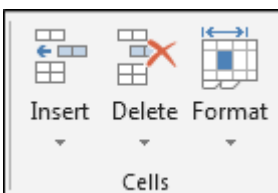
4) **Number:** – We use this option to change the number formatting into General, Percentage, Currency, Date, Time, Fraction etc. We can increase and decrease the decimal and convert the number into accounting number.



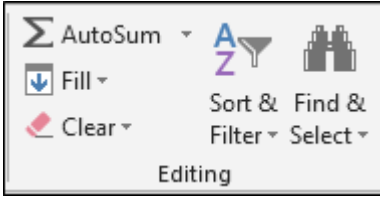
5) **Styles:** – In this option, we have Conditional Formatting, Format as Table and Cell Styles. Conditional formatting is used to highlight the cell or range on the basis of conditions. Format as table is having readymade table format and Cell styles feature different types of built-in styles that are a combination of Font style, Font color and Fill color.



6) **Cells:** – We use this option to insert or delete cells, rows, columns and sheets. Also, we have format option to adjust the height, width of cells or range. Using this option, we can hide or unhide the range, protect the workbook, rename the sheet name, fill the tab color, move or copy to sheets, lock the cells.


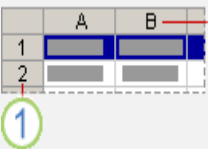


7) **Editing:** – This option has Auto Sum feature to return the total of numbers and move the text to right, left, up and down, Clear the format, content, comments and hyperlink; sort the data and find and select option.



Select Cells or Ranges

In order to complete more advanced processes in Excel you need to be able to highlight or select cells, rows and columns. There are a variety of way to do this, see the table below to understand the options.

To select	Do this
A single cell	Click the cell, or press the arrow keys to move to the cell.
A range of cells	Click the first cell in the range, and then drag to the last cell, or hold down SHIFT while you press the arrow keys to extend the selection.
A large range of cells	Click the first cell in the range, and then hold down SHIFT while you click the last cell in the range. You can scroll to make the last cell visible.
All cells on a worksheet	<p>Select All button</p>  <p>Click the Select All button or press CTRL+A</p>
Non-adjacent cells or cell ranges	<p>Select the first cell or range of cells, and then hold down CTRL while you select the other cells or ranges.</p> <p>NOTE: You cannot cancel the selection of a cell or range of cells in a Non-adjacent selection without canceling the entire selection.</p>
An entire row or column	 <p>Click the row or column heading.</p> <p>1-Row heading 2-Column heading</p>
Adjacent rows or columns	Drag across the row or column headings. Or select the first row or column; then hold down SHIFT while you select the last row or column.
Non-adjacent rows or columns	Click the column or row heading of the first row or column in your selection; then hold down CTRL while you click the column or row headings of other rows or columns that you want to add to the selection

Cells to the last used cell Select the first cell, and then press CTRL+SHIFT+END on the worksheet (lower-right corner) to extend the selection of cells to the last used cell on the worksheet (lower-right corner).

Cells to the beginning of the Select the first cell, and then press **CTRL+SHIFT+HOME** to extend the worksheet selection of cells to the beginning of the worksheet.

NOTE: To cancel a selection of cells, click any cell on the worksheet. This is not applicable to cells with formulas in it.

Modifying Spreadsheets


In order to create an understandable and professional document you will need to make adjustments to the cells, rows, columns and text. Use the following processes to assist when creating a spreadsheet.

Cut, Copy, and Paste Data

You can use the Cut, Copy, and Paste commands in Microsoft Office Excel to move or copy entire cells or their contents. **NOTE:** Excel displays an animated moving border around cells that have been cut or copied. To cancel a moving border, press ESC.

Move/Copy Cells

When you move or copy a cell, Excel moves or copies the entire cell, including formulas and their resulting values, cell formats, and comments.

1. Select the cells that you want to move or copy.
2. On the **Home** tab, in the **Clipboard** group, do one of the following:
 - a. To move cells, click Cut .
 - b.

To copy cells, click

Copy .


3. Click in the center of the cell you would like to Paste the information too.

4. On the Home tab, in the Clipboard group, click Paste .

NOTES: Excel replaces existing data in the paste area when you cut and paste cells to move them. When you copy cells, cell references are automatically adjusted. If the selected copy or paste area includes hidden cells, Excel also copies the hidden cells. You may need to temporarily unhide cells that you don't want to include when you copy information.

Move/Copy Cells with Mouse

1. Select the cells or a range of cells that you want to move or copy.
2. To move a cell or range of cells, point to the border of the selection.

When the pointer becomes a move pointer , drag the cell or range of cells to another location.

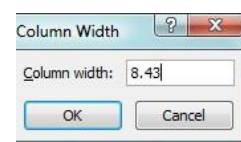
Column Width and Row Height

On a worksheet, you can specify a column width of 0 to 255 and a row height of 0 to 409. This value represents the number of characters that can be displayed in a cell that is formatted with the standard font. The default column width is 8.43 characters and the default row height is 12.75 points. If a column/row has a width of 0, it is hidden.



Set Column/Row Width/Height

1. Select the column(s) or row(s) that you want to change.
2. On the **Home** tab, in the **Cells** group, click **Format**.



3. Under **Cell Size**, click **Column Width** or **Row Height**.
4. A **Column Width** or **Row Height** box will appear.
5. In the **Column Width** or **Row Height** box, type the value that you want your column or row to be.

Automatically Fit Column/Row Contents



1. Click the **Select All** button
2. Double-click any boundary between two column/row headings.

	A	B	C
1			
2			
3			

Drag to resize

3. All Columns/Rows in the entire worksheet will be changed to the new Size.

	A	B	↔C
1			
2			
3			

NOTE: At times, a cell might display #####. This can occur when the cell contains a number or a date that exceeds the width of the cell so it cannot display all the characters that its format requires. To see the entire contents of the cell with its current format, you must increase the width of the column.

Set Column/Row Width/Height with Mouse

- To change the width of one column/row
 1. Place your cursor on the line between two rows or columns.
 2. A symbol that looks like a lower case t with arrows on the horizontal line will appear
 3. Drag the boundary on the right side of the column/row heading until the column/row is the width that you want.
- To change the width of multiple columns/rows
 1. Select the columns/rows that you want to change
 2. Drag a boundary to the right of a selected column/row heading.
 3. All selected columns/rows will become a different size.
- To change the width of columns/rows to fit the contents in the cells

1. Select the column(s) or row(s) that you want to change
2. Double-click the boundary to the right of a selected column/row heading.
3. The Column/Row will automatically be size to the length/height of the longest/tallest text.

Merge or Split Cells

When you merge two or more adjacent horizontal or vertical cells the cells become one larger cell that is displayed across multiple columns or rows. When you merge multiple cells, the contents of only one cell appear in the merged cell.

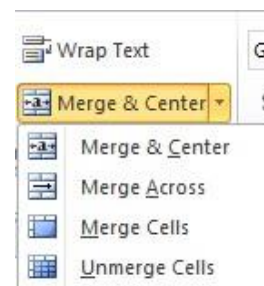


Merge and Center Cells


1. Select two or more adjacent cells that you want to merge.
2. On the **Home** tab, in the **Alignment** group, click **Merge and Center**.
3. The cells will be merged in a row or column, and the cell contents will be centered in the merged cell.

Merge Cells


To merge cells only, click the arrow next to **Merge and Center**, and then click **Merge Across** or **Merge Cells**.




Split Cells

1. Select the merged cell you want to split
2. To split the merged cell, click **Merge and Center** . The cells will split and the contents of the merged cell will appear in the upper-left cell of the range of split cells.

Automatically Fill Data

To quickly fill in several types of data series, you can select cells and drag the [fill handle](#).  To use the fill handle, you select the cells that you want to use as

a basis for filling additional cells, and then drag the fill handle across or down the cells that you want to fill.

1. Select the cell that contains the formula that you want to be brought to other cells.
2. Move your cursor to the small black square in the lower-right corner of a selected cell also know as the fill handle. Your pointer will change to a small black cross. 
3. Click and hold your mouse then drag the fill handle across the cells, horizontally to the right or vertically down, that you want to fill.
4. The cells you want filled will have a gray looking border around them. Once you fill all of the cells let go of your mouse and your cells will be populated.

Formatting Spreadsheets

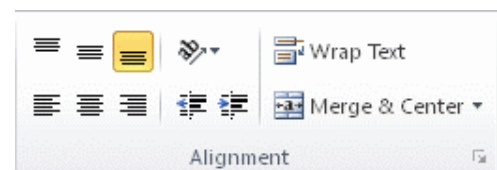
To further enhance your spreadsheet you can format a number of elements such as text, numbers, coloring, and table styles. Spreadsheets can become professional documents used for company meetings or can even be published.

Wrap Text

You can display multiple lines of text inside a cell by wrapping the text. Wrapping text in a cell does not affect other cells.

1. Click the cell in which you want to wrap the text.
2. On the **Home** tab, in the **Alignment** group, click **Wrap Text**.
3. The text in your cell will be wrapped.

NOTE: If the text is a long word, the characters won't wrap (the word won't be split); instead, you can widen the column or decrease the font size to see all the text. If all the text is not visible after you wrap the text, you might have to adjust the height of the row. On the



Home tab, in the **Cells** group, click **Format**, and then under **Cell Size** click **AutoFit Row**

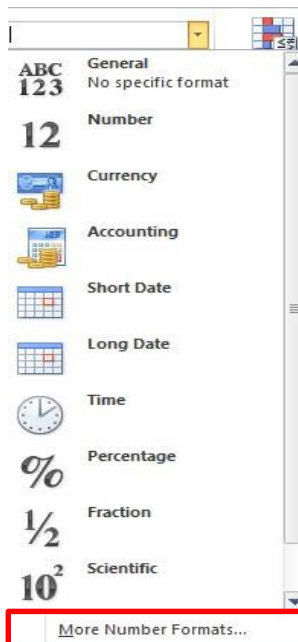
Format Numbers

In Excel, format of a cell is separate from the data that is stored in the cell. This display difference can have a significant effect when the data is numeric. For example, numbers in cells will default as rounded numbers, date and time may not appear as anticipated. After you type numbers in a cell, you can change the format in which they are displayed to ensure the numbers in your spreadsheet are displayed as you intended.

1. Click the cell(s) that contains the numbers that you want to format.
2. On the **Home** tab, in the **Number** group, click the arrow next to the **Number Format** box, and then click the format you want.

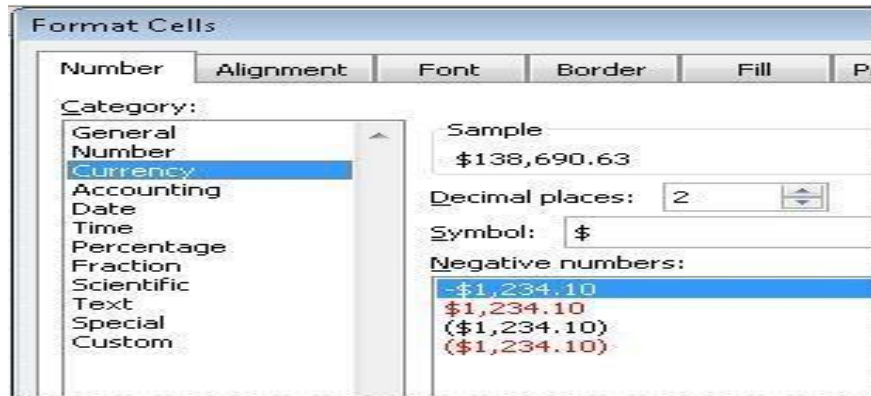


that



If you are unable to format numbers in the detail you would like that you can click on the **More Number Formats** at the bottom of the **Number Format** drop down list.

1. In the Category list, click the format that you want to use, and then adjust settings to the right of the Format Cells dialog box. For example, if you're using the Currency format, you can select a different currency symbol, show more or fewer decimal places, or change the way negative numbers are displayed.




Cell Borders

By using predefined border styles, you can quickly add a border around cells or [ranges](#) of cells. If predefined cell borders do not meet your needs, you can create a custom border.


NOTE: Cell borders that you apply appear on printed pages. If you do not use cell borders but want worksheet gridline borders for all cells to be visible on printed pages, you can display the gridlines.

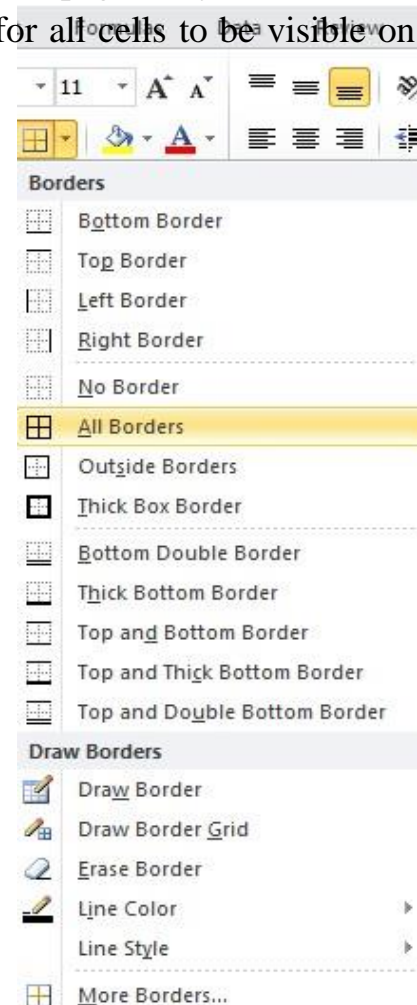
Apply Cell Borders

1. On a worksheet, select the cell or range of cells that you want to add a border to, change the border style on, or remove a border from.
2. Go to the **Home** tab, in the **Font** group
3. Click the arrow next to **Borders** 
4. Click on the border style you would like
5. The border will be applied to the cell or cell range

NOTE: To apply a custom border style, click **More Borders**. In the **Format Cells** dialog box, on the **Border** tab, under **Line** and **Color**, click the line style and color that you want.

Remove Cell Borders

1. Go to the **Home** tab, in the **Font** group
2. Click the arrow next to **Borders** 



3. Click **No Border** .

NOTES: The **Borders** button displays the most recently used border style. You can click the **Borders** button (not the arrow) to apply to that style.

Cell Styles

You can create a cell style that includes a custom border, colors and accounting formatting.

1. On the **Home** tab, in the **Styles** group, click **Cell Styles**.
2. Select the different cell style option you would like applied to your spreadsheet.




NOTE: If you would like to apply a cell fill and a cell border, select the cell fill color first to ensure both formats are applied.

Cell and Text Coloring


You can also modify a variety of cell and text colors manually. **Cell Fill**

1. Select the cells that you want to apply or remove a fill color from.
2. Go to the **Home** tab, in the **Font** group and select one of the following options:
 - a. To fill cells with a solid color, click the arrow next to **Fill**




Color , and then under **Theme Colors** or **Standard**

Colors, click the color that you want.

b. To fill cells with a custom color, click the arrow next to **Fill Color** , click **More Colors**, and then in the **Colors** dialog box select the color that you want.

c. To apply the most recently selected color, click **Fill Color** 





NOTE: Microsoft Excel saves your 10 most recently selected custom colors. To quickly apply one of these colors, click the arrow next to **Fill Color** , and then click the color that you want under **Recent Colors**.

Remove Cell Fill

1. Select the cells that contain a fill color or fill pattern.
2. On the **Home** tab, in the **Font** group, click the arrow next to **Fill Color**, and then click **No Fill**.

Text Color

1. Select the range of cells, text, or characters that you want to format with a different text color.
2. On the **Home** tab, in the **Font** group and select one of the following options:

- a. To apply the most recently selected text color, click **Font Color** 
- b. To change the text color, click the arrow next to **Font Color** , and then under **Theme Colors** or **Standard Colors**, click the color that you want to use.

Bold, Underline and Italics Text

1. Select the cell range of cells, or text.
2. Go to the **Home** tab, in the **Font** group



3. Click on the Bold (**B**) Italics (*I*) or Underline (U) commands.
4. The selected command will be applied.

Customize Worksheet Tab

1. On the **Sheet tab** bar, right-click the sheet tab that you want to customize
2. Click **Rename** to rename the sheet or **Tab Color** to select a tab color.
3. Type in the name or select a color you would like for your spreadsheet.
4. The information will be added to the tab at the bottom of the spreadsheet.



Insert Tab

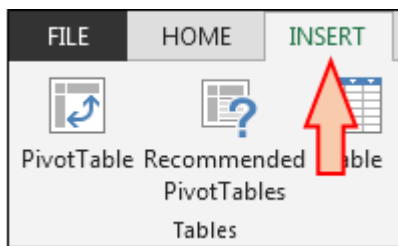
This tab allows you to insert a variety of items into a document from pictures, clip art, and headers and footers.



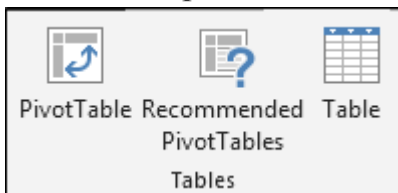
9 groups of insert tab

- 1- Tables
- 2- Illustration
- 3- charts
- 4- Reports
- 5- sparklines
- 6- Filter
- 7- Links
- 8- Links
- 9- Text
- 10 – symbols

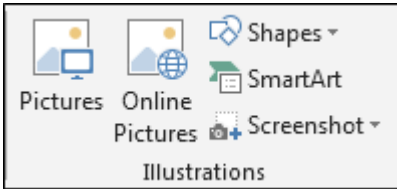
We use Insert tab to insert the picture, charts, filter, hyperlink etc. We use this option to insert the objects in Excel. To open the insert tab, press shortcut keys Alt+N.



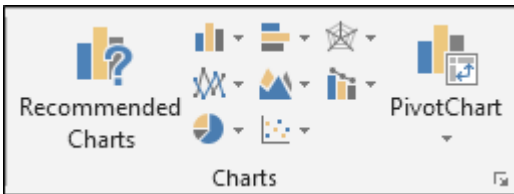
1) **Tables:** - We use this option to insert the dynamic table, Pivot table and recommended table. Pivot table is used to create the summary of report with the built-in calculation, and we have option to make our own calculation. Tables make it easy to sort, filter and format the data within a sheet. This option is also having recommended table that means on the basis of data, we can just insert the table as per the Excel's recommendation.



2) **Illustration:** - We use this option to insert the Pictures, Online Pictures, Shapes, SmartArt and Screenshot. It means if we want to insert any image, we can use Illustration feature.



3) **Charts:** -Charts is very important and useful function in Excel. In excel, we have different and good numbers of readymade chart options. We have 8 types of different charts in Excel:- Column, Bar, Radar, Line, Area, Combo, Pie and Bubbles chart. We can insert Pivot chart as well as Recommended chart, and if we don't know which chart we should insert for the data, we can use this option to fulfil the requirement.



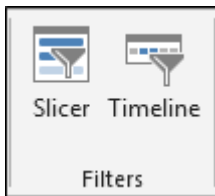
4) **Reports:** -We use this option to create a better report on the basis of the decisions we take for business. It makes the report more interactive and decipherable.



5) **Sparklines:** -Sparkline is a very tricky and useful option added by Microsoft Excel. On the basis of a range, it can visualize the trends in a single cell as charts. We have 3 different types of cell charts:- Line, Column and Win/Loss chart.



6) Filters: -We use this option to filter data visually and filter dates interactively. We have 2 options: Slicers and Timeline. We use Slicer to make the fast and easier to filter tables, Pivot tables, Pivot Charts and cube functions. Timeline makes it faster and easier to select time periods in order to filter Pivot Tables, Pivot Charts and Cube function.

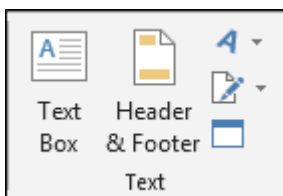


7) Links: -

- We use this option to create the link in the document for the quick access to webpage and files.
- We can also use it to access different locations in the document.

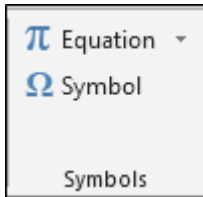


8) Text: -We use this option to insert the Text box, Header and Footer, Word art, Signature and objects. We insert Text box to write something in the image format. We use Header and Footer options to place the content on the top and bottom of the page. Word art makes the text stylish. Insert the Add Signature Lines that specify the individual who is supposed to sign it. And object option works for embedded objects, like documents or other files we have inserted into the document.



9) Symbols: - We use this option to insert the symbols and equation. Equation is used to insert the common mathematical equations to your document and also we can add equation by using the mathematical symbols. We use Symbols to

insert the symbols which are not on the keyboard and, to create the equation, we use the symbols from here.

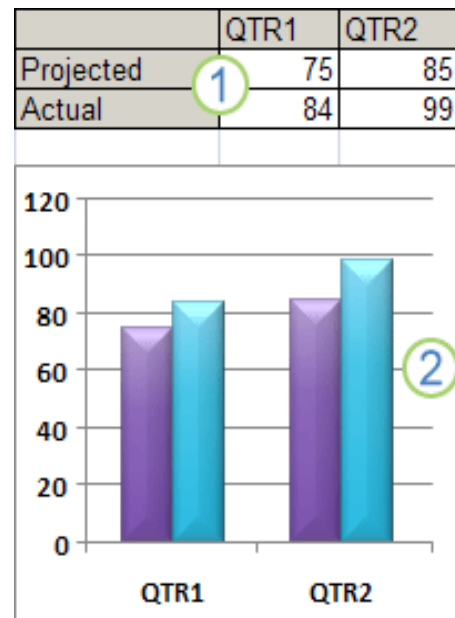


Charts in Excel

Microsoft Excel no longer provides the chart wizard. Instead, you can create a basic chart by clicking the chart type that you want on the Insert tab in the Charts group. Charts are used to display series of numeric data in a graphical format to make it easier to understand large quantities of data and the relationship between different series of data. To create a chart in Excel, you start by entering the numeric data for the chart on a worksheet. Then you can plot that data into a chart by selecting the chart type that you want to use on the Insert tab, in the Charts group.

1 Worksheet data

2 Chart created from worksheet data



Getting to know the elements of a chart



A chart has many elements. Some of these elements are displayed by default, others can be added as needed. You can change the display of the chart elements by moving them to other locations in the chart, resizing them, or by changing the format. You can also remove chart elements that you do not want to display.

1-The **chart area** is the entire chart and all its elements.

2 -The **plot area** is the area of the chart bounded by the axes.

3-The **data points** are individual values plotted in a chart represented by bars, columns, lines, or pies.

4-The **horizontal** (category) and **vertical** (value) **axis** along which the data is plotted in the chart.

5-The **legend** identifies the patterns or colors that are assigned to the data series or categories in the chart.

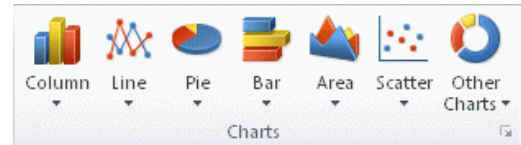
6- A **chart and axis title** are descriptive text that for the axis or chart.

7-A **data label** provides additional information about a data marker that you can use to identify the details of a data point in a data series.

Create a Chart

1. On the worksheet, arrange the data that you want to plot in a chart. The data can be arranged in rows or columns — Excel automatically determines the best way to plot the data in the chart.
2. Select the cells that contain the data that you want to use for the chart.

NOTE: If the cells that you want to plot in a chart are not in a continuous range, you can select nonadjacent cells or ranges as long as the selection forms a rectangle. You can also hide the rows or columns that you do not want to plot in the chart.



3. Go to the **Insert** tab, in the **Charts**
4. Click the chart type, and then click a chart subtype from the drop menu that will appear.
5. Click anywhere in the embedded chart to activate it. When you click on the chart, **Chart Tools** will be displayed which includes the **Design**, **Layout**, and **Format** tabs.
6. The chart will automatically be embedded in the worksheet. A chart name will automatically be assigned.

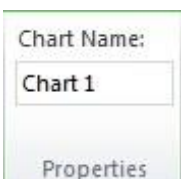
Move Chart to New Sheet



1. On the **Design** tab, in the **Location** group, click **Move Chart**.
2. Under **Choose where you want the chart to be placed**, click on the **New sheet** bubble
3. Type a chart name in the **New sheet** box.

Change Chart Name

1. Click the chart.



2. On the **Layout** tab, in the **Properties** group, click the **Chart Name** text box.
3. Type a new chart name.
4. Press ENTER.

Change Chart Layout

1. Click anywhere in the chart.
2. Go to the **Chart Tools**, the **Design** group
3. In the **Chart Layouts**, click the chart layout that you want to use. To see all available layouts, click



Change Chart Style


1. Click anywhere in the chart.
2. On the **Design** tab, in the **Chart Styles** group, click the chart style that you want to use. To see all predefined chart styles, click **More** .



Chart or Axis Titles

To make a chart easier to understand, you can add titles, such as chart and axis titles. To add a chart title:

1. Click anywhere in the chart.
2. On the **Layout** tab, in the **Labels** group, click **Chart Title**.
3. Click **Centered Overlay Title** or **Above Chart**.
4. In the **Chart Title** text box that appears in the chart, type the text that you want.
5. To remove a chart title, click **Chart Title**, and then click **None**.



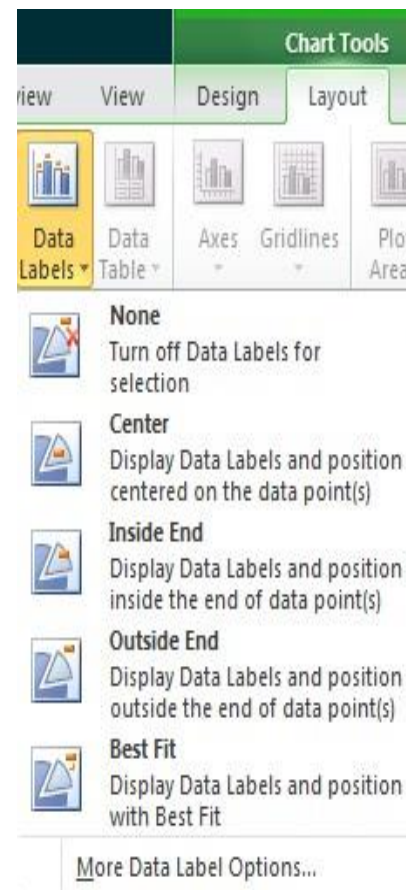
NOTE: You can also use the formatting buttons on the ribbon (**Home** tab, **Font** group). To format the whole title, you can right-click it, click **Format Chart Title**, and then select the formatting options that you want.

To add axis titles:

1. Click anywhere in the chart.
2. On the **Layout** tab, in the **Labels** group, click **Axis Titles**.
3. Do one or more of the following:
 - a. To add a title to a primary horizontal (category) axis, click **Primary Horizontal Axis Title**, and then click the option that you want.
 - b. To add a title to primary vertical (value) axis, click **Primary Vertical Axis Title**, and then click the option that you want.
4. In the Axis Title text box that appears in the chart, type the text that you want.
5. To remove an axis title, click **Axis Title**, click the type of axis title to remove, and then click **None**.

Data Labels

1. On a chart, do one of the following:
 - a. Click on the **chart area** to add a data label to all data points of all data series
 - b. Click in the **data series** to add a data label to all data points of a data series
 - c. Click on a specific **data point** to add a data label to a single data point in a data series
2. On the **Layout** tab, in the **Labels** group, click **Data Labels**, and then click the display option that you want.
3. Text boxes will appear in the area of your chart based on your selection.
4. Click on the text box to modify the text.
5. To remove data labels, click **Data Labels**, and then click **None**. **NOTE:** Depending on the chart type that you used, different data label options will be available.



Legend

When you create a chart, the legend appears, but you can hide the legend or change its location after you create the chart.

1. Click the chart in which you want to show or hide a legend.
2. On the **Layout** tab, in the **Labels** group, click **Legend**.
3. Do one of the following:
 - a. To hide the legend, click **None**.
 - b. To display a legend, click the display option that you want.
 - c. For additional options, click **More Legend Options**, and then select the display option that you want.

NOTE: To quickly remove a legend or a legend entry from a chart, you can select it, and then press **DELETE**. You can also right-click the legend or a legend entry, and then click **Delete**.

Move or Resize Chart

You can move a chart to any location on a worksheet or to a new or existing worksheet. You can also change the size of the chart for a better fit.

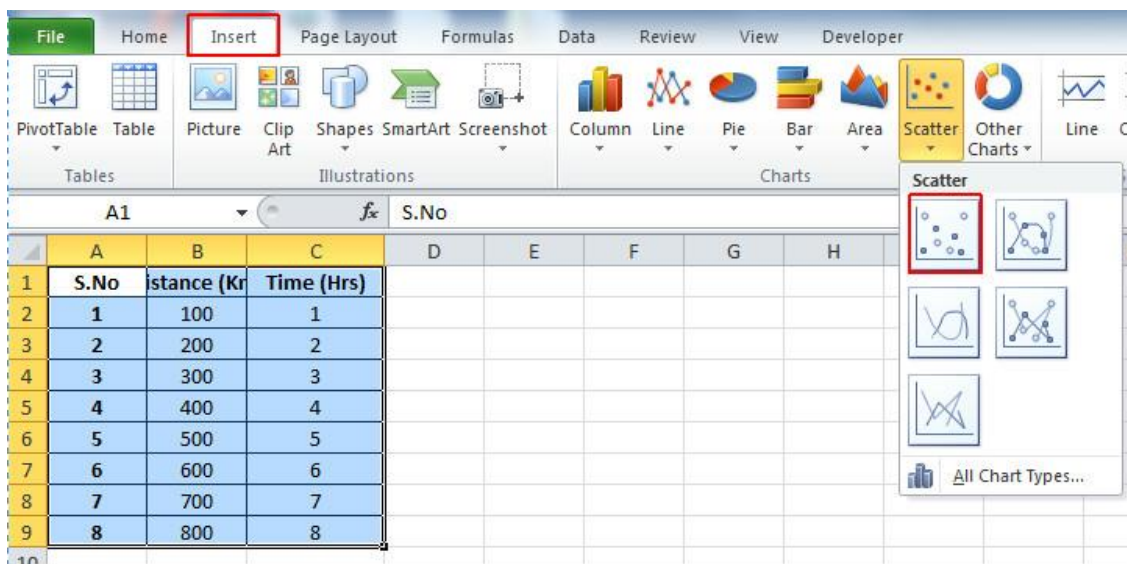
To move a chart, drag it to the location that you want. To resize a chart, click on one of the edges and drag towards the center.



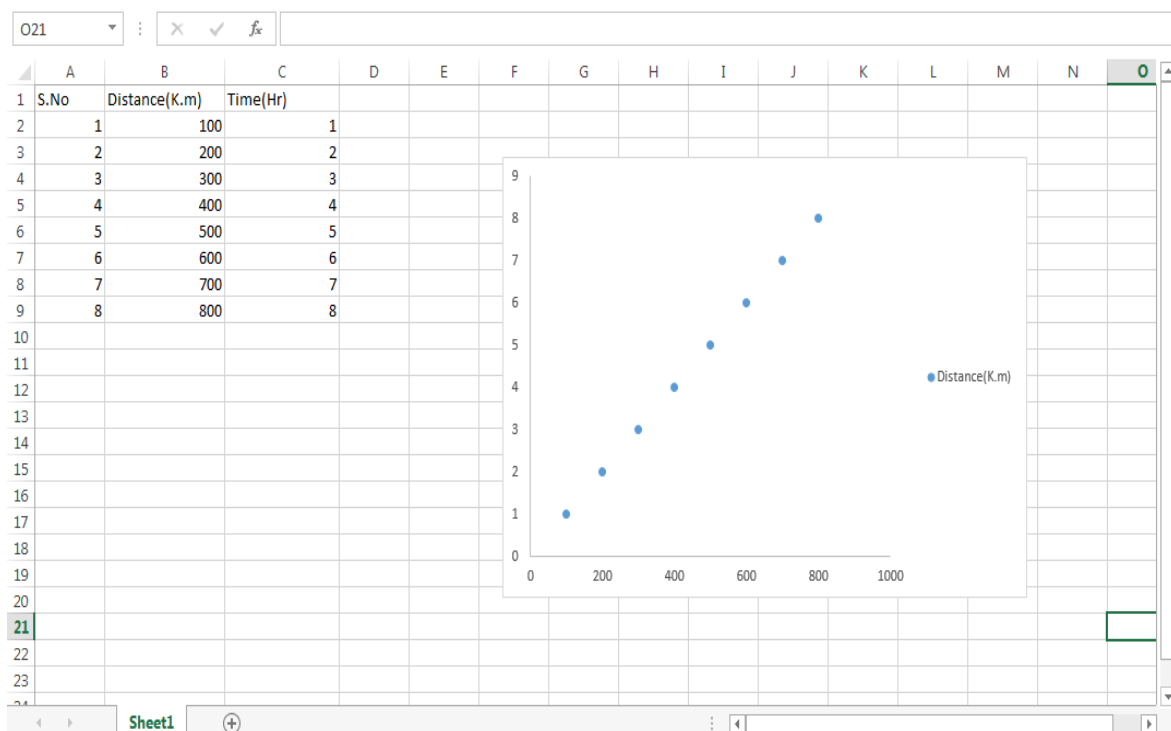
For instance, we have included a datasheet for which we want to create scatter graph and trend lines, it contains two fields; Distance (Km), and Time(Hrs).

	A	B	C	D
1	S.No	Distance (Km)	Time (Hrs)	
2	1	100	1	
3	2	200	2	
4	3	300	3	
5	4	400	4	
6	5	500	5	
7	6	600	6	
8	7	700	7	
9	8	800	8	
10				
11				
12				

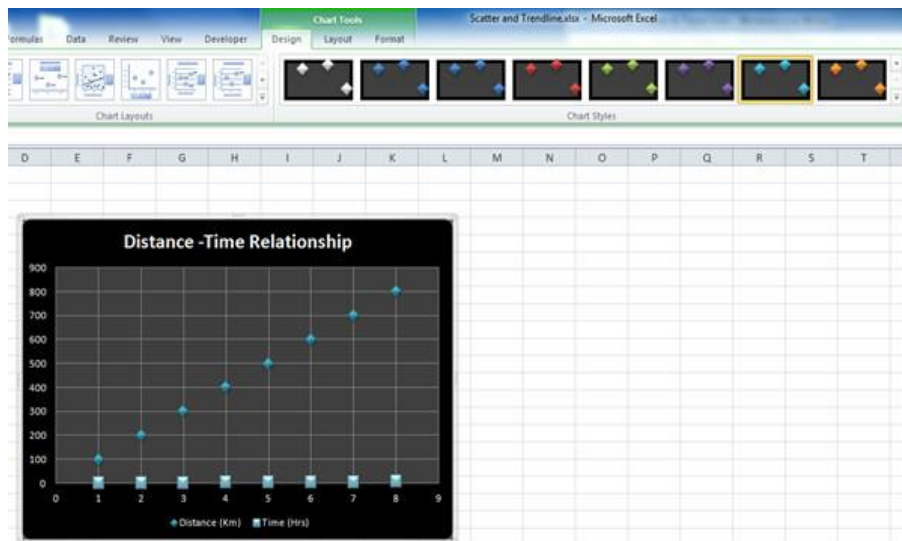
Now we want to create scatter graph which will show distance and time relation. For this, select the portion of the datasheet, navigate to *Insert* tab, and from *Scatter* options, select desired type of chart as shown in the screenshot below.



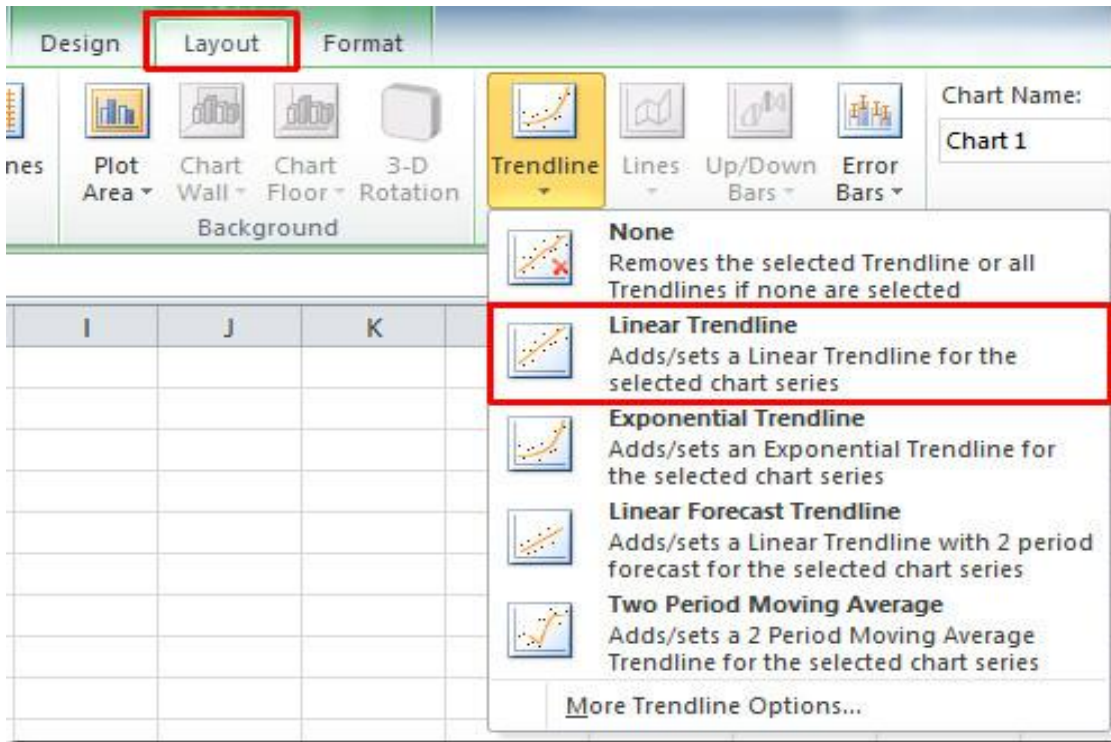
Upon clicking desired type of chart, Excel will automatically create a chart, representing table fields as x-axis, and y-axis respectively, as can be seen in the screen shot below.



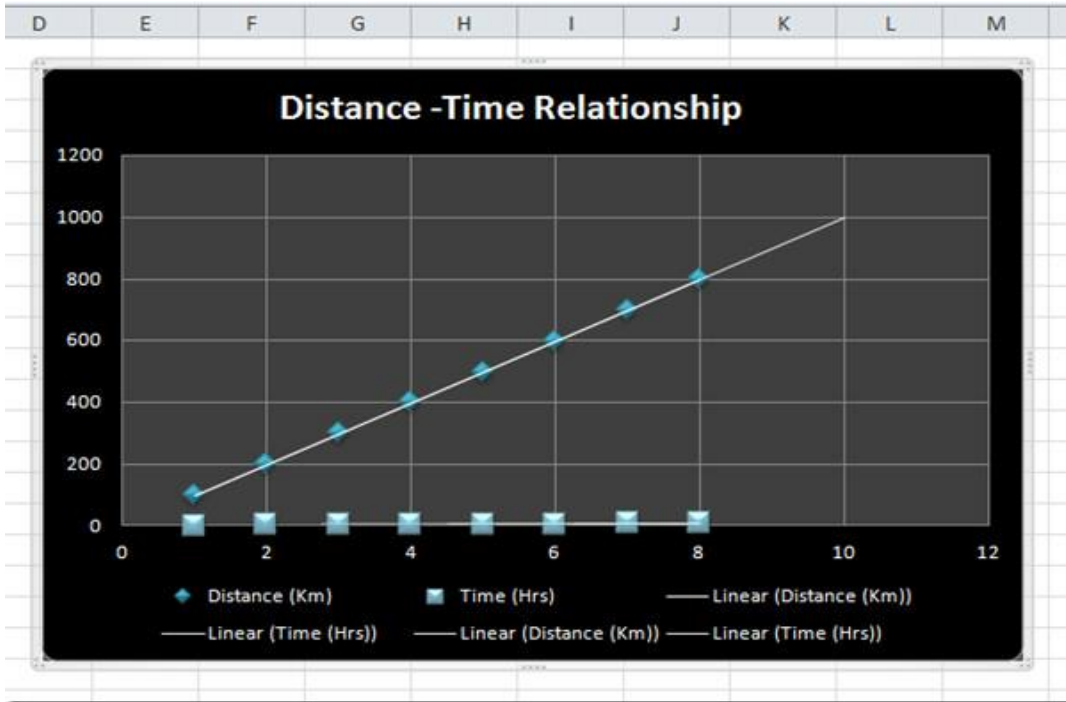
Now we will change the layout and design of the chart to make the value and scattered dots more prominent. For this select the chart, and you will notice under Chart Tools Design, Layout, and Format tab will appear. From Design tab choose the colors and design that best suits your datasheet. From Chart layouts select an appropriate layout for scatter chart.



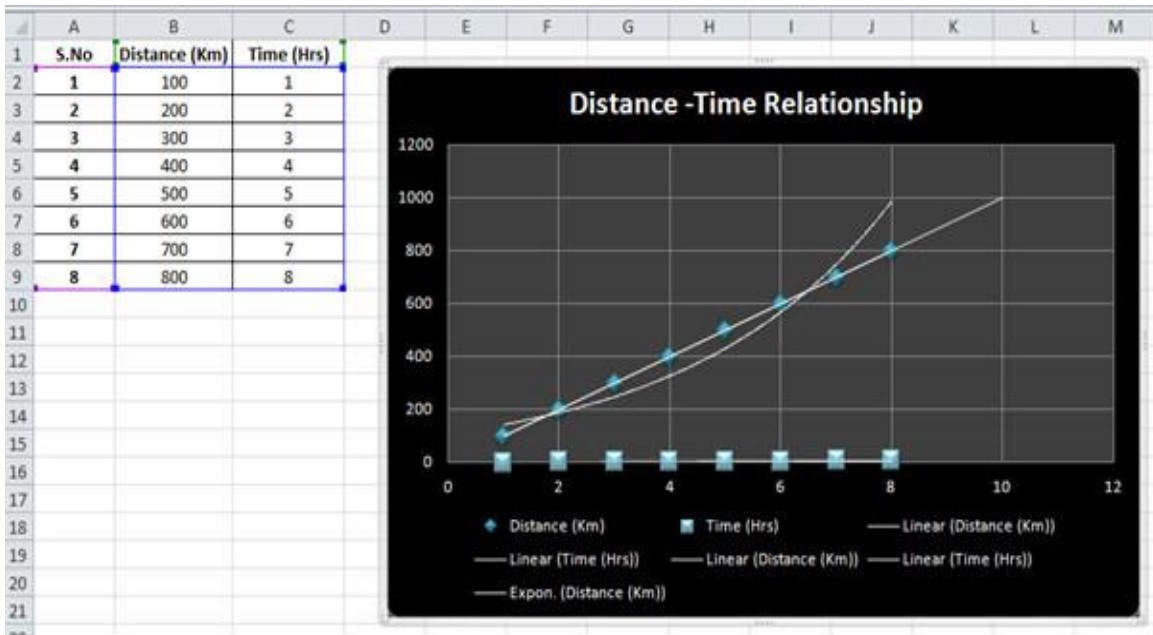
Now navigate to Layout tab, and from Trendline options, click Linear Trendline.



You will be asked for which field you want to make trend lines, select the field, and click OK. Here you can see the trendiness, showing trend of the datasheet table in the screen shot below.

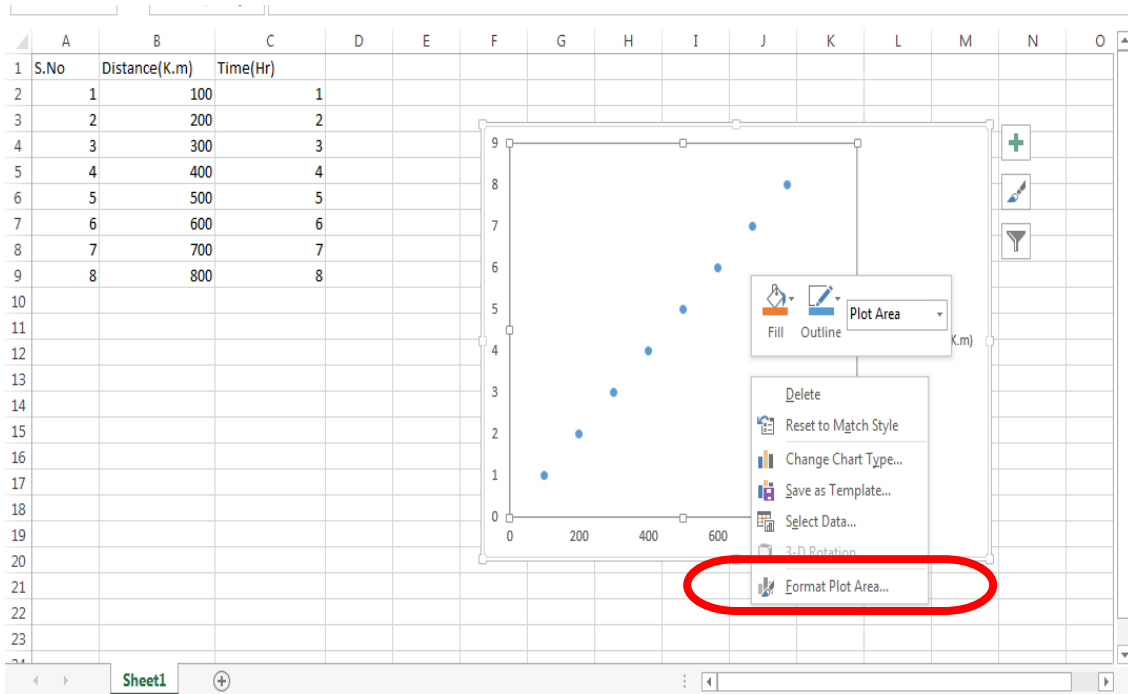


Now if you want to know the trend exponentially, from Trendlines click Exponential Trendlines.

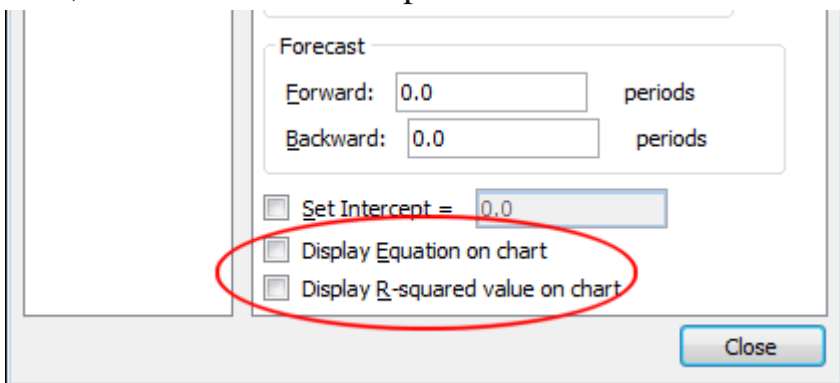


Formatting an Excel Trendline

To format your newly-created trendline, begin by right clicking on the line and selecting **Format Trendline** from the menu. Excel will once again open up the **Format Trendline** window.

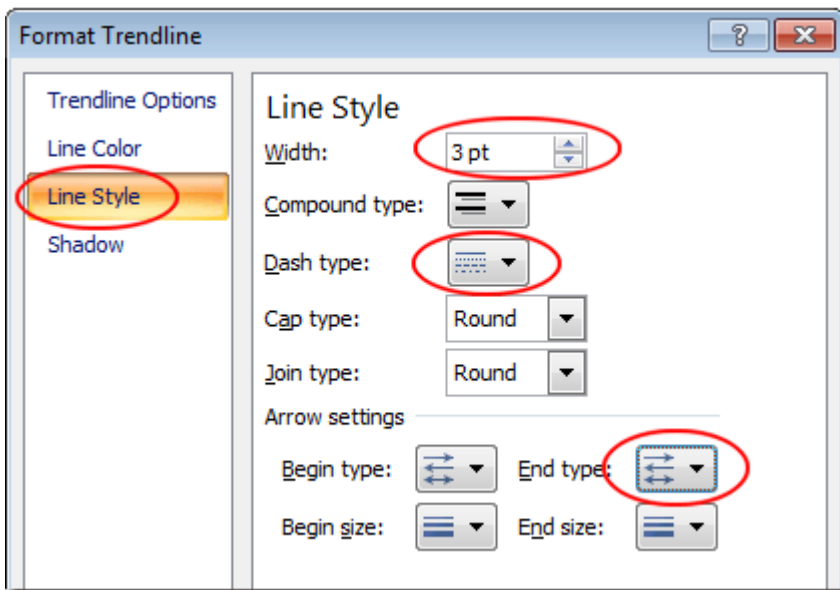


One of the more popular options people use when adding a trendline to Excel is to display both the equation of the line and the R-squared value right on the chart. You can find and select these options at the bottom of the window. For now, select both of these options.



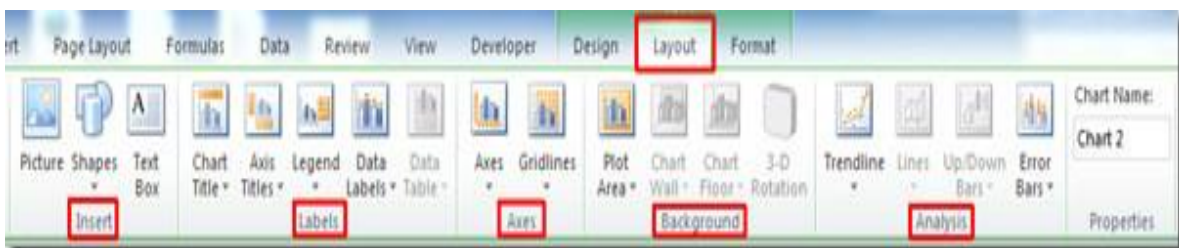
Let's say that we want our trendline to be displayed more prominently on the chart. After all, the default trendline is only one pixel wide and can sometimes disappear among the colors and other elements on the chart. On the left hand side of the **Format Trendline** window, click on the **Line Style** option.

In this window, change the **Width** value from **0.75 pt** to about **3 pt** and change the **Dash Type** to the **Square Dot** option (third one down on the drop down menu). Just to demonstrate that the option exists, change the **End Type** option to an arrow.

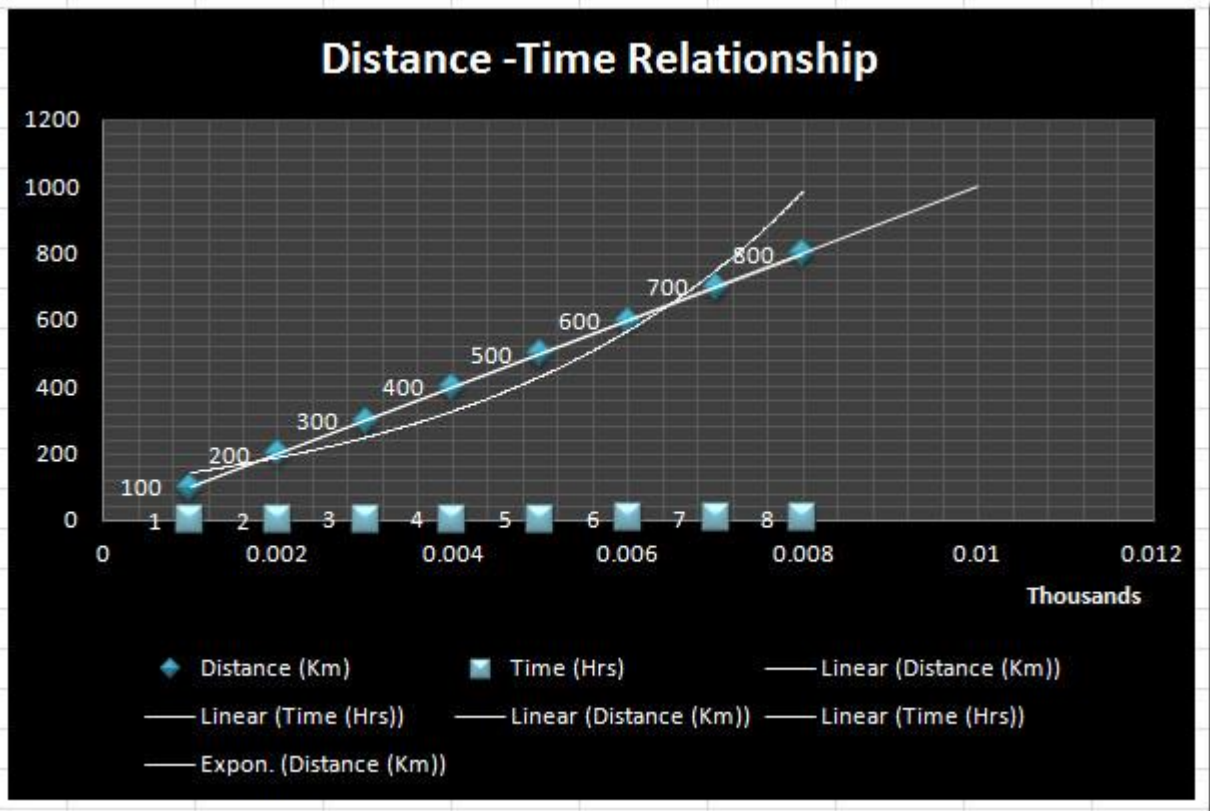


When you are done, click the **Close** button on the **Format Trendline** window and notice the changes to your scatter plot. Notice that the equation of the line and R-square values are now displayed on the chart and that the trendline is a more prominent element of the chart.

From Layout tab, there are so much to do with scatter chart; you can create Error Bars, change Plot area, apply 3-D effects, Grid Lines etc.

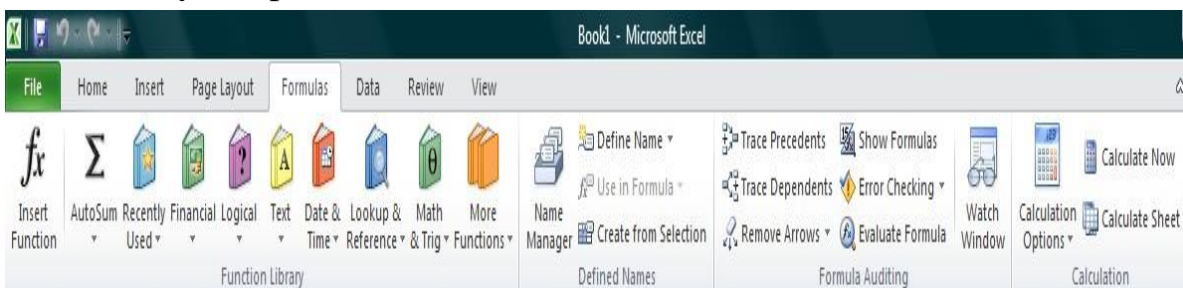


Apply desired Error Bars, 3-D effects, and gridlines to make the chart self-explanatory.



Formulas Tab

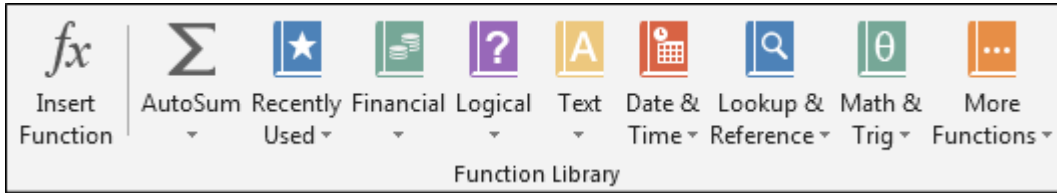
This tab has commands to use when creating Formulas. This tab holds an immense function library which can assist when creating any formula or function in your spreadsheet.



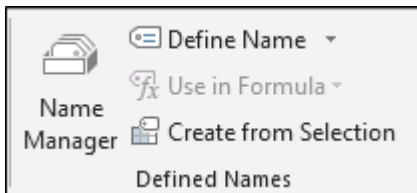
4 groups of Formulas tab

1-Function Library 2- Defined Names 3- Formula Auditing 4- Calculation

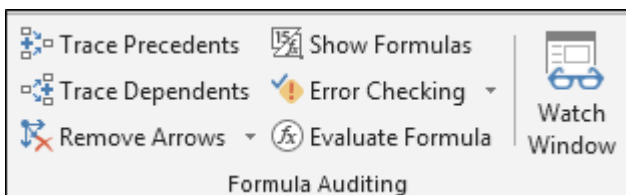
1) Function Library: -In Excel, we have 461 functions and they are available in the formulas tab under the function library group. And there is no need to learn every formula for we can find formulas category wise such as:- Financial, Logical, Text, Date & Time, Lookup & Reference, Math & Trig, many more.



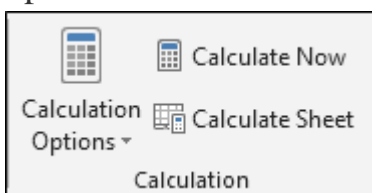
2) **Defined Names:** - We use this option to define the name of a cell, range and the list of the already defined name can be viewed in Name manager and we can edit it if we want to change the range or cell reference of any defined name. Also, we can use the defined name in Formulas.



c) **Formula Auditing:** - This option helps us to identify the relation of formulas. By using Trace precedent, we get to know on which cell formula cell is based. Trace dependents are used to know if active cell is being used in any formula. When we use trace precedent and trace dependents the arrows get inserted automatically and, to remove the arrows, we use Remove Arrows. Show formula is a self-explained word; it is used to show the formula in the sheet. Error checking is used to check the error in the sheet. Evaluate formula option is used to evaluate the formula step by step.



d) **Calculation:** -If we want to switch the calculation from automatically to manually calculation and manually to automatically calculation, then we can do it by using the Calculation option. We use Calculate Now and Calculate Sheet option if automatic calculation is turned off.



Formulas are equations that perform calculations on values in your worksheet. A formula always starts with an equal sign (=). An example of a simple is $=5+2*3$ that multiplies two numbers and then adds a number to the result. Microsoft Office Excel follows the standard order of mathematical operations. In the preceding example, the multiplication operation ($2*3$) is performed first, and then 5 is added to its result.

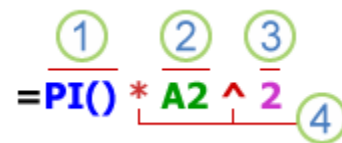
You can also create a formula by using a function which is a prewritten formula that takes a value, performs an operation and returns a value. For example, the formulas $=SUM(A1:A2)$ and $SUM(A1,A2)$ both use the **SUM** function to add the values in cells A1 and A2. Depending on the type of formula that you create, a formula can contain any or all of the following parts.

1 Functions A function, such as **PI()** or **SUM()**, starts with an equal sign (=).

2 Cell references You can refer to data in worksheet cells by including cell references in the formula. For example, the cell reference **A2** returns the value of that cell or uses that value in the calculation.

3 Constants You can also enter constants, such as numbers (such as **2**) or text values, directly into a formula.

4 Operators Operators are the symbols that are used to specify the type of calculation that you want the formula to perform.

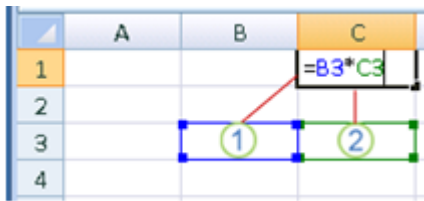


Create a Simple Formulas

1. Click the cell in which you want to enter the formula.
2. Type = (equal sign).
3. Enter the formula by typing the constants and operators that you want to use in the calculation.
4. Press ENTER.

Example Formula	What it dose
$=5+2$	Adds 5 and 2
$=5^2$	Raises 5 to the 2nd power
$=5/2$	Divides 5 by 2
$=5*2$	Multiplies 5 times 2


Create a Formula with Cell Reference



1-The first cell reference is B3, the color is blue, and the cell range has a blue border with square corners .



2-The second cell reference is C3, the color is green, and the cell range has a green border with square corners.

To create your formula:

1. Click the cell in which you want to enter the formula.
2. In the **formula bar**, at the top of the Excel window that you use,  type = (equal sign).
3. Click on the 1st cell you want in the formula.
4. Enter an operator such as +, or *.
5. Click on the next cell you want in the formula. Continue steps 3 - 5 until the formula is complete
6. Hit the ENTER key on your keyboard.

Create Formula with Function

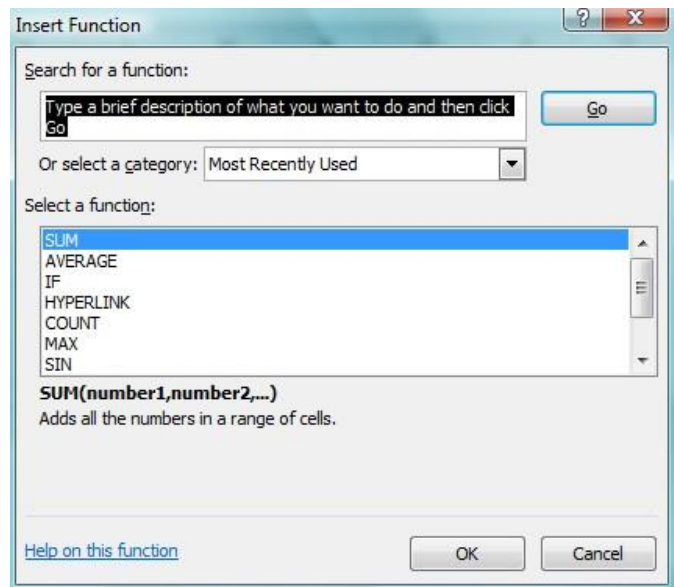
1-Click the cell in which you want to enter the formula.

2- Click Insert Function  on the formula bar .  Excel inserts the equal sign (=) for you.

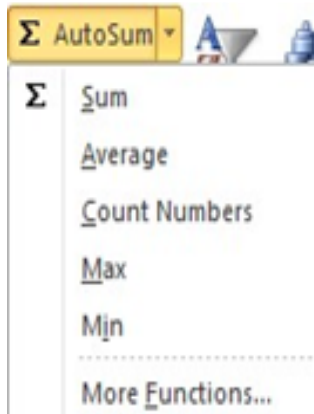
3- Select the function that you want to use.

NOTE: If you're not sure which function to use, type a question that describes what you want to do in the Search for a function box (for example, "add numbers" returns the SUM function), or browse from the categories in the Or Select a category box.

4. Enter the arguments.
5. After you complete the formula, press ENTER



Use Auto Sum



To summarize values quickly, you can also use AutoSum.

1. Select the cell where you would like your formulas solution to appear.
2. Go to the Home tab, in the Editing group,
3. Click AutoSum, to sum your numbers or click the arrow next to AutoSum to select a function that you want to apply.

Delete a Formula

When you delete a formula, the resulting values of the formula is also deleted. However, you can instead remove the formula only and leave the resulting value of the formula displayed in the cell.

- To delete formulas along with their resulting values, do the following:
 1. Select the cell or range of cells that contains the formula.
 2. Press DELETE.



- To delete formulas without removing their resulting values, do the following:
 - 1-Select the cell or range of cells that contains the formula.
 - 2-On the Home tab, in the Clipboard group, click Copy .
 - 3- On the Home tab, in the Clipboard group, click the arrow below Paste , and then click Paste Value.

Using the IF function in Excel - formula examples

The use of the IF function with numeric values is based on using different comparison operators to express your conditions. You will find the full list of logical operators illustrated with formula examples in the table below.

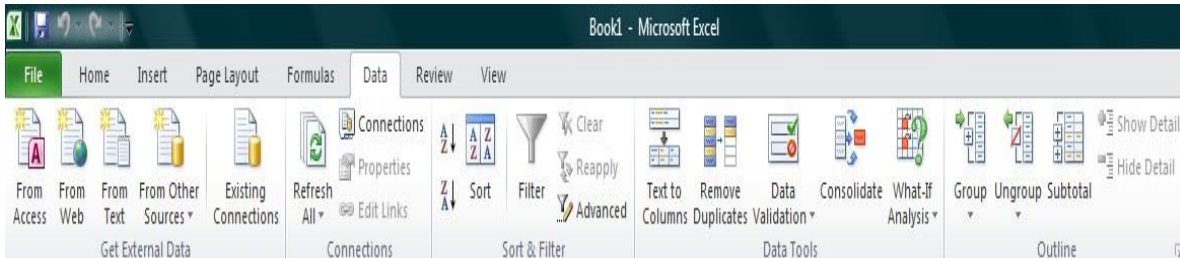
Condition	Operator	Formula Example	Description
Greater than	>	=IF(A2>5, "OK", "")	If the number in cell A2 is greater than 5, the formula returns "OK"; otherwise 0 is returned.
Less than	<	=IF(A2<5, "OK", "")	If the number in cell A2 is less than 5, the formula returns "OK"; an empty string otherwise.
Equal to	=	=IF(A2=5, "OK", "Wrong number")	If the number in cell A2 is equal to 5, the formula returns "OK"; otherwise the function displays "Wrong number".
Not equal to	<>	=IF(A2<>5, "Wrong number", "OK")	If the number in cell A2 is not equal to 5, the formula returns "Wrong number"; otherwise - "OK".
Greater than or equal to	>=	=IF(A2>=5, "OK", "Poor")	If the number in cell A2 is greater than or equal to 5, the formula returns "OK"; otherwise - "Poor".
Less than or equal to	<=	=IF(A2<=5, "OK", "")	If the number in cell A2 is less than or equal to 5, the formula returns "OK"; an empty string otherwise.

=IF(B2>=90," امتياز",IF(B2>=80," جيد جدا",IF(B2>=70," جيد",IF(B2>=60," متوسط",IF(B2>=50," مقبول", "راسب",))))))						
	A	B	C	D	E	F
1	Name	Computer	Biology			
2	Ali	50	مقبول			
3	Noor	30	راسب			
4	Suha	70	جيد			
5	Ahmed	90	امتياز			
6						

=If(b2>= 90 ,” امتياز”, If(b2>=80,” جيد جدا”, IF(B2> =70 ,” جيد”, IF (B2> =60, ” متوسط”,.IF(B2>=50,” راسب”, ”مقبول”))))))

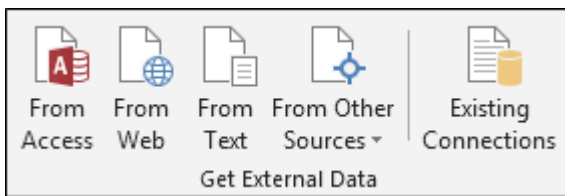
Data Tab

This tab allows you to modify worksheets with large amounts of data by sorting and filtering as well as analyzing and grouping data.



Data tab contains 5 groups:- 1- get external data 2- Connections 3 – sort & filter 4- data Tools 5- outline

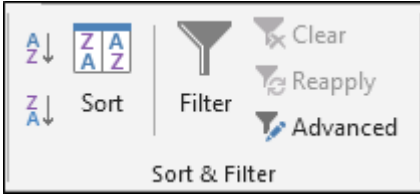
1) Get External Data: - In Excel, we can import data from MS Access, Web, Text and other sources. Also, we can import the data from other applications.



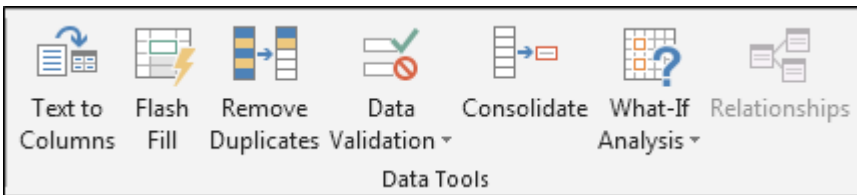
2) Connections: -It is used to display the entire data connections for the workbook. Data connections are links to the data outside the workbook which can be updated if the source data changes. And updated data can be obtained by refreshing all sources in workbook.



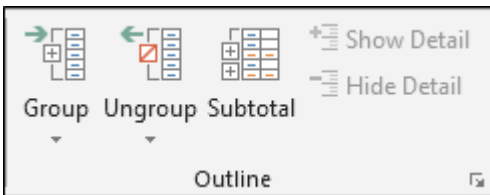
3) Sort & Filter: -To set the data in ascending or descending order on the basis of value or as per the first letter of a word, we use Sort option. Also, we can put the basic and advanced filter from here only.



4) Data Tools: -This option is very important to make the report interactive; it helps us to make the data authentic, and using this tab, we can restrict or validate the entries if the data is being updated by multiple users. Text to Columns helps us to split the single column into multiple columns as per data. Flash fills the values in the range. We can delete duplicate rows from the data by using Remove Duplicates option. We use Data Validation to provide the list that can be entered in cell, or we can restrict the entries, or we can validate the entries in the cell. We use Consolidate option to summarize data from separate ranges, and consolidate the result in a single output range. We use What-if-Analysis to analyse the data.



e) Outline: -We use this option to make the data more analytical and understandable. We can make group of rows or columns or automatically create an outline. We can ungroup the data; quickly calculate rows of related data by inserting subtotals and totals. We use Show and Hide options when we want to insert the Subtotal in data.

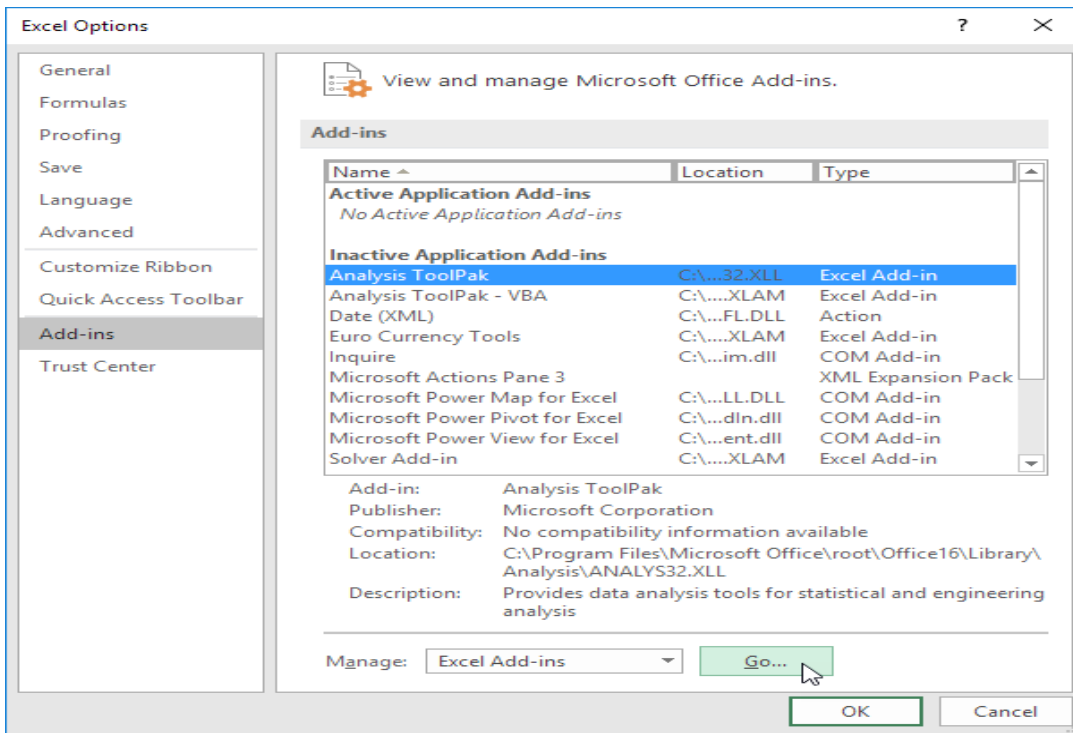


Add Data Analysis

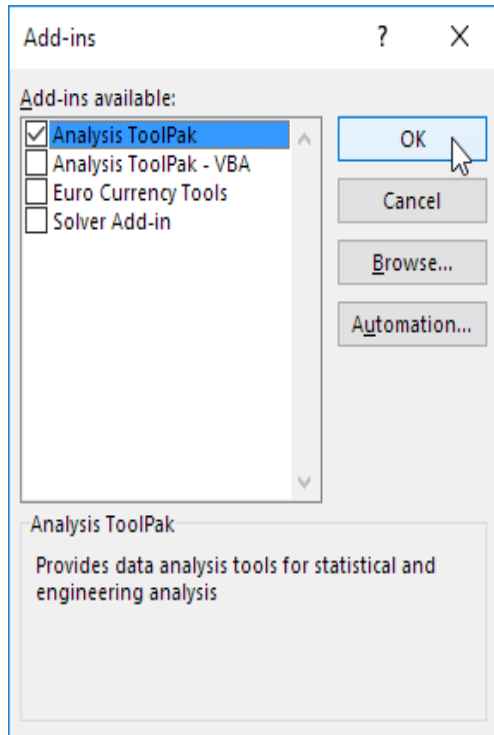
The Analysis ToolPak is an Excel add-in program that provides data analysis tools for financial, statistical and engineering data analysis. To load the Analysis ToolPak add-in, execute the following steps.

1. On the File tab, click Options.

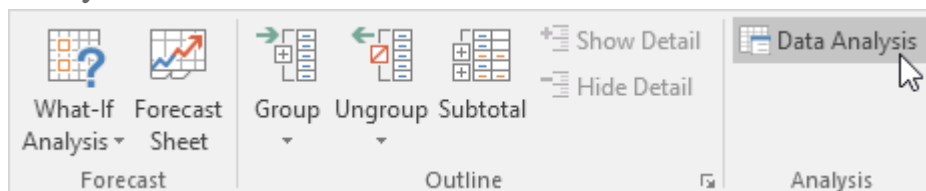
2. Under Add-ins, select Analysis ToolPak and click on the Go button.



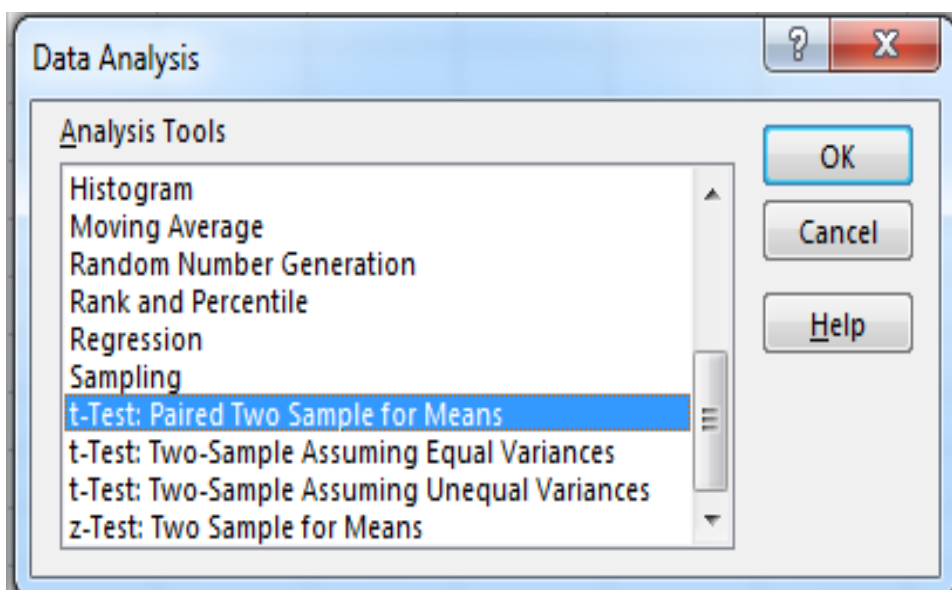
3. Check Analysis ToolPak and click on OK.



4. On the Data tab, in the Analysis group, you can now click on Data Analysis.



5. The following dialog box below appears. For example T- test



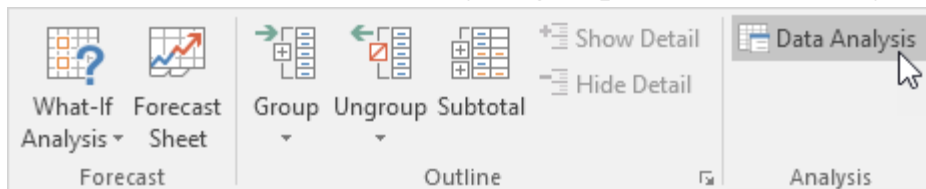
This example teaches you how to perform a t-Test in Excel. The t-Test is used to test the null hypothesis that the means of two populations are equal. Below you can find the study hours of 6 female students and 5 male students.

$H_0: \mu_1 - \mu_2 = 0$
 $H_1: \mu_1 - \mu_2 \neq 0$

	A	B	C
1	Female	Male	
2	26	23	
3	25	30	
4	43	18	
5	34	25	
6	18	28	
7	52		
8			

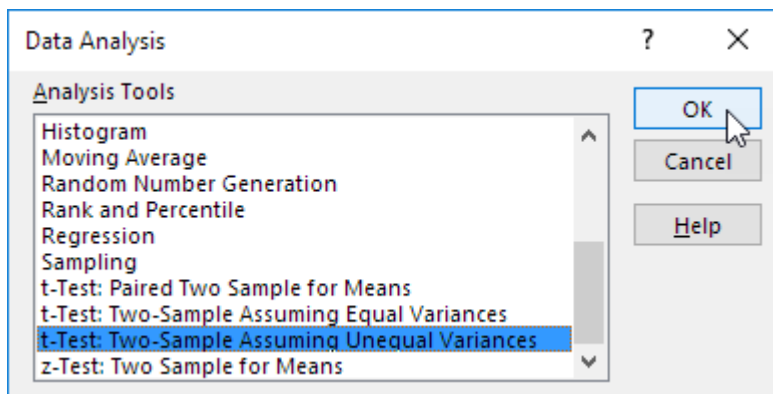
To perform a t-Test, execute the following steps.

1. First, perform an [F-Test](#) to determine if the variances of the two populations are equal. This is not the case.
2. On the Data tab, in the Analysis group, click Data Analysis.



Note: can't find the Data Analysis button? Click [here](#) to load the [Analysis ToolPak add-in](#).

3. Select t-Test: Two-Sample Assuming Unequal Variances and click OK.



4. Click in the Variable 1 Range box and select the range A2:A7.

5. Click in the Variable 2 Range box and select the range B2:B6.
6. Click in the Hypothesized Mean Difference box and type 0 ($H_0: \mu_1 - \mu_2 = 0$).
7. Click in the Output Range box and select cell E1.

8. Click OK.

Result:

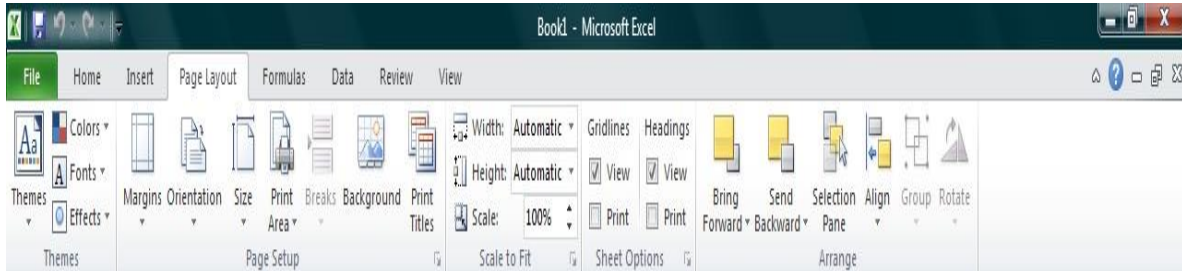
	E	F	G
t-Test: Two-Sample Assuming Unequal Variances			
		<i>Variable 1</i>	<i>Variable 2</i>
Mean		33	24.8
Variance		160	21.7
Observations		6	5
Hypothesized Mean Difference		0	
df		7	
t Stat		1.47260514	
P(T<=t) one-tail		0.092170202	
t Critical one-tail		1.894578605	
P(T<=t) two-tail		0.184340405	
t Critical two-tail		2.364624252	

Conclusion: We do a two-tail test (inequality). If $t \text{ Stat} < -t \text{ Critical two-tail}$ or $t \text{ Stat} > t \text{ Critical two-tail}$, we reject the null hypothesis. This is not the case, $-2.365 < 1.473 < 2.365$. Therefore, we do not reject the null hypothesis. The observed difference between the sample means ($33 - 24.8$) is not convincing

enough to say that the average number of study hours between female and male students differ significantly.

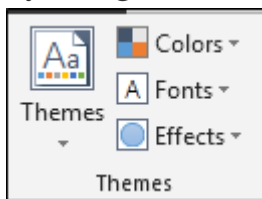
Page Layout Tab

This tab has commands to adjust page such as margins, orientation and themes.

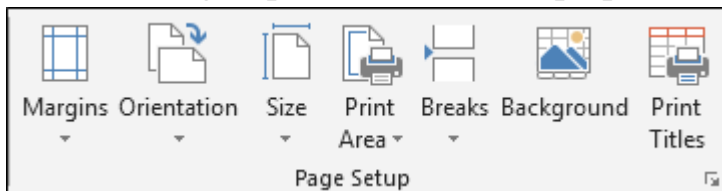


In this menu tab, we have 5 groups:- 1- Themes 2- Page setup 3- scale to fit 4- sheet option 5- arrange

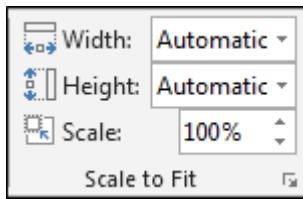
1) Themes: - This option is used to change the theme color of workbook by just click of a button. Each theme has 12 colors, two fonts (heading and body), SmartArt and the effects for shape. Also, we have color option whereby we can create new color's theme, by using the Font option, we can create new font theme as well. So, if we want to create our own theme we can create it by using Themes option in Excel.



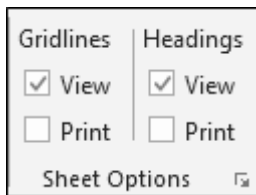
2) Page Setup: -We use this option to set up the page for printing. So, we have Margins, Orientation, Size, Print Area, Breaks, Background and Print titles, in this group, which we use to prepare the page for printout.



3) **Scale to Fit:** -This option helps to fit the page for printing by shrinking or enlarging its size to better fit the pages. We can use Scale to fit to adjust the width and height by describing the scale %age.



4) **Sheet Options:** -It is also a printing option that can show or hide the gridlines, while printing and heading options are used to give headings to the rows and columns.



5) **Arrange:** -We use this option to arrange the objects back and forward and align it. Also, we have Selection pane option by which we can see total images in the workbook and select them from there.

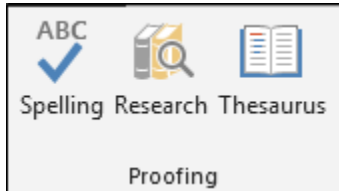
Review Tab

This tab allows you to correct spelling and grammar issues as well as set up security protections. It also provides the track changes and notes feature providing the ability to make notes and changes someone's document.



Review tab contains 4 groups:- 1- Proofing 2- Language 3- Comments
4- Changes

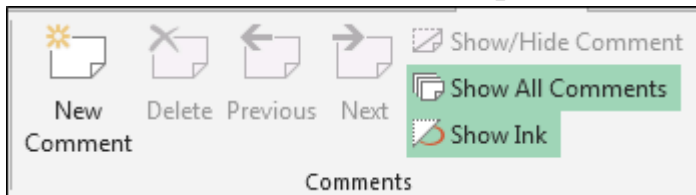
1) **Proofing:** -We use proofing to correct the typo mistakes through spelling option. Research and dictionary work alike. And Thesaurus suggests other ways to say anything.



2) **Language:** - We use this option to translate the sentence in any other language.



3) **Comment:** -When we want to give the message about the cell, we use comment option. We can insert and delete the comment, show and hide the comment, and then we have an option to show all the comments.

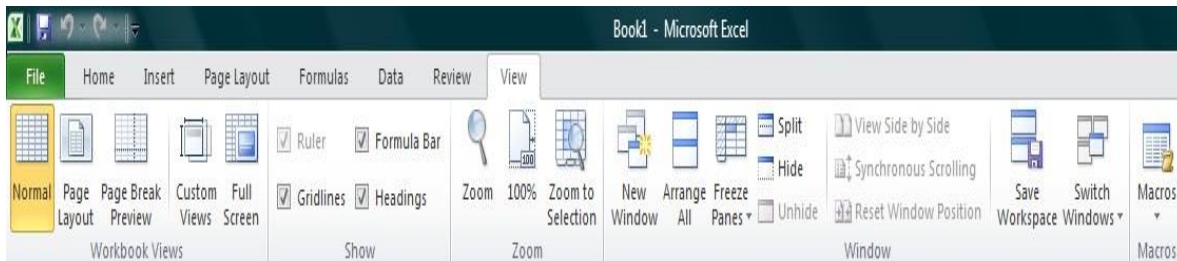


4) **Changes:** - We use Changes option to protect the sheet and workbook, and we can allow user to edit the specific range; also, we can share the workbook as well. When we want to prevent the unwanted changes in the sheet by others, we can protect the sheet by using the “Protect Sheet” option. And, if we don’t want other users to do any structural changes in the workbook such as moving, deleting or adding sheets, we can do it by using the “Protect workbook” option. Using “Share workbook” option, we can grant access to multiple users to work on a file at the same time. We use “Protect and share workbook” option to share the workbook and protect change tracking with a password. We use “Allow users to edit ranges” to set up password protection

on few ranges and we can select the users who can edit those ranges. We use “Track changes” to keep the track of changes made in the file.

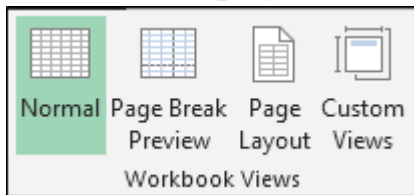
View Tab

This tab allows you to change the view of your document including freezing or splitting panes, viewing gridlines and hide cells.

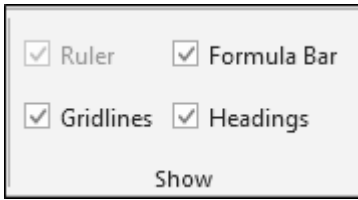


View tab contains 5 groups:- 1- workbook views 2- show 3- zoom 4- window 5- Macro

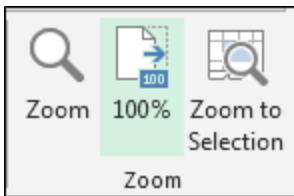
1) Workbook Views: -Excel offers 4 types of workbook views: – Normal, Page break preview, Page layout & Custom View. We use “Normal” option to see the normal view of Excel. We use Page break preview option to see that where the page-breaks appear when we print the document. Through “Page layout” option, we can check from where does the page begin and end as well as to see any header / footer on the page. We use Custom View option to save the current display and setting as a custom view which we can apply in future.



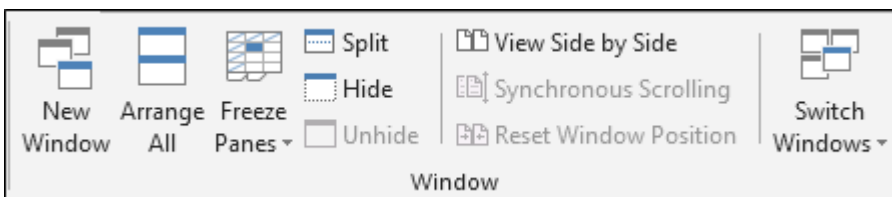
2) Show: – We use this option to show and hide the Excel’s view. Ruler is used to show the rulers next to our documents. Grid lines option is used to show the lines between rows and columns in the sheet to make the sheet easier to read. Through Formula bar, we can obtain the formula for the active cell. Heading is used to show the heading of columns and rows number.



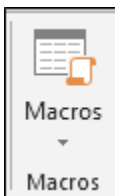
3) **Zoom:** -We can adjust the view as per our convenience. Zoom 100% is the standard view for viewing the Excel file. We use Zoom to selection to zoom the sheet so the selected range of cells fills the entire window.



4) **Window:** -We use this option to access the window options. New window is used to open the same document in the new window, and we can perform in the both windows and thus both documents will get updated. Arrange all option helps us to stack the already opened window so that we can see all of them at once. Freeze Panes option is very useful for viewing vast data with the headers or we can use it to mark the comparison. Its usage always depends on requirement. Split option is used to divide the window into different panes such that each scrolls separately. Hide option is used to hide the current window.



5) **Macros:** -With this option, we can record the macro and then we can view the macro.



Advanced Spreadsheet Modification

Once you have created a basic spreadsheet there are numerous things you can do to make working with your data easier. Some of these elements are hiding, freezing and splitting rows. You can also sort and filter data, these features are quite helpful when working with a large amount of data.

Hide or Display Rows and Columns

You can hide a row or column by using the **Hide** command or when you change its row height or column width to 0 (zero). You can display either again by using the **Unhide** command. You can either unhide specific rows and columns, or you can unhide all hidden rows and columns at the same time. The first row or column of the worksheet is tricky to unhide, but it can be done.

Hide Rows or Columns

1. Select the rows or columns that you want to hide.
2. On the **Home** tab, in the **Cells** group, click **Format**.
3. Under **Visibility**, point to **Hide & Unhide**, and then click **Hide**

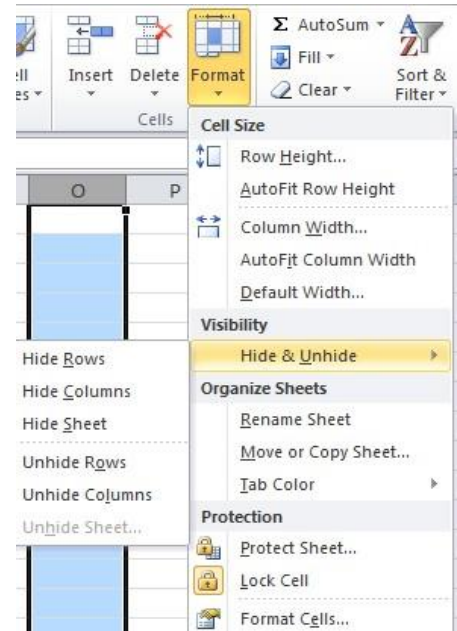
Rows or Hide Columns.

NOTE: You can also right-click a row or column (or a selection of multiple rows or columns), and then click **Hide**.

Unhide Rows or Columns

1. Select the rows, columns or entire sheet to unhide.
2. On the **Home** tab, in the **Cells** group, click **Format**.
3. Under **Visibility**, point to **Hide & Unhide**, and then click **Unhide Rows or Unhide Columns**.

TIP You can also right-click the selection of visible rows and columns surrounding the hidden rows and columns, and then click **Unhide**.



Freezing/Splitting Rows and Columns

To keep an area of a worksheet visible while you scroll to another area of the worksheet, you can either lock specific rows or columns in one area by freezing panes.

Freezing vs. splitting

When you **freeze** panes, Microsoft Excel keeps specific rows or columns visible when you scroll in the worksheet. For example, if the first row in your spreadsheet contains labels, you might freeze that row to make sure that the column labels remain visible as you scroll down in your spreadsheet. A solid line indicates that the row is frozen to keep column labels in place when you scroll.

When you **split** panes, Excel creates either two or four separate worksheet areas that you can scroll within, while rows or columns in the non-scrolled area remain visible. This worksheet has been split into four areas. Notice that each area contains a separate view of the same data. Splitting panes is useful when you want to see different parts of a large spreadsheet at the same time.

NOTE: You cannot split panes and freeze panes at the same time.

Freeze Panes

1. On the worksheet, select the row or column that you want to keep visible when you scroll.
2. On the **View** tab, in the **Window** group, click the arrow below **Freeze Panes**.



A screenshot of an Excel spreadsheet showing a table with columns labeled 'City', 'Date', and 'Books Sold'. The first row (row 1) is highlighted with a solid line, indicating it is frozen. The data rows are: Boise (Mar, 84), Denver (Mar, 38), Chicago (Feb, 60), Dallas (Feb, 72), and Santa Fe (Mar, 154).

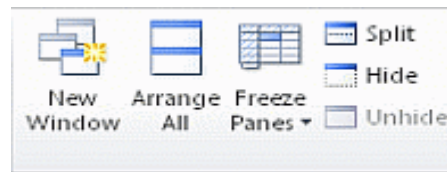
	A	B	C
1	City	Date	Books Sold
7	Boise	Mar	84
8	Denver	Mar	38
9	Chicago	Feb	60
10	Dallas	Feb	72
11	Santa Fe	Mar	154



A screenshot of an Excel spreadsheet showing a table with columns labeled 'ID', 'Country', and 'Sales Region'. The spreadsheet is split into four panes, each showing a different view of the same data. The data rows are: 1 Denmark North, 2 Finland North, 3 France Mid, 4 Germany Mid, and 5 Italy South.

	A	B	C	A	B	C
1	ID	Country	Sales Region	ID	Country	Sales R
2	1	Denmark	North	1	Denmark	North
3	2	Finland	North	2	Finland	North
4	3	France	Mid	3	France	Mid
5	4	Germany	Mid	4	Germany	Mid
6	5	Italy	South	5	Italy	South

3. Then do one of the following: To lock one column only, click **Freeze First Column**. To lock more than one row or column, or to lock both rows and columns at the same time, click **Freeze Panes**.





NOTE: You can freeze rows at the top and columns on the left side of the worksheet only. You cannot freeze rows and columns in the middle of the worksheet.

Unfreeze panes

1. On the **View** tab, in the **Window** group, click the arrow below **Freeze Panes**.
2. Click **Unfreeze Panes**.

Split

1. To split panes, point to the split box at the top of the vertical scroll bar or at the right end of the horizontal scroll bar.
2. When the pointer changes to a split pointer  or , drag the split box down or to the left to the position that you want.
3. To remove the split, double-click any part of the split bar that divides the panes.

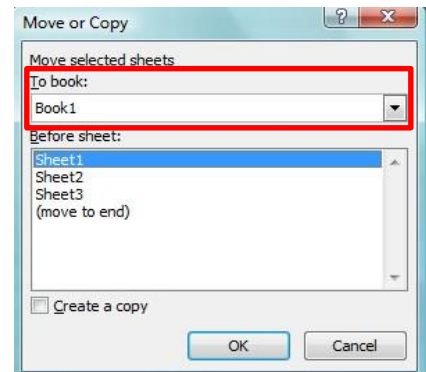
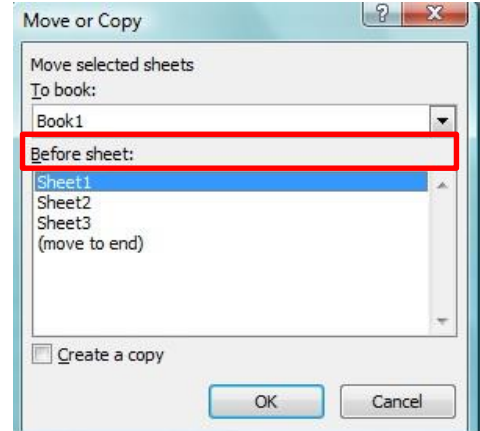


Moving or Copying Worksheets

Sometimes you may need to copy an entire worksheet instead of copying and pasting the data which may or may not paste properly, you can use the steps below to achieve a much better result.

Move or Copy Worksheets

1. Select the worksheets that you want to move or copy.
2. On the **Home** tab, in the **Cells** group, click **Format**, and then under **Organize Sheets**, click **Move or Copy Sheet**. You can also right-click a selected sheet tab, and then click **Move or Copy**.
3. A **Move or Copy** dialog box will appear
4. To move a sheet, in the **Before sheet** list:
 - Click the sheet that you want to insert the moved or copied sheets directly in front of.
 - Click **move to end** to insert the moved or copied sheets after the last sheet in the workbook and before the **Insert Worksheet** tab.



5. To copy the sheets, in the **Move or Copy** dialog box, select the **Create a copy** check box.

NOTE: When you create a copy of the worksheet, the worksheet is duplicated in the workbook, and the sheet name indicates that it is a copy — for example, the first copy that you make of Sheet1 is named Sheet1 (2).

NOTE: To move sheets in the current workbook, you can drag the selected sheets along the row of sheet tabs. To copy the sheets, hold down CTRL, and then drag the sheets; release the mouse button before you release the CTRL key.

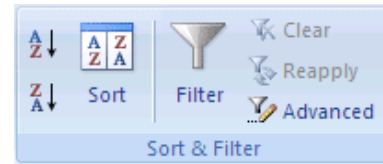
Move or Copy to a Different Workbook

1. In the workbook that contains the sheets that you want to move or copy, select the sheets.
2. On the **Home** tab, in the **Cells** group, click **Format**, and then under

Organize Sheets, click Move or Copy Sheet.

3. In the **Move or Copy** dialog box, click the drop down list in the **To book** box, then:

- Click the workbook to which you want to move or copy the selected sheets.
- Click **new book** to move or copy the selected sheets to a new workbook.



6. To move a sheet, in the **Before sheet** list:



- Click the sheet that you want to insert the moved or copied sheets directly in front of.
 - Click **move to end** to insert the moved or copied sheets after the last sheet in the workbook and before the **Insert Worksheet** tab.

7. To copy the sheets, in the **Move or Copy** dialog box, select the **Create a copy** check box.

Sorting Data

Sorting data is an integral part of data analysis. You might want to arrange a list of names in alphabetical order, compile a list of product inventory levels from highest to lowest, or order rows by colors or icons. Sorting data helps you quickly visualize and understand your data better, organize and find the data that you want, and ultimately make more effective decisions.

Sort Data in Single Column

1. Select a column of data in a range of cells
2. On the **Data** tab, in the **Sort & Filter** group, do one of the following:
 - To sort in ascending or smallest to largest order, click  **Sort A to Z**.
 - To sort in descending or largest to smallest order, click  **Sort Z to A**.
3. To reapply a sort after you change the data, click a cell in the range or table and then, on the **Data** tab, in the **Sort & Filter** group, click **Reapply**.

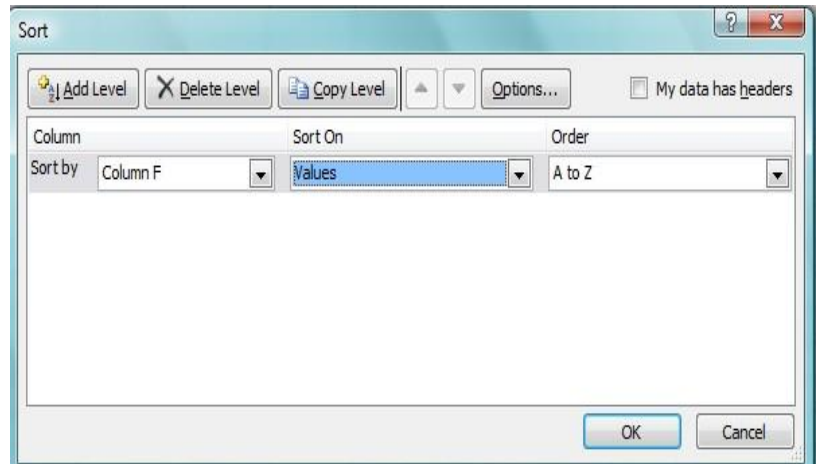
Sort Data in Multiple Columns or Rows

You may want to sort by more than one column or row when you have data that you want to group by the same value in one column or row, and then sort another column or row within that group of equal values.

1. Select a range of cells with two or more columns of data.
2. On the **Data** tab, in the **Sort & Filter** group, click **Sort**.
3. The **Sort** dialog box will appear.
4. Under **Column**, in the **Sort by** box, select the first column that you want to sort.
5. Under **Sort On**, select the type of sort.
 - To sort by text, number, or date and time, select **Values**.
 - To sort by format, select **Cell Color**, **Font Color**, or **Cell Icon**.
6. Under **Order**, select how you want to sort.

For text values, select **A to Z** or **Z to A**. For number values, select **Smallest to Largest** or **Largest to Smallest**.

For date or time values, select **Oldest to Newest** or **Newest to Oldest**. To sort based on a custom list, select **Custom List**.



7. To add another column to sort by, click **Add Level**, and then repeat steps four through six.
8. To copy a column to sort by, select the entry and then click **Copy Level**.
9. To delete a column to sort by, select the entry and then click **Delete Level**.
10. To change the order in which the columns are sorted, select an entry and then click the **Up** or **Down** arrow to change the order.
11. To reapply a sort after you change the data, click a cell in the range or table and then, on the **Data** tab, in the **Sort & Filter** group, click **Reapply**.

Finalizing a Spreadsheet

To complete your spreadsheet there are a few steps to take to ensure your document is finalized. [Using the "Spell Check" Feature](#)

Excel does not have the same spell check feature as Word and PowerPoint. To complete a Spelling and Grammar check, you need to use the Spelling and Grammar feature.

1. Click on the **Review** tab
2. Click on the **Spelling & Grammar** command (a blue check mark with ABC above it).
3. A **Spelling and Grammar** box will appear, correct any Spelling

