TRAIN | APPLY | GROW

SKILLS FOR A SMARTER TOMORROW

Learn Practice Excel

Advanced MS Excel Training Manual

FROM DATA TO DECISIONS

Learn | Apply | Excel in the Real World

- **Advanced Formulas & Functions**
- **Pivot Tables & Pivot Charts**
- **Data Analysis & What-If Tools**
- **Automation with Macros & VBA**
- **Dashboards & Data Visualization**

WORK SMARTER
ANALYZE DEEPER
ACHIEVE MORE



SAME SKILLS BIGGER OPPORTUNITIES

Excel With Microsoft Excel

MS Excel Beginning to Advanced Level Practical Workbook Guide

by **Naveen Mishra**

MCA, BCA & DOEACC Certified

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Excel Quick Overview

Use of Excel, its boundaries & features.

How to open Microsoft Excel 2010/2013/2016?

By Menu:

Start → All Programs → Microsoft Office → Excel 2010/2013/2016

By Command:

Start → Run → Type Command (***EXCEL***)

What is MS Excel?

MS Excel is a spread sheet program use for perform high level calculation on data like filtration, sorting, searching, etc.

MS Word file is called "*documentation*" and its file consist number of *Pages*.

But MS Excel file is called "***Workbook***" and its file consist number of *sheets*.

In Office 2010/2013/2016, MS excel file format is ***.xlsx***

What are Columns and Column Header?

Vertical lines are called "***Columns***" in excel each column has specify name is called "***Column Header***" Like (A,B,C,……..Z,AA,AB,…….., XFD). 16384 columns in one sheet

What are Rows and Row Header?

Horizontal lines are called "***Rows***" in excel each row has specify name is called "***row header***" Like (1,2,3,……..99,100,……..1048576). 10,48,576 rows in one sheet

What are cells and why we use name box?

Intersection point of row and column is called "***Cell***" combination of column name and row name make "***cell name***" like Column ***A*** and Row ***100*** cell name ***A100*** , you can see in name box(Top left side).
Name box use for go to specify cell or create name of selected cells

What is sheet tab?

In excel each sheet has specify name is called "***Sheet tab***"
we can change sheet name/ tab color or insert / delete sheet

Right click on sheet tab

- Rename
- Re-Name
- Tab Color
- Insert (Shift+F11)
- Delete
- Hide / Unhide
- Move / Copy

Difference between Sheet and Workbook

Combination of cells is called "***Sheet***" and Combination of sheets is called "***Workbook***"

What are Operators?

Specify sign perform specify action are called "***Operators***"

How many types of operator?

4 types of operator

1. ***Arithmetic Operator:***

Sign	Name	Description
+	Plus	Use for addition just number values
-	Minus	Use for Subtraction just number Values
*	Asterisk	Multiplication between number values
/	Forward slash	Use for Davison
%	Percentage	Gain Percentage Value
^	Caret	Exponentiation (create power)
-	Nagaition	Minus values are called Nagition Values

2. ***Logical (Comparison) operator***:

Sign	Name
=	Equal to
>	Grater than
<	Less than
>=	Grater than or equal to

<=	Less than or equal to
<>	Not equal to

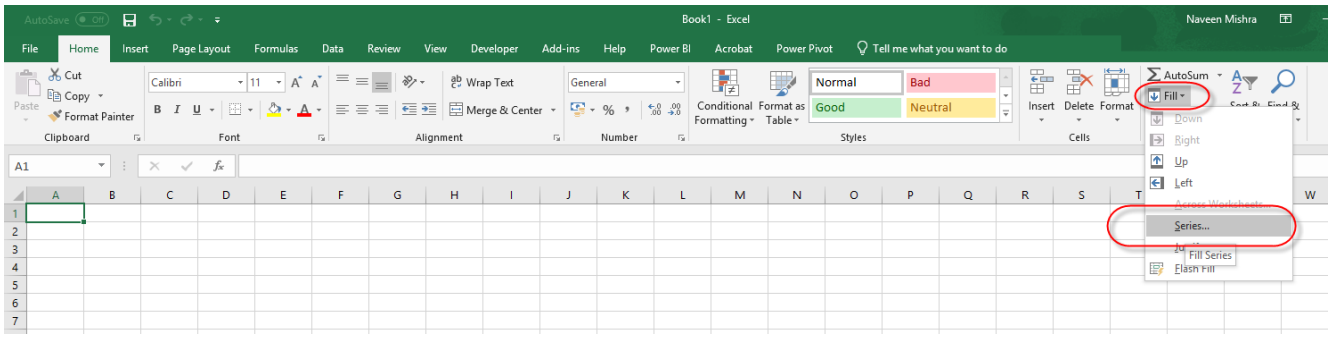
Data formation in Excel in form of a Database

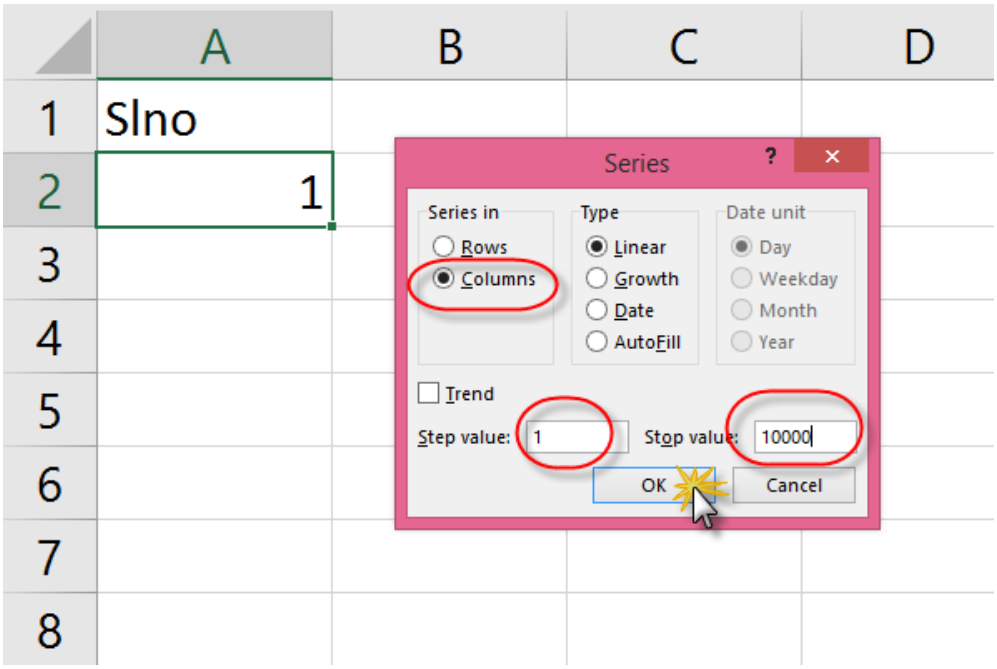
Data in database shape is very important. Unless, it's in proper shape your analysis will not work. We will help you understand data rules required to bring your data in a right state for analysis. Base data correctness is extremely important for a true analysis. Remember, database is garbage in garbage out.

- Database is a collection of data stored in Rows & Columns.
- Avoid keeping blank rows in Excel Data. It may create problems in results especially when we are using Pivot Tables, Data Filters, and Formulas etc.
- Use lightweight functions as much as possible. Otherwise use paste special function.
- Try avoid putting "space" or "-" in starting of the sentence.
- Whenever you are going to compile, process your data, take backup before doing this.
- Don't save the actions on data until and unless you are sure that whatever you have done is ok.
- When you are merging data of two tables, two databases through VLOOKUP etc., make sure minimum one field (column) of both tables, databases should be common.

Steps to Create Series Using Series dialog box

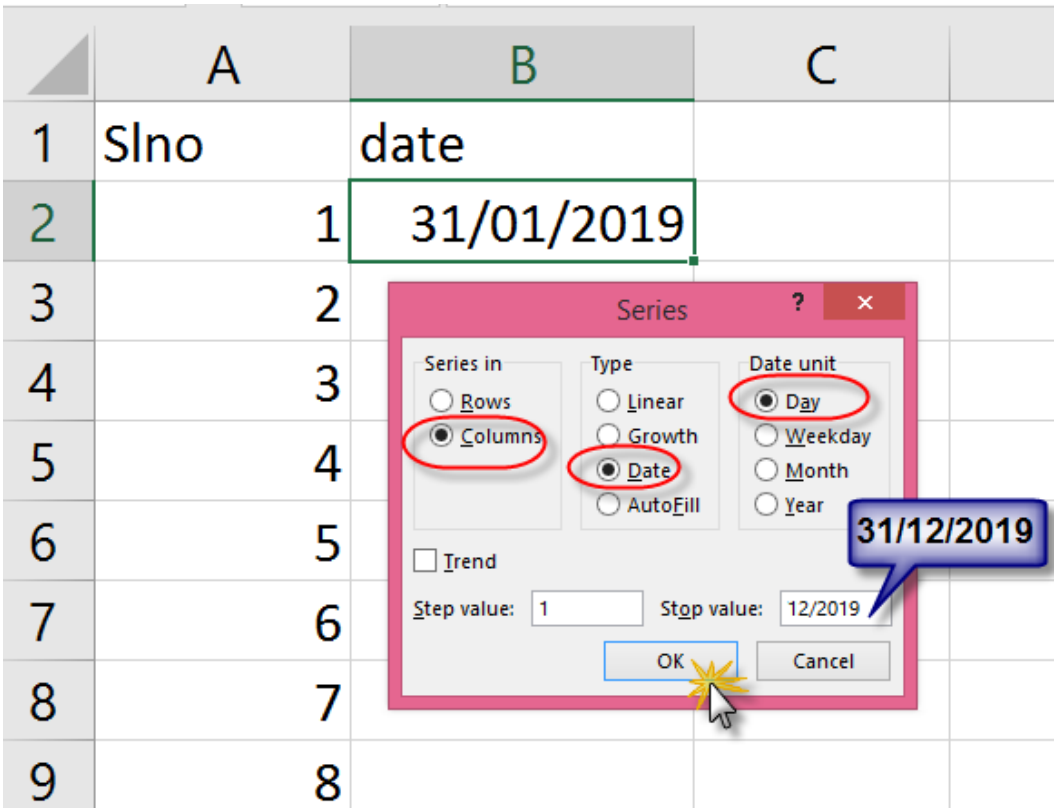
Home -> Fill-> Series





Series dialog box contains three group Series in, Type and Date unit in cell A2 type one.

In series dialog box select column option means we want to create vertical series, by default step value is one means we want one increment stop value is suppose 10000 means we want to stop series at 10000.



Create date series follow above screen shot.

Chapter 1: Data formatting & custom settings

An important exercise with the help of Excel in built features which is applied on available data to for number, text, date, day, month, year, currency settings.

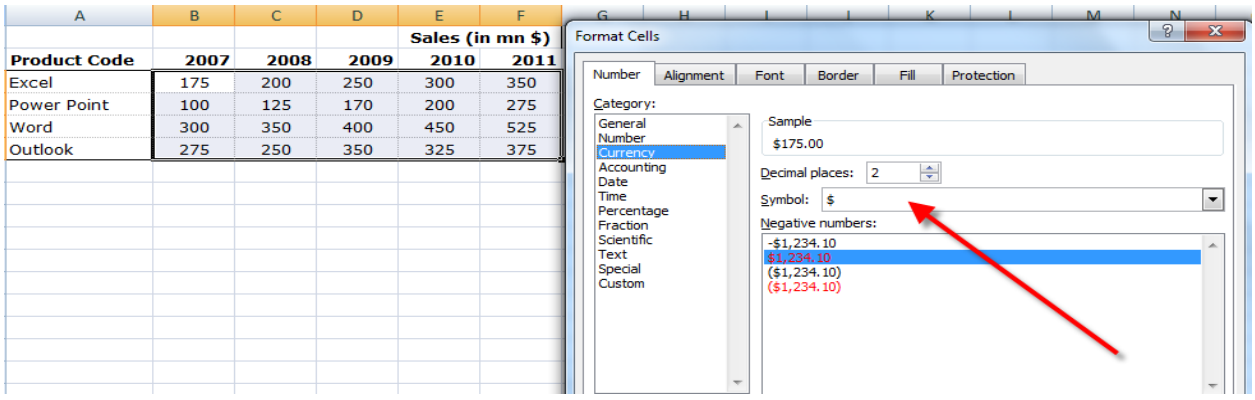
Excel Formatting - number formatting

Number formatting refers to the addition of currency symbols, decimal markers, percent signs, and other symbols that help to identify the type of data present in a cell and to make it easier to read.

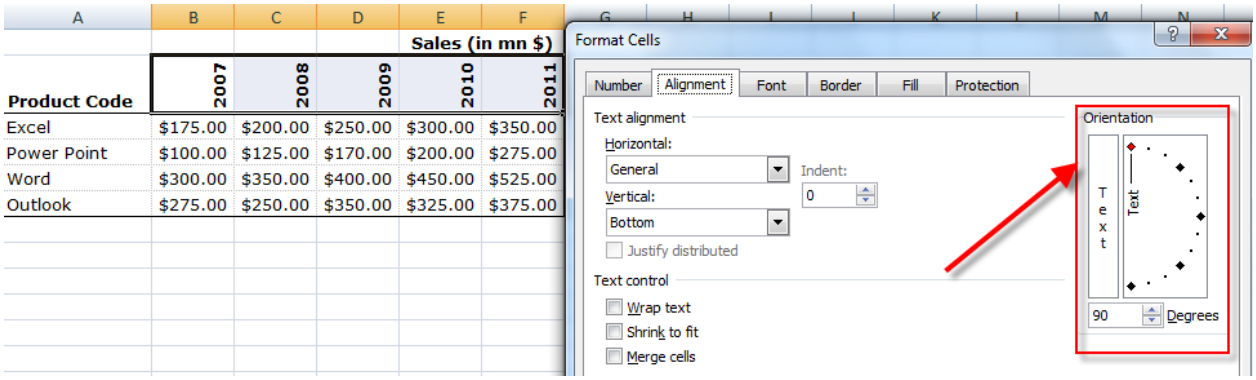
Steps to Apply Number Formatting

1) Select data table -> Right Click on the cell -> Choose Cell Formatting options or press Ctrl+1 Short cut key

A	B	C	D	E	F
				Sales (in mn $)	
Product Code	**2003**	**2004**	**2005**	**2006**	**2007**
Excel	175	200	250	300	350
Power Point	100	125	170	200	275
Word	300	350	400	450	525
Outlook	275	250	350	325	375

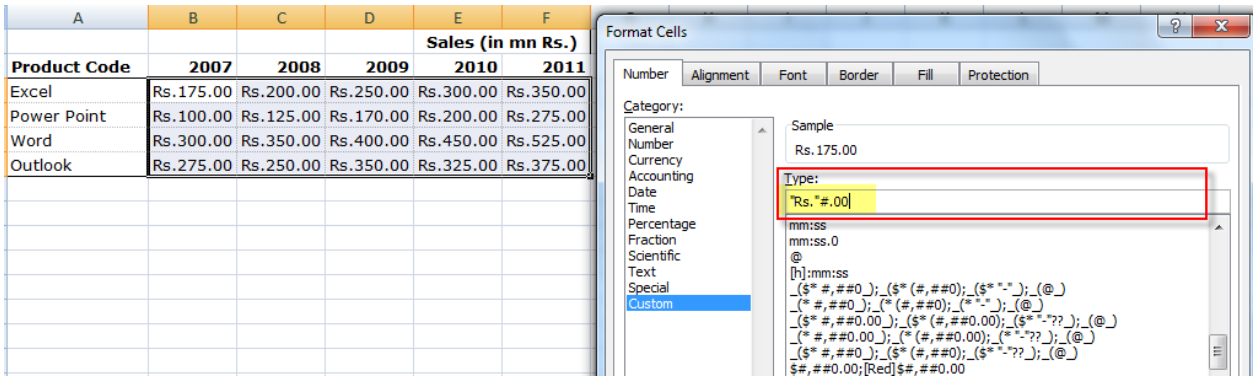


				Sales (in mn $)	
Product Code	**2007**	**2008**	**2009**	**2010**	**2011**
Excel	$175.00	$200.00	$250.00	$300.00	$350.00
Power Point	$100.00	$125.00	$170.00	$200.00	$275.00
Word	$300.00	$350.00	$400.00	$450.00	$525.00
Outlook	$275.00	$250.00	$350.00	$325.00	$375.00



				Sales (in mn $)	
Product Code	2007	2008	2009	2010	2011
Excel	$175.00	$200.00	$250.00	$300.00	$350.00
Power Point	$100.00	$125.00	$170.00	$200.00	$275.00
Word	$300.00	$350.00	$400.00	$450.00	$525.00
Outlook	$275.00	$250.00	$350.00	$325.00	$375.00

Add Rs. Symbol using custom settings.



				Sales (in mn Rs.)	
Product Code	2007	2008	2009	2010	2011
Excel	Rs.175.00	Rs.200.00	Rs.250.00	Rs.300.00	Rs.350.00
Power Point	Rs.100.00	Rs.125.00	Rs.170.00	Rs.200.00	Rs.275.00
Word	Rs.300.00	Rs.350.00	Rs.400.00	Rs.450.00	Rs.525.00
Outlook	Rs.275.00	Rs.250.00	Rs.350.00	Rs.325.00	Rs.375.00

Adding lakh Separator in MS Excel using custom settings
Eg.

10,23,876.00**--** ##”,”##”,”###.00

28/01/2012 – DD/MM/YYYY

20-JAN-2012 –DD-MMM-YYYY

Formatting a Table

Excel provides several predefined **table styles** (also called quick styles) that you can use to quickly and easily format a table. Table styles include professional looking combinations of fill colors, fonts, borders, font colors and patterns. If none of the predefined table styles meet your needs, you can create your own custom styles.

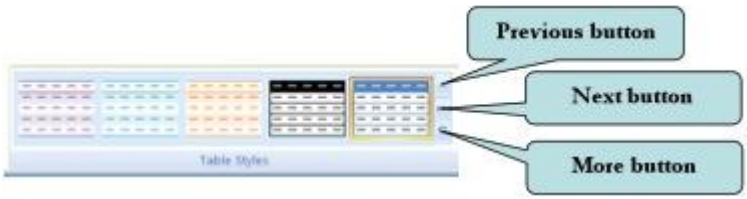


Table Styles are found on the contextual Design tab under Table Tools. The Ribbon displays only a few of the available styles. To scroll the style gallery, click the previous or next buttons. To display the entire table gallery, click the **More** button.

You can further modify the formatting of your table by modifying table style options such as hiding or displaying the header row, adding special formatting to the first or last columns, or displaying

banded rows or columns, in which the even rows or columns are formatting differently from the odd rows and columns, much like an accounting green bar report.

To remove a table style, click the **More button** on the Table Styles group and choose **Clear** from the menu. The table will display in the default table format.

To Format a Table

1. Click anywhere within the table to activate it.
2. Click the contextual **Design tab** under Table Tools on the Ribbon.
3. Click the **More button** on the Table Styles group to display the styles gallery.
4. Move your mouse pointer over any of the styles to display a preview of the style.
5. Click the style that you want.
6. To remove a table style, click the **More button** on the Table Styles group and click **Clear** on the menu.

Format Table Elements

1. Click anywhere within the table to activate it.
2. Click the contextual **Design tab** under Table Tools on the Ribbon.
3. On the **Table Options group**, do one of the following:
    a. To turn the header row on or off, select or clear the **Header Row** check box.
    b. To display special formatting for the first or last column of the table, select the **First Column** or **Last Column** check box.
    c. To display odd and even rows with different formatting, select the **Banded Rows** check box.
    d. To display odd and even columns with different formatting, select the **Banded Columns** check box.
    e. To turn the totals row on or off, select or clear the **Totals Row** check box.

Chapter 2: Conditional Formatting

It will help you automate formatting of conditional results in such a way which is color coded and easy to see and understand. Once defined, Excel will automatically change the color of your values e.g. up or down, high or low, pass or fail, profit or loss etc.

Imagine you have a spreadsheet with thousands of rows of data. It would be extremely difficult to see patterns and trends just from examining the raw data. Excel gives us several tools that will make this task easier. One of these tools is called conditional formatting. With conditional formatting, you can apply formatting to one or more cells based on the value of the cell. You can highlight interesting or unusual cell values, and visualize the data using formatting such as data bars. Excel conditional formatting lets you change the appearance of a cell based on its value or the value of another cell. You specify certain conditions, and when those conditions are met, Excel applies the formatting that you choose.

Why we need conditional formatting?

You can use conditional formatting to locate dates that meet a certain (such as falling on a Saturday or Sunday), to call out highest or lowest value in a range, or to indicate values that fall under or over a specified amount.

How to perform conditional formatting?

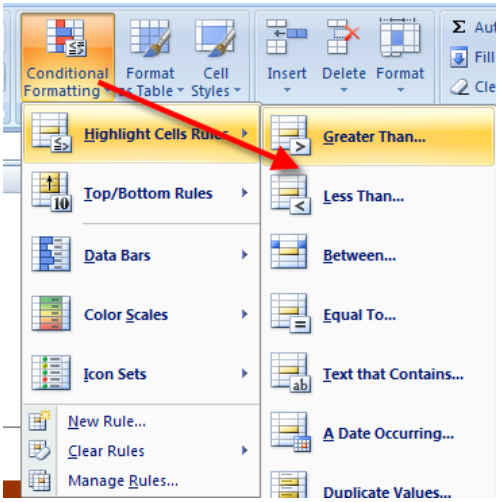
You have many conditional formatting rules, or options, that you can apply to cells in your spreadsheet. Each rule will affect selected cells differently. Before you choose a formatting rule, you need to identify what questions you are trying to answer. For example, in a sales spreadsheet, you might want to identify the salespeople with lower than average sales. To do this, you need to choose a conditional formatting rule that will show you this answer. Not all the options will provide you with this information.

Steps to create Conditional Formatting

Item Name	Mumbai	Delhi	Chennai	Grand Total
CD-MP3	9917.72	2757.29	11801.37	**24476.38**
HEADPHONE	10912.16	5272	15297.1	**31481.26**
Home DVD	7390.19	10080.67	3193.05	**20663.91**
MICROSYS	40324.15	11443.63	33136.08	**84903.86**
MINIDISC	9057.87	15684.43	13223.51	**37965.81**
Port DVD	51364.41	37899	51640	**140903.41**
Grand Total	**128966.5**	**83137.02**	**128291.11**	**340394.63**

Adding Conditional Formatting to a Cell

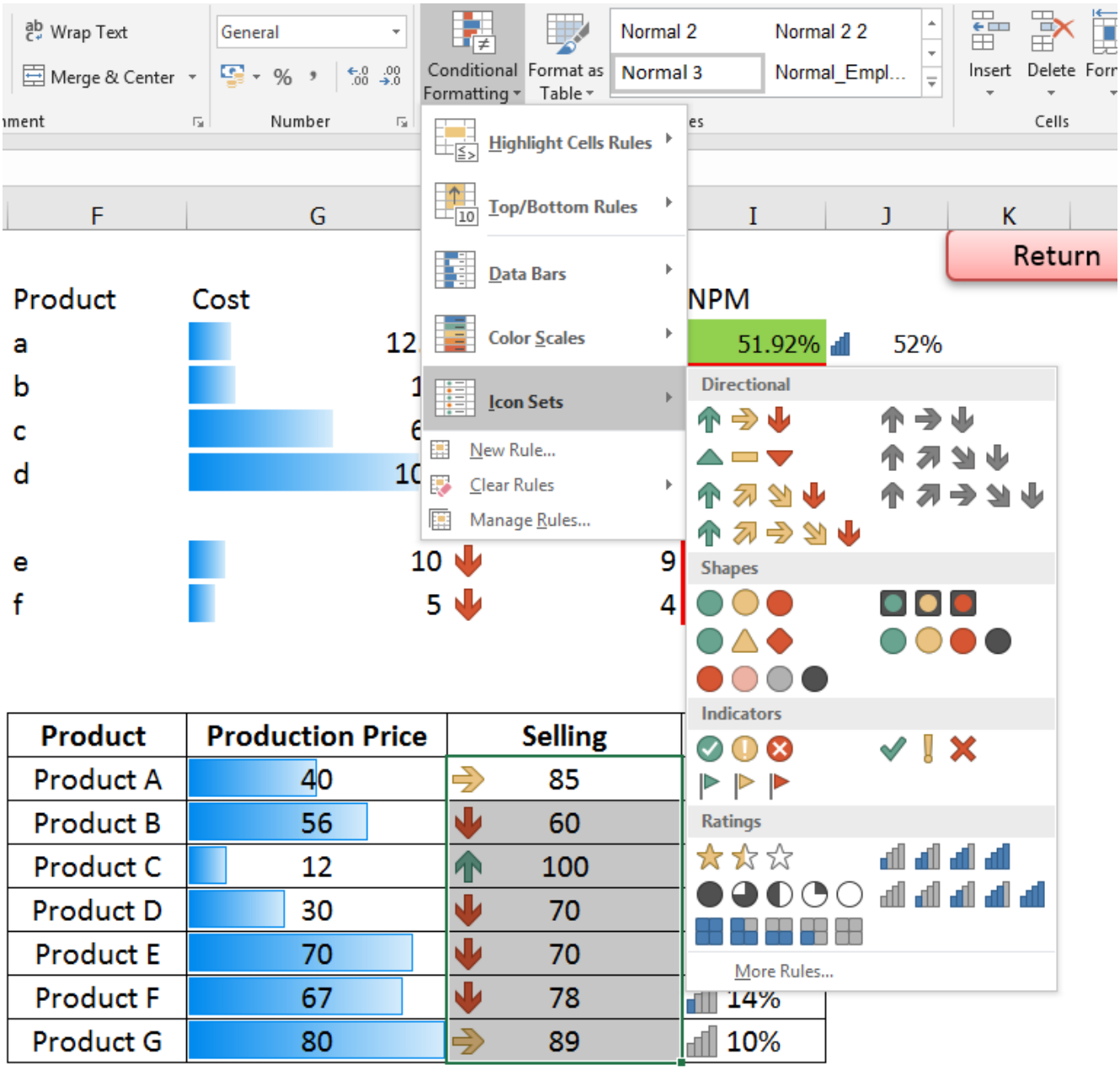
1. Select a cell or range of cells to be formatted.
2. Click on the Home tab-> Select Conditional Formatting -> Select Highlight Cell Rules -> Select Conditions
3. Enter your conditions ->Select Color->ok



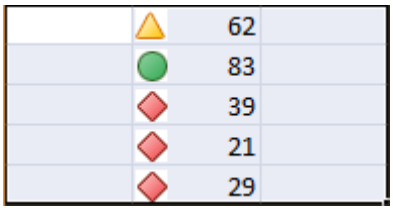
Adding Customized Icon Sets

Icon sets give you an opportunity to create visual effects in your data to see how the value of a cell compares with other cells.

Excel 2016 offers several choices of icon sets. You can choose the icons that are most appropriate for the data you are using. Figure 1 shows the gallery of icons as well as the user interface (UI) to get to the icons. The **Condition Formatting** option is available on the **Home** tab.



Red-Yellow-Green geometric icons applied to a range of data



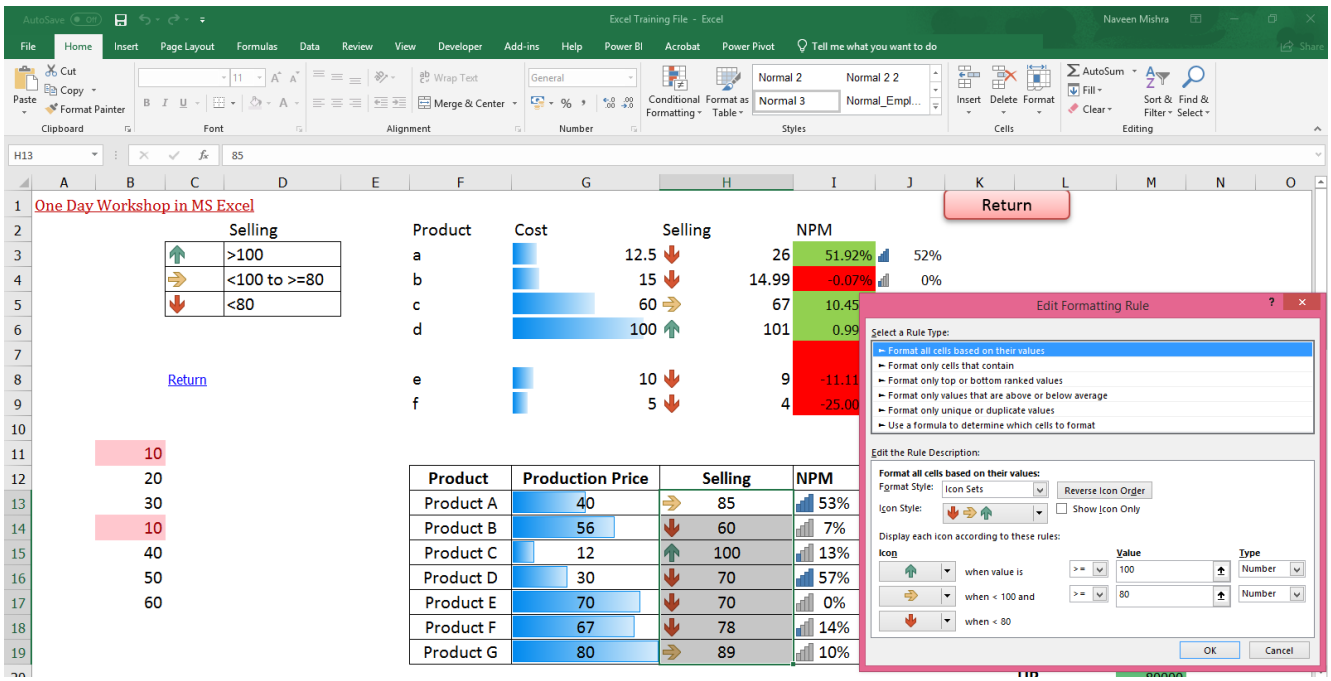
This is an example of a range of data with colored arrows in different directions, relative to the middle values in the range. Arrows tend to indicate trends:

Colored arrows indicate direction relative to mid-range values

10	
10	
20	
25	
30	
35	
40	

Edit Icon Set Condition

Home-> Conditional Formatting-> Manage Rules -> Edit Rule



The next example shows five different categories grouped using a circle that ranges from empty through filled (like the phases of the moon or a pie chart):

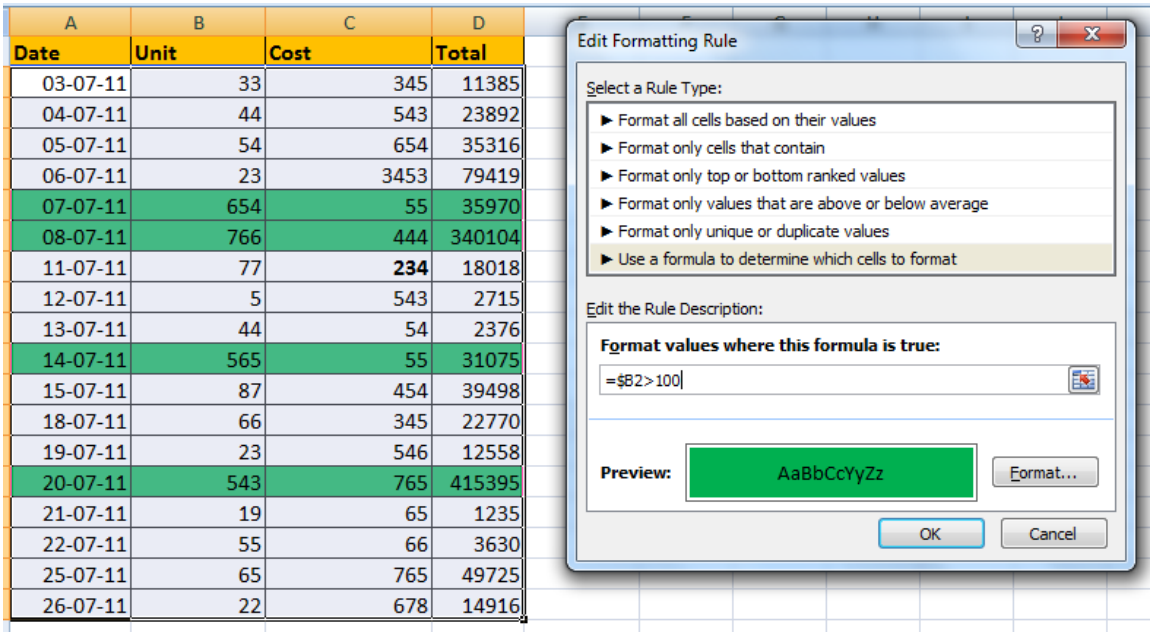
Apply Excel Conditional Formatting to a Row

You can apply conditional formatting that checks the value in one cell, and applies formatting to other cells, based on that value.

For example, you could colour the entire row in a table, if the values in column B are over a set value. In this example, we'll colour cells blue, if the number of units, in column B, is greater than 75. At a glance, we'll be able to see which dates have a high number of units.

Steps –>

1) Select the data -> Home Tab->New Rule->
2) Select Use a Formula to determine which cells to Format.
3) Type Formula =$B2>100
4) Choose Format button ->select color -> OK



Highlight Duplicate Records

1) **Select the Unique Column -> Home -> Conditional Formation-> Highlight Cells Rule -> Duplicate Values**

Chapter 3: Auto Filters/Advanced Filter, Queries selective selection of data

You have bunch of data and you want to drill it down to your desired level based on multiple choices and conditions. We will explain all the steps so that you can produce results quickly with very little efforts

Many times, rather than working with an entire table, you may wish to work with only a subset of your data. Using the **Auto Filter** feature, you can display only the records with which you wish to work and hide all others from view.

AutoFilter is an easy way to turn the values in Excel column into specific filters based on the cell contents.

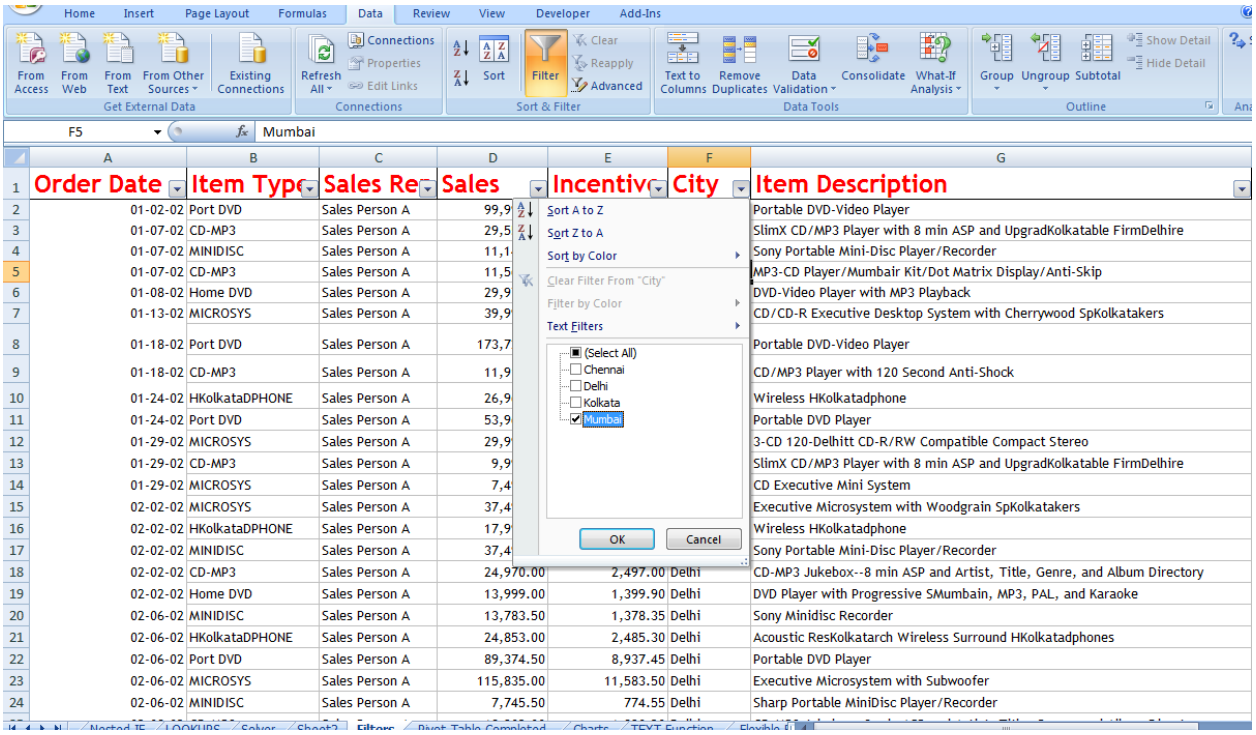
To turn on auto filter,

1. Click any cell within your range.

2. From the **Data** Tab, select **Filter.**

Or Use Short Cut Kay **Ctrl+Shift+L or Alt D F F**

Once you've enabled this feature, your columns display with a drop-down arrow to the right. If you click the arrow control, you'll see all the values for that particular column. To turn off the feature, you deselect Auto filter from Filter tab.



Order Date	Item Type	Sales Re	Sales	Incentiv	City	Item Description
01-02-02	Port DVD	Sales Person A	99,9			Portable DVD-Video Player
01-07-02	CD-MP3	Sales Person A	29,5			SlimX CD/MP3 Player with 8 min ASP and UpgradKolkatable FirmDelhire
01-07-02	MINIDISC	Sales Person A	11,1			Sony Portable Mini-Disc Player/Recorder
01-07-02	CD-MP3	Sales Person A	11,5			MP3-CD Player/Mumbair Kit/Dot Matrix Display/Anti-Skip
01-08-02	Home DVD	Sales Person A	29,9			DVD-Video Player with MP3 Playback
01-13-02	MICROSYS	Sales Person A	39,9			CD/CD-R Executive Desktop System with Cherrywood SpKolkatakers
01-18-02	Port DVD	Sales Person A	173,7			Portable DVD-Video Player
01-18-02	CD-MP3	Sales Person A	11,9			CD/MP3 Player with 120 Second Anti-Shock
01-24-02	HKolkataDPHONE	Sales Person A	26,9			Wireless HKolkatadphone
01-24-02	Port DVD	Sales Person A	53,9			Portable DVD Player
01-29-02	MICROSYS	Sales Person A	29,9			3-CD 120-Delhitt CD-R/RW Compatible Compact Stereo
01-29-02	CD-MP3	Sales Person A	9,9			SlimX CD/MP3 Player with 8 min ASP and UpgradKolkatable FirmDelhire
01-29-02	MICROSYS	Sales Person A	7,4			CD Executive Mini System
02-02-02	MICROSYS	Sales Person A	37,4			Executive Microsystem with Woodgrain SpKolkatakers
02-02-02	HKolkataDPHONE	Sales Person A	17,9			Wireless HKolkatadphone
02-02-02	MINIDISC	Sales Person A	37,4			Sony Portable Mini-Disc Player/Recorder
02-02-02	CD-MP3	Sales Person A	24,970.00	2,497.00	Delhi	CD-MP3 Jukebox--8 min ASP and Artist, Title, Genre, and Album Directory
02-02-02	Home DVD	Sales Person A	13,999.00	1,399.90	Delhi	DVD Player with Progressive SMumbain, MP3, PAL, and Karaoke
02-06-02	MINIDISC	Sales Person A	13,783.50	1,378.35	Delhi	Sony Minidisc Recorder
02-06-02	HKolkataDPHONE	Sales Person A	24,853.00	2,485.30	Delhi	Acoustic ResKolkatarch Wireless Surround HKolkatadphones
02-06-02	Port DVD	Sales Person A	89,374.50	8,937.45	Delhi	Portable DVD Player
02-06-02	MICROSYS	Sales Person A	115,835.00	11,583.50	Delhi	Executive Microsystem with Subwoofer
02-06-02	MINIDISC	Sales Person A	7,745.50	774.55	Delhi	Sharp Portable MiniDisc Player/Recorder

Order Date	Item Type	Sales Re	Sales	Incentiv	City	Item Description
01-07-02	CD-MP3	Sales Person A	29,550.00	2,955.00	Mumbai	SlimX CD/MP3 Player with 8 min ASP and UpgradKolkatable FirmDelhire
01-07-02	MINIDISC	Sales Person A	11,148.50	1,114.85	Mumbai	Sony Portable Mini-Disc Player/Recorder
01-07-02	CD-MP3	Sales Person A	11,565.00	1,156.50	Mumbai	MP3-CD Player/Mumbair Kit/Dot Matrix Display/Anti-Skip
01-18-02	Port DVD	Sales Person A	173,726.00	17,372.60	Mumbai	Portable DVD-Video Player
01-18-02	CD-MP3	Sales Person A	11,915.00	1,191.50	Mumbai	CD/MP3 Player with 120 Second Anti-Shock
02-02-02	HKolkataDPHONE	Sales Person A	17,998.50	1,799.85	Mumbai	Wireless HKolkatadphone
02-02-02	MINIDISC	Sales Person A	37,498.50	3,749.85	Mumbai	Sony Portable Mini-Disc Player/Recorder
02-25-02	Home DVD	Sales Person A	33,757.50	3,375.75	Mumbai	DVD Player with Progressive SMumbain, MP3, PAL, and Karaoke
02-25-02	MICROSYS	Sales Person A	7,036.50	703.65	Mumbai	CD Executive Mini System
03-23-02	HKolkataDPHONE	Sales Person A	17,998.50	1,799.85	Mumbai	Wireless HKolkatadphone
03-29-02	MINIDISC	Sales Person A	48,455.00	4,845.50	Mumbai	Sharp Minidisc Player/Recorder
03-30-02	HKolkataDPHONE	Sales Person A	11,992.50	1,199.25	Mumbai	JVC Cordless HKolkatadphone
03-30-02	HKolkataDPHONE	Sales Person A	24,999.00	2,499.90	Mumbai	Acoustic ResKolkatarch Wireless Surround HKolkatadphones
04-01-02	CD-MP3	Sales Person A	29,550.00	2,955.00	Mumbai	SlimX CD/MP3 Player with 8 min ASP and UpgradKolkatable FirmDelhire
04-02-02	MINIDISC	Sales Person A	11,148.50	1,114.85	Mumbai	Sony Portable Mini-Disc Player/Recorder
04-03-02	CD-MP3	Sales Person A	11,565.00	1,156.50	Mumbai	MP3-CD Player/Mumbair Kit/Dot Matrix Display/Anti-Skip
04-06-02	Port DVD	Sales Person A	173,726.00	17,372.60	Mumbai	Portable DVD-Video Player
04-07-02	CD-MP3	Sales Person A	11,915.00	1,191.50	Mumbai	CD/MP3 Player with 120 Second Anti-Shock
04-14-02	HKolkataDPHONE	Sales Person A	17,998.50	1,799.85	Mumbai	Wireless HKolkatadphone
04-15-02	MINIDISC	Sales Person A	37,498.50	3,749.85	Mumbai	Sony Portable Mini-Disc Player/Recorder
04-29-02	Home DVD	Sales Person A	33,757.50	3,375.75	Mumbai	DVD Player with Progressive SMumbain, MP3, PAL, and Karaoke
04-30-02	MICROSYS	Sales Person A	7,036.50	703.65	Mumbai	CD Executive Mini System
05-08-02	HKolkataDPHONE	Sales Person A	17,998.50	1,799.85	Mumbai	Wireless HKolkatadphone

In the example above, I can see all the entries that show in the City column. Various Cities are omitted such as Chennai, Kolkata, Delhi and Chennai that values aren't represented on the spreadsheet.

Excel Custom AutoFilters

To set a simple custom auto filter,

1. Enable auto filter for your spreadsheet using the steps in the section above.

2. Click the down control arrow in the column you wish to filter.

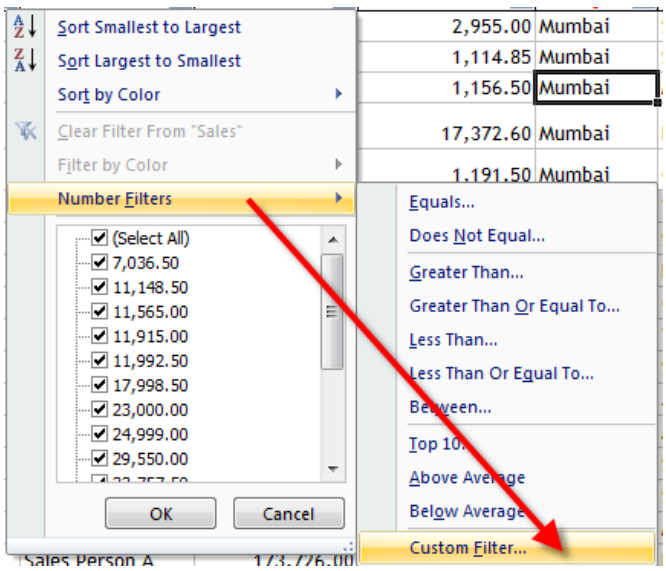
3. From the drop-down list select **(Custom…)** The **Custom AutoFilter** dialog opens. Your column name should show above the first list box.

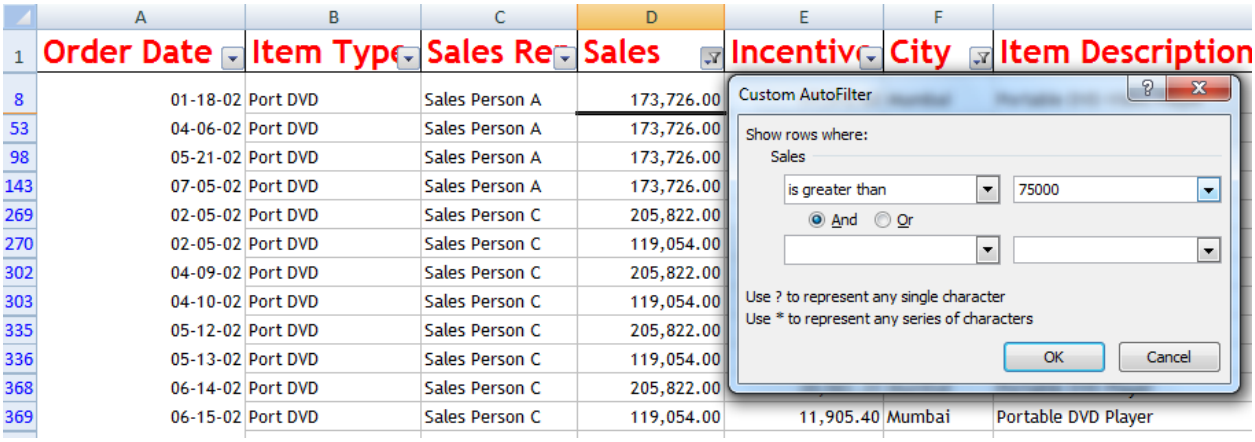
4. In the first list box, click the drop-down arrow and select your criteria.

5. In the list box to the right, either type a value or select one from the list.

6. Click **OK**.

In the example below, I've elected to filter for sales greater than 75000.



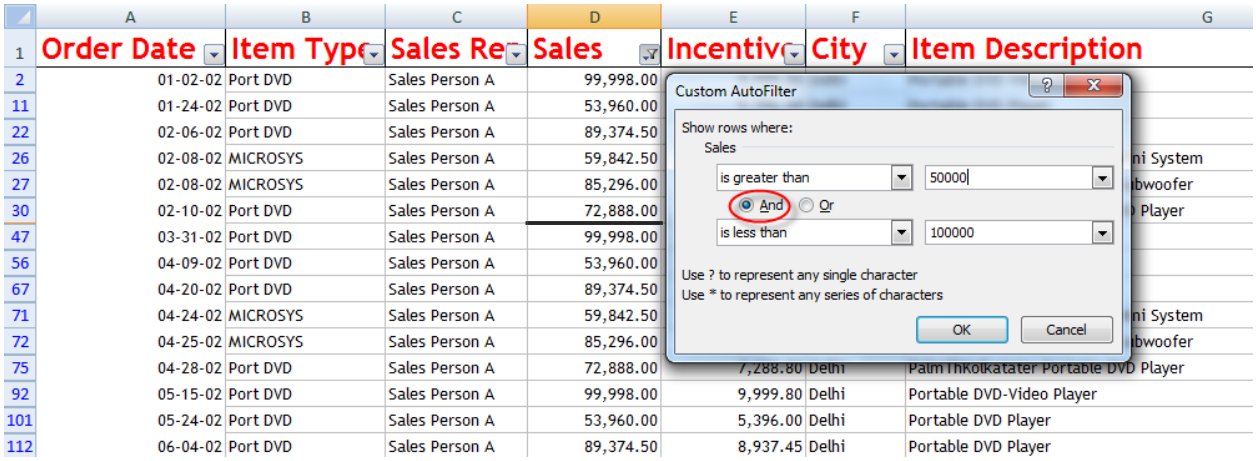


	A	B	C	D	E	F	
1	Order Date	Item Type	Sales Re	Sales	Incentiv	City	Item Description
8	01-18-02	Port DVD	Sales Person A	173,726.00			
53	04-06-02	Port DVD	Sales Person A	173,726.00			
98	05-21-02	Port DVD	Sales Person A	173,726.00			
143	07-05-02	Port DVD	Sales Person A	173,726.00			
269	02-05-02	Port DVD	Sales Person C	205,822.00			
270	02-05-02	Port DVD	Sales Person C	119,054.00			
302	04-09-02	Port DVD	Sales Person C	205,822.00			
303	04-10-02	Port DVD	Sales Person C	119,054.00			
335	05-12-02	Port DVD	Sales Person C	205,822.00			
336	05-13-02	Port DVD	Sales Person C	119,054.00			
368	06-14-02	Port DVD	Sales Person C	205,822.00			
369	06-15-02	Port DVD	Sales Person C	119,054.00	11,905.40	Mumbai	Portable DVD Player

Excel is versatile in the filter settings. You're not limited to just items containing a specific value. You could also use:

- *equals*
- *does not equal*
- *is greater than*
- *is greater than or equal to*
- *is less than*
- *is less than or equal to*
- *begins with*
- *does not begin with*
- *ends with*
- *does not end with*
- *contains*
- *does not contain*

Sometimes you need a more complicated filter. For example, I may want to select a row if two conditions are met. I might also be interested in selecting a cell if one or another condition is met.



	A	B	C	D	E	F	G
1	Order Date	Item Type	Sales Re	Sales	Incentiv	City	Item Description
2	01-02-02	Port DVD	Sales Person A	99,998.00			
11	01-24-02	Port DVD	Sales Person A	53,960.00			
22	02-06-02	Port DVD	Sales Person A	89,374.50			
26	02-08-02	MICROSYS	Sales Person A	59,842.50			ni System
27	02-08-02	MICROSYS	Sales Person A	85,296.00			bwoofer
30	02-10-02	Port DVD	Sales Person A	72,888.00			Player
47	03-31-02	Port DVD	Sales Person A	99,998.00			
56	04-09-02	Port DVD	Sales Person A	53,960.00			
67	04-20-02	Port DVD	Sales Person A	89,374.50			
71	04-24-02	MICROSYS	Sales Person A	59,842.50			ni System
72	04-25-02	MICROSYS	Sales Person A	85,296.00			bwoofer
75	04-28-02	Port DVD	Sales Person A	72,888.00	7,288.80	Delhi	Palm Thkolkatater Portable DVD Player
92	05-15-02	Port DVD	Sales Person A	99,998.00	9,999.80	Delhi	Portable DVD-Video Player
101	05-24-02	Port DVD	Sales Person A	53,960.00	5,396.00	Delhi	Portable DVD Player
112	06-04-02	Port DVD	Sales Person A	89,374.50	8,937.45	Delhi	Portable DVD Player

Now I got sales between 50,000 and 1,00,000

Advanced Filter

The Excel Advanced Filter can be used to perform more complex filtering than the basic Excel Auto filter

Instead of filtering by fixed values or simple criteria, the advanced filter depends on user-defined criteria that can be applied to several columns of data simultaneously. These criteria are specified on the same spreadsheet as the range to be filtered, rather than in the filter command box.

In order to perform an Excel advanced filter, you need to specify a list_range and a criteria_range. These ranges both specify ranges of cells on your working spreadsheet. They are defined as:

list_range	-	The range of cells that you want to filter. This range should include headers at the top of each column.
criteria_range	-	A range of cells (generally positioned above or below the list_range), in which the filtering criteria are specified. The criteria_range should be headed by headers that match the list_range headings. The criteria for the corresponding rows in the list_range should be listed under each of these headings.

The Excel Advanced Filter is best explained by way of an example.

The spreadsheet on the right shows the set-up for an Excel advanced filter on the range of cells A5 - D17 (the **list_range**)

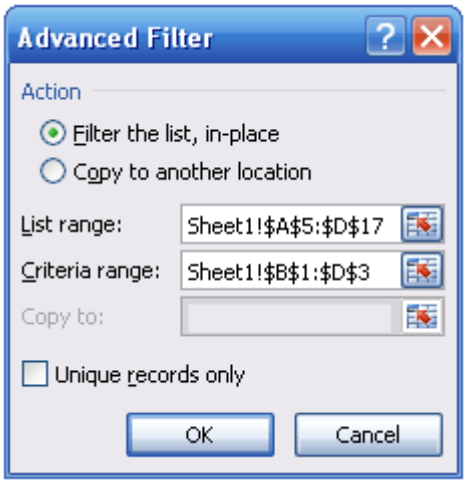
The Criteria to be used for the filter are listed in the cells B1 - D3 (the **criteria_range**)

The first row of the criteria_range is the header row and the actual criteria are listed below this.

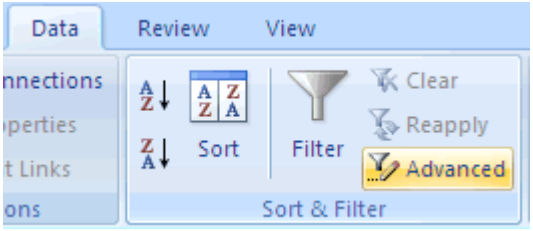
Criteria listed on the same row are linked by the "AND" operator, and criteria listed on different rows are linked by the "OR" operator. Therefore, the criteria in the example translate to the condition:

(Maths % >= 60 **AND** Science % >= 60 **AND** English % >=60) **OR**Maths % >=80

	A	B	C	D
1		Maths %	Science %	English %
2		>=60	>=60	>=60
3		>=80		
4				
5	Name	Maths %	Science %	English %
6	Abbie	92	65	55
7	Alison	42	32	39
8	Basil	78	58	82
9	Charles	40	32	60
10	Cliff	54	80	75
11	Doris	32	72	68
12	Flora	59	48	39
13	Frank	80	62	55
14	Gordon	29	45	72
15	Ian	90	66	68
16	Jenny	82	78	52
17	Kirk	69	50	42



Select the **Data** tab at the top of your spreadsheet and select **Advanced** from the Filter options.



This causes the Excel Advanced Filter options box to pop up. This is the same in Excel 2003 and Excel 2010/2013 and is shown on the right.

As shown, in this example, the list_range should be input as A5:D17, and the criteria_range should be input as B1:D3 on the current worksheet.

If you want to display the list in place, simply click OK. However, if you wish to copy the result of the filter into a new location, this can also be specified at this stage.

The result of the Excel advanced filter is shown in the spreadsheet on the right. As expected the rows that have been displayed are those satisfying the criteria:
(Maths % >= 60 AND Science % >= 60 AND English % >=60) OR Maths % >=80

Chapter 4: Formulas

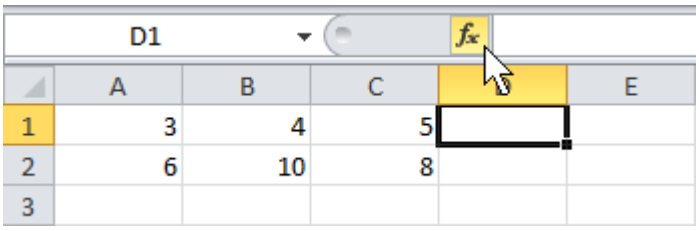
A **formula** is an expression which calculates the value of a cell. **Functions** are predefined formulas and are already available in **Excel**. This module teaches you how to enter a formula, how to edit a formula, how to display formulas instead of their results, in which order calculations occur, how to insert a function, how to copy a formula, and how to refer to a named range

Insert a Function

Every function has the same structure. For example, SUM(A1:A4). The name of this function is SUM. The part between the brackets (arguments) means we give Excel a range with address A1:A4 as input. This function adds the values in cells A1, A2, A3 and A4. It's not easy to remember which function and which arguments to use for a specific task. Fortunately, the Insert Function feature in Excel helps you with this. To insert a function, execute the following steps.

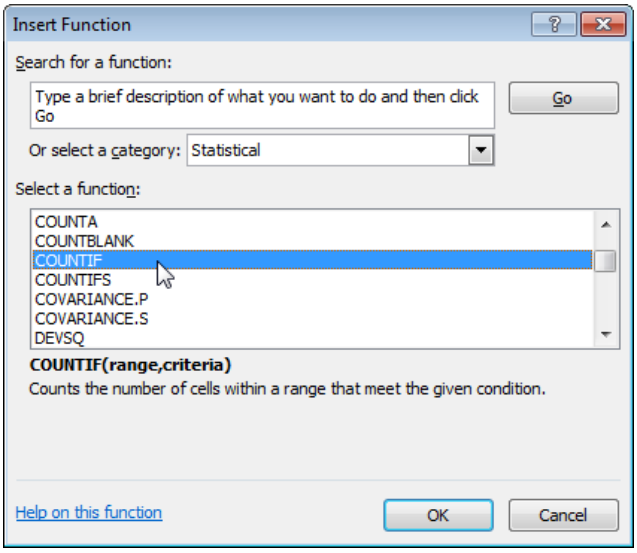
1. Select the cell that you want to contain the function.

2. Click the Insert Function button.



The 'Insert Function' dialog box appears.

3. Search for a function or select a function from a category. For example, choose COUNTIF from the
Statistical category.



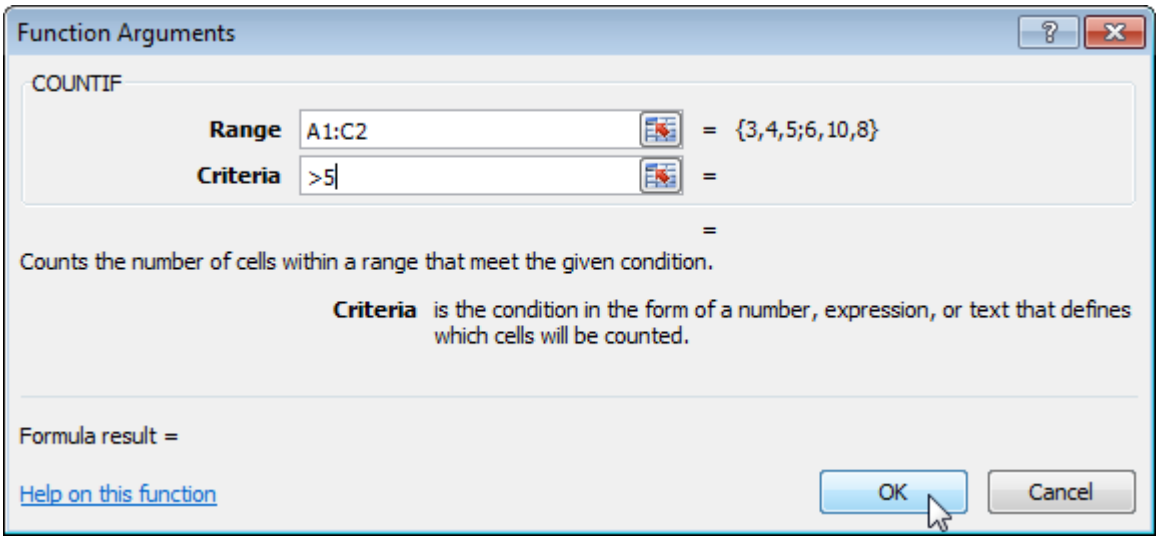
4. Click on OK.

The 'Function Arguments' dialog box appears.

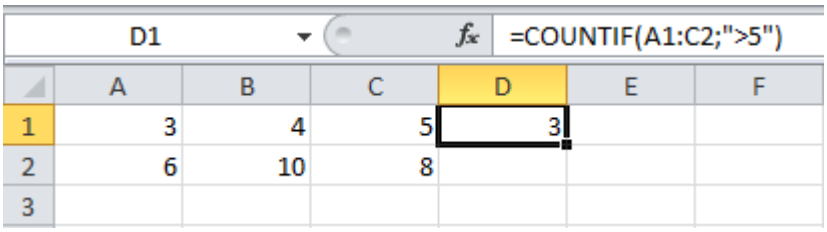
5. Click the button next to the Range textbox and select the range with address A1:C2.

6. Enter the criterion. For example, type >5.

7. Click on OK.



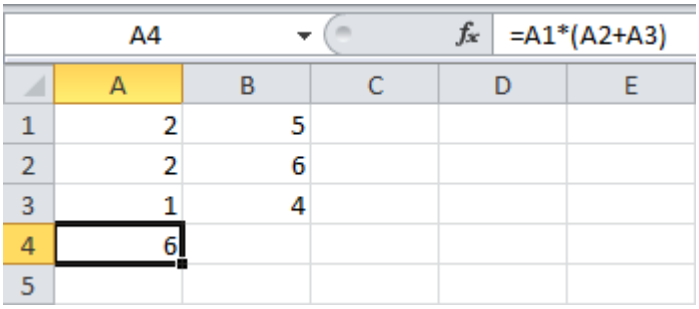
Result. Excel counts the number of cells that are higher than 5.



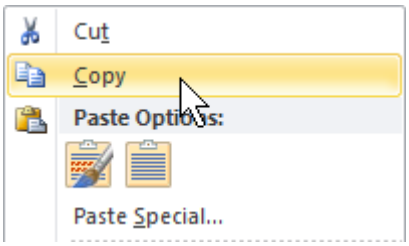
Copy a Formula

When you copy a formula, Excel adjusts the cell references in the formula to the new location. To understand this, execute the following steps.

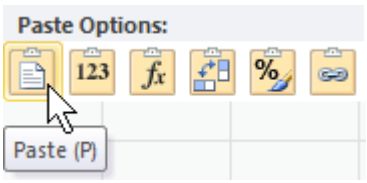
1. Enter the formula shown earlier.



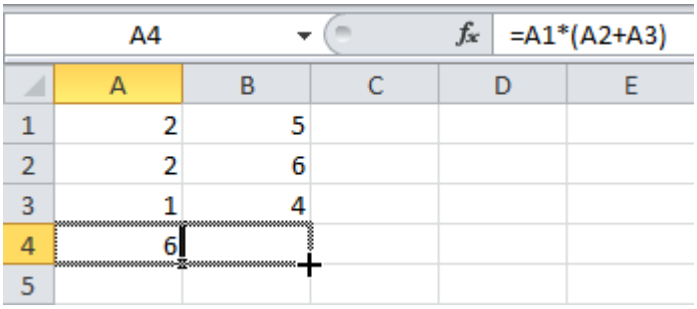
2. Select cell A4, right click and then click on Copy.



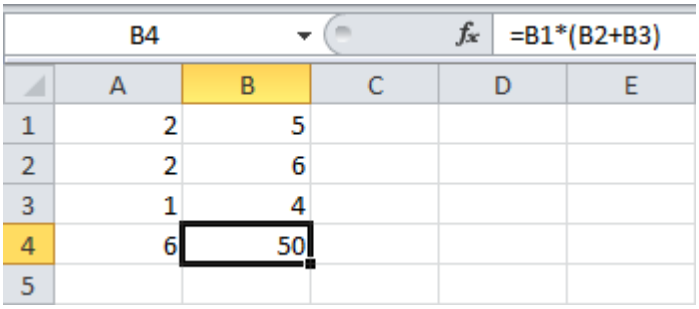
3. Select cell B4 and click on Paste under the 'Paste Options:' group.



4. Instead of copying the formula to cell B4, you can also drag the formula to cell B4. Click on the lower right corner of cell A4 and drag it across to cell B4. This is much easier and gives the exact same result!



Result:



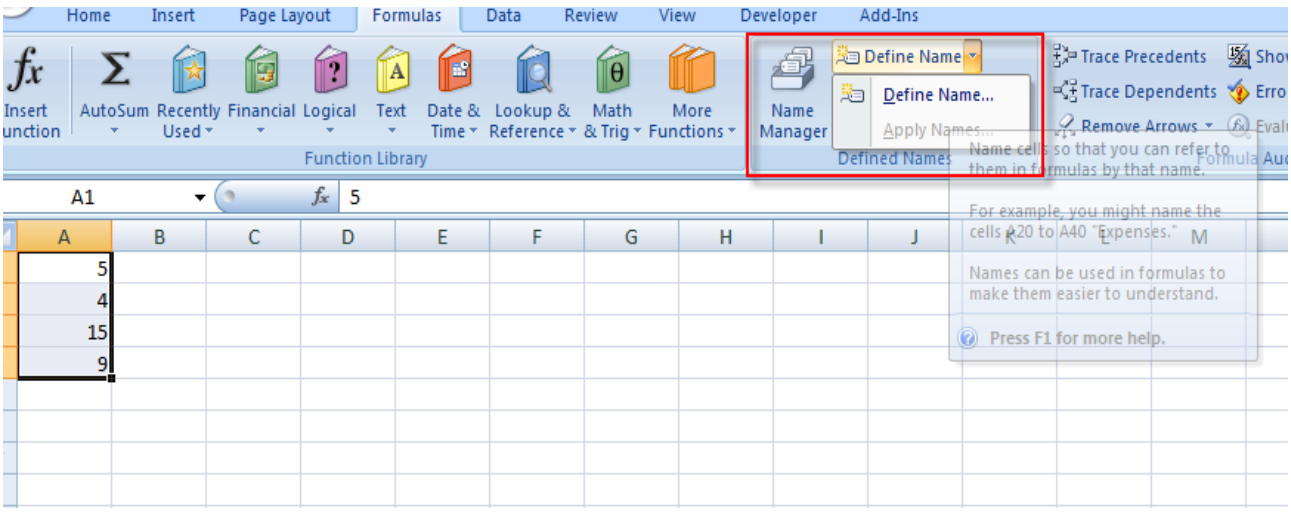
The formula in cell B4 automatically references the values in Column B. In the next chapter, you can learn more about cell references.

Define Names in Formulas

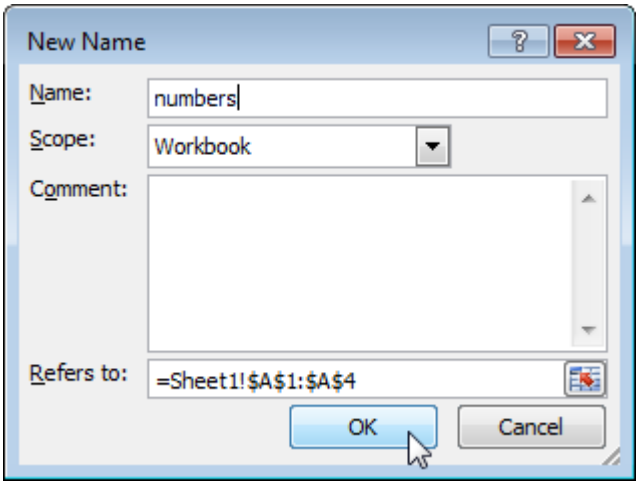
Instead of using cell references in your formulas, you can also refer to a named range. This way you can make your formulas easier to understand. Execute the following steps to define a name for a range and refer to that name in a formula.

1. Enter some numbers in range ("A1:A4") and select this range.

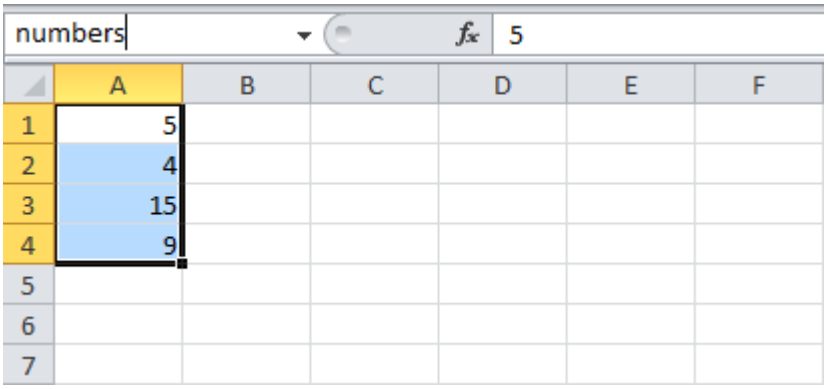
2. On the Formulas tab, click on Define Name.



3. Enter a name. For example, numbers and click on OK.



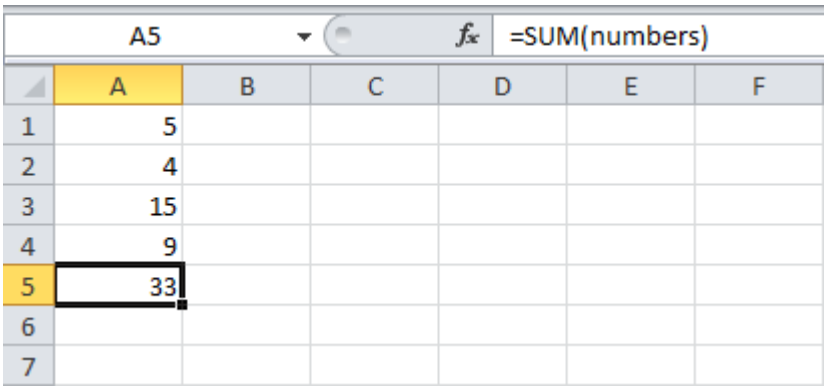
4. There is an even quicker way to name a range. Select the range and simply type the name of the range in the name box.



Note: Don't forget to press enter after you've typed the name in the name box.

5. Now you can refer to this name in your formulas when you want to use this range.
   For example, sum the numbers.

Result:



Functions

01. Sum()

Use for addition just number values, and ignore text / special character values

=Sum(Numbr1,2,3,4,5,…….)

=Sum(cell:cell)

Horizontal				
100	200	300	600	=SUM(C4:E4)

Vertical	
100	
200	
300	
600	=SUM(C7:C9)

Single Cells				
100		300	600	=SUM(C13,D14,E13)
	200			

Multiple Ranges			
100		400	
200		500	
3000		600	
		4800	=SUM(C17:C19,E17:E19)

Functions			
100		400	
200		500	
300		600	
		800	=SUM(AVERAGE(C23:C25),MAX(E23:E25))

02. MAX()

Show largest number values and ignore text values

Values					Maximum	
120	800	100	120	250	800	=MAX(C4:G4)

Dates					Maximum	
01-Jan-98	25-Dec-98	31-Mar-98	27-Dec-98	04-Jul-98	27-Dec-98	=MAX(C7:G7)

What Does It Do ?

This function picks the highest value from a list of data.

Syntax

=MAX(Range1,Range2,Range3... through to Range30)

Formatting

No special formatting is needed.

Example

In the following example the =MAX() function has been used to find the highest value for each region, month and overall.

Sales	Jan	Feb	Mar	Region Max
North	₹ 5,000	₹ 6,000	₹ 4,500	₹ 6,000
South	₹ 5,800	₹ 7,000	₹ 3,000	₹ 7,000
East	₹ 3,500	₹ 2,000	₹ 10,000	₹ 10,000
West	₹ 12,000	₹ 4,000	₹ 6,000	₹ 12,000

=MAX(C23:E23)

Month Max	₹ 12,000	₹ 7,000	₹ 10,000

=MAX(E23:E26)

Overall Max	₹ 12,000

=MAX(C23:E26)

03. MIN()

Show smallest number values and ignore text values

=Min(Number1,2,3,4…….)

=Min(Cell:Cell)

Values					Minimum	
120	800	100	120	250	100	=MIN(C4:G4)

Dates					Maximum	
01-Jan-98	25-Dec-98	31-Mar-98	27-Dec-98	04-Jul-98	01-Jan-98	=MIN(C7:G7)

What Does It Do ?

This function picks the lowest value from a list of data.

Syntax

=MIN(Range1,Range2,Range3... through to Range30)

Formatting

No special formatting is needed.

Example

In the following example the =MIN() function has been used to find the lowest value for each region, month and overall.

Sales	Jan	Feb	Mar
North	£5,000	£6,000	£4,500
South	£5,800	£7,000	£3,000
East	£3,500	£2,000	£10,000
West	£12,000	£4,000	£6,000

Region Min	
£4,500	=MIN(C23:E23)
£3,000	
£2,000	
£4,000	

Month MIN	£3,500	£2,000	£3,000

=MIN(E23:E26)

Overall MIN	£2,000

=MIN(C23:E26)

04. AVERAGE ()

Return average by given range

=AVERAGE (NUMBER1,2,3,4,5,…….)

=AVERAGE(CELL:CELL)

	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Average	
Temp	30	31	32	29	26	28	27	29	=AVERAGE(D4:J4)
Rain	0	0	0	4	6	3	1	2	=AVERAGE(D5:J5)

	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Average	
Temp	30		32	29	26	28	27	28.667	=AVERAGE(D8:J8)
Rain	0		0	4	6	3	1	2.3333	=AVERAGE(D9:J9)

	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Average	
Temp	30	No	32	29	26	28	27	28.667	=AVERAGE(D12:J12)
Rain	0	Reading	0	4	6	3	1	2.3333	=AVERAGE(D13:J13)

What Does It Do ?

This function calculates the average from a list of numbers.
If the cell is blank or contains text, the cell will not be used in the average calculation.
If the cell contains zero 0, the cell will be included in the average calculation.

Syntax

=AVERAGE(Range1,Range2,Range3... through to Range30)

Formatting

No special formatting is needed.

Note

To calculate the average of cells which contain text or blanks use =SUM() to get the total and then divide by the count of the entries using =COUNTA().

	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Average	
Temp	30	No	32	29	26	28	27	24.571	=SUM(D31:J31)/COUNTA(D31:J31)
Rain	0	Reading	0	4	6	3	1	2	=SUM(D32:J32)/COUNTA(D32:J32)

05. COUNT()

Use for count just number values

=COUNT(NUMBER1,2,3,4……..)

=COUNT(CELL:CELL)

Entries To Be Counted			Count	
10	20	30	3	=COUNT(C4:E4)
10	0	30	3	=COUNT(C5:E5)
10	-20	30	3	=COUNT(C6:E6)
10	01-Jan-88	30	3	=COUNT(C7:E7)
10	21:30	30	3	=COUNT(C8:E8)
10	0.350357	30	3	=COUNT(C9:E9)
10		30	2	=COUNT(C10:E10)
10	Hello	30	2	=COUNT(C11:E11)
10	#DIV/0!	30	2	=COUNT(C12:E12)

What Does It Do ?
This function counts the number of numeric entries in a list.
It will ignore blanks, text and errors.

Syntax
=COUNT(Range1,Range2,Range3... through to Range30)

Formatting
No special formatting is needed.

Example
The following table was used by a builders merchant to calculate the number of sales for various products in each month.

Item	Jan	Feb	Mar
Bricks	£1,000		
Wood		£5,000	
Glass	£2,000	£1,000	
Metal	£1,000		
Count	3	2	0

=COUNT(D29:D32)

06. COUNTA()

Use for count all values (Text, number, special characters)

=COUNTA(VALUE1,2,3,4,5……)

=COUNTA(CELL:CELL)

Entries To Be Counted			Count	
10	20	30	3	=COUNTA(C4:E4)
10	0	30	3	=COUNTA(C5:E5)
10	-20	30	3	=COUNTA(C6:E6)
10	01-Jan-88	30	3	=COUNTA(C7:E7)
10	21:30	30	3	=COUNTA(C8:E8)
10	0.42637	30	3	=COUNTA(C9:E9)
10		30	2	=COUNTA(C10:E10)
10	Hello	30	3	=COUNTA(C11:E11)
10	#DIV/0!	30	3	=COUNTA(C12:E12)

What Does It Do ?
This function counts the number of numeric or text entries in a list.
It will ignore blanks.

Syntax
=COUNTA (Range1, Range2, Range3... through to Range30)

Formatting
No special formatting is needed.

Example

The following table was used by a school to keep track of the examinations taken by each pupil.
Each exam passed was graded as 1, 2 or 3.
A failure was entered as Fail.

The school needed to know how many pupils sat each exam.
The school also needed to know how many exams were taken by each pupil.

The =COUNTA() function has been used because of its ability to count text and numeric entries.

07. COUNTBLANK()

Use for count just blank cells

=COUNTBLAK(CELL:CELL)

The following table was used by a company which was balloting its workers on whether the company should have a no smoking policy.
Each of the departments in the various factories were questioned.
The response to the question could be Y or N.
As the results of the vote were collated they were entered in to the table.
The =COUNTBLANK() function has been used to calculate the number of departments which have no yet registered a vote.

	Admin	Accounts	Production	Personnel
Factory 1	Y	N		
Factory 2		Y	Y	N
Factory 3				
Factory 4	N		N	N
Factory 5	Y		Y	
Factory 6	Y	Y	Y	N
Factory 7		N	Y	
Factory 8	N	N	Y	Y
Factory 9			Y	
Factory 10	Y	N		Y

Votes not vet registered :	16	=COUNTBLANK(C32:F41)
Votes for Yes :	14	=COUNTIF(C32:F41,"Y")
Votes for No :	10	=COUNTIF(C32:F41,"N")

08. COUNTIF()

Counts the number of cells within a range that meet the given condition

=COUNTIF(RANGE,"CRITERIA")

=COUNTIF(CELL:CELL,"OPERATOR_VALUE")

Item	Date	Cost
Brakes	01-Jan-98	80
Tyres	10-May-98	25
Brakes	01-Feb-98	80
Service	01-Mar-98	150
Service	05-Jan-98	300
Window	01-Jun-98	50
Tyres	01-Apr-98	200
Tyres	01-Mar-98	100
Clutch	01-May-98	250

How many Brake Shoes Have been bought.		2	=COUNTIF(C4:C12,"Brakes")
How many Tyres have been bought.		3	=COUNTIF(C4:C12,"Tyres")
How many items cost £100 or above.		5	=COUNTIF(E4:E12,">=100")
Type the name of the item to count.	service	2	=COUNTIF(C4:C12,E18)

What Does It Do ?

This function counts the number of items which match criteria set by the user.

Syntax

=COUNTIF(RangeOfThingsToBeCounted,CriteriaToBeMatched)

The criteria can be typed in any of the following ways.

To match a specific number, type the number, such as =COUNTIF(A1:A5,**100**)

To match a piece of text type the text in quotes, such as =COUNTIF(A1:A5,**"Hello"**)

To match using operators surround the expression with quotes, such as

=COUNTIF(A1:A5,**">100"**)

09. SUMIF()

This function adds the value of items which match criteria set by the user.

=SUMIF(RangeOfThingsToBeExamined,CriteriaToBeMatched,RangeOfValuesToTotal)

=SUMIF(B4:B381,"CD-MP3",D4:D381)

	A	B	C	D	E	F	G
1	Total Sales of CD MP3	12,23,819.00					
2							
3	Order Date	Item Type	Sales Rep	Sales	Incentive	City	Item Description
4	01-02-02	Port DVD	Sales Person A	99,998.00	19,999.60	Delhi	Portable DVD-Video Player
5	01-07-02	CD-MP3	Sales Person A	29,550.00	5,910.00	Mumbai	SlimX CD/MP3 Player with 8 min ASP and UpgradKolkatable FirmDelhire
6	01-07-02	MINIDISC	Sales Person A	11,148.50	2,229.70	Mumbai	Sony Portable Mini-Disc Player/Recorder
7	01-07-02	CD-MP3	Sales Person A	11,565.00	2,313.00	Mumbai	MP3-CD Player/Mumbair Kit/Dot Matrix Display/Anti-Skip
8	01-08-02	Home DVD	Sales Person A	29,976.00	5,995.20	Delhi	DVD-Video Player with MP3 Playback
9	01-13-02	MICROSYS	Sales Person A	39,999.00	7,999.80	Delhi	CD/CD-R Executive Desktop System with Cherrywood SpKolkatakers
10	01-18-02	Port DVD	Sales Person A	173,726.00	34,745.20	Mumbai	Portable DVD-Video Player
11	01-18-02	CD-MP3	Sales Person A	11,915.00	2,383.00	Mumbai	CD/MP3 Player with 120 Second Anti-Shock
12	01-24-02	HKolkataDPHONE	Sales Person A	26,965.00	5,393.00	Delhi	Wireless HKolkatadphone
13	01-24-02	Port DVD	Sales Person A	53,960.00	10,792.00	Delhi	Portable DVD Player
14	01-29-02	MICROSYS	Sales Person A	29,998.50	5,999.70	Chennai	3-CD 120-Delhitt CD-R/RW Compatible Compact Stereo
15	01-29-02	CD-MP3	Sales Person A	9,999.50	1,999.90	Chennai	SlimX CD/MP3 Player with 8 min ASP and UpgradKolkatable FirmDelhire
16	01-29-02	MICROSYS	Sales Person A	7,499.50	1,499.90	Chennai	CD Executive Mini System
17	02-02-02	MICROSYS	Sales Person A	37,497.50	7,499.50	Delhi	Executive Microsystem with Woodgrain SpKolkatakers
18	02-02-02	HKolkataDPHONE	Sales Person A	17,998.50	3,599.70	Mumbai	Wireless HKolkatadphone
19	02-02-02	MINIDISC	Sales Person A	37,498.50	7,499.70	Mumbai	Sony Portable Mini-Disc Player/Recorder
20	02-02-02	CD-MP3	Sales Person A	24,970.00	4,994.00	Delhi	CD-MP3 Jukebox--8 min ASP and Artist, Title, Genre, and Album Directory
21	02-02-02	Home DVD	Sales Person A	13,999.00	2,799.80	Delhi	DVD Player with Progressive SMumbain, MP3, PAL, and Karaoke

SUMIF EX

Item	Date	Cost
Brakes	01-Jan-98	80
Tyres	10-May-98	25
Brakes	01-Feb-98	80
Service	01-Mar-98	150
Service	05-Jan-98	300
Window	01-Jun-98	50
Tyres	01-Apr-98	200
Tyres	01-Mar-98	100
Clutch	01-May-98	250

Total cost of all Brakes bought.		160	=SUMIF(C4:C12,"Brakes",E4:E12)
Total cost of all Tyres bought.		325	=SUMIF(C4:C12,"Tyres",E4:E12)
Total of items costing 100 or above.		1000	=SUMIF(E4:E12,">=100")
Total of item typed in following cell.	service	450	=SUMIF(C4:C12,E18,E4:E12)

What Does It Do ?
This function adds the value of items which match criteria set by the user.

Syntax
=SUMIF(RangeOfThingsToBeExamined,CriteriaToBeMatched,RangeOfValuesToTotal)

=SUMIF(C4:C12,"Brakes",E4:E12) This examines the names of products in C4:C12.
It then identifies the entries for Brakes.
It then totals the respective figures in E4:E12

=SUMIF(E4:E12,">=100") This examines the values in E4:E12.
If the value is >=100 the value is added to the total.

10. LEFT ()

	Text	Number Of Characters Required	Left String	
4	Alan Jones	1	A	=LEFT(C4,D4)
5	Alan Jones	2	Al	=LEFT(C5,D5)
6	Alan Jones	3	Ala	=LEFT(C6,D6)
7	Cardiff	6	Cardif	=LEFT(C7,D7)
8	ABC123	4	ABC1	=LEFT(C8,D8)

What Does It Do?

This function displays a specified number of characters from the left-hand side of a piece of text.

Syntax

=LEFT(Original Text, NumberOfCharactersRequired)

Formatting

No special formatting is needed.

Example

The following table was used to extract the first name of a person from their full name.

The =FIND() function was used to locate position of the space between the first and second name.

The length of the first name is therefore the position of the space minus one character.

The =LEFT() function can now extract the first name based on the position of the space.

	Full Name	First Name	
27	Alan Jones	Alan	=LEFT(C27,FIND(" ",C27)-1)
28	Bob Smith	Bob	=LEFT(C28,FIND(" ",C28)-1)
29	Carol Williams	Carol	=LEFT(C29,FIND(" ",C29)-1)

11. RIGHT ()

	Original Text	Number Of Characters Required	Right String	
4	Alan Jones	1	s	=RIGHT(C4,D4)
5	Alan Jones	2	es	=RIGHT(C5,D5)
6	Alan Jones	3	nes	=RIGHT(C6,D6)
7	Cardiff	6	ardiff	=RIGHT(C7,D7)
8	ABC123	4	C123	=RIGHT(C8,D8)

What Does It Do ?

This function displays a specified number of characters from the right-hand side of a piece of text.

Syntax

=RIGHT(Original Text, NumberOfCharactersRequired)

Formatting

No special formatting is needed.

Example

The following table was used to extract the second name of a person from their full name.

The =FIND() function locates the position of the space between the first and second name.

The length of the second name is calculated by subtracting the position of the space from the overall length of the full name.

The =RIGHT() function can then extract the second name.

	Full Name	Second Name	
28	Alan Jones	Jones	=RIGHT(C28,LEN(C28)-FIND(" ",C28))
29	Bob Smith	Smith	=RIGHT(C29,LEN(C29)-FIND(" ",C29))
30	Carol Williams	Williams	=RIGHT(C30,LEN(C30)-FIND(" ",C30))

12. MID

MID

Branch ID	Postal Region	
DRS-CF-476	CF	=MID(C35,5,2)
DRS-WA-842	WA	=MID(C36,5,2)
HLT-NP-190	NP	=MID(C37,5,2)

What Does It Do?

This function picks out a piece of text from the middle of a text entry.

The function needs to know at what point it should start, and how many characters to pick.

If the number of characters to pick exceeds what is available, only the available characters will be picked.

Syntax

=MID(OriginalText,PositionToStartPicking,NumberOfCharactersToPick)

Formatting

No special formatting is needed.

Example 1

The following table uses the =MID() function to extract a post code from a branch ID used by a company.

It is assumed that all branch ID's follow the same format with the letters identifying the
postal region being in the 5th and 6th positions.

	Branch ID	Postal Region	
35	DRS-CF-476	CF	=MID(C35,5,2)
36	DRS-WA-842	WA	=MID(C36,5,2)
37	HLT-NP-190	NP	=MID(C37,5,2)

13. CONCATENATE ()

	Name 1	Name 2	Concatenated Text	
4	Alan	Jones	AlanJones	=CONCATENATE(C4,D4)
5	Bob	Williams	BobWilliams	=CONCATENATE(C5,D5)
6	Carol	Davies	CarolDavies	=CONCATENATE(C6,D6)
7	Alan	Jones	Alan Jones	=CONCATENATE(C7," ",D7)
8	Bob	Williams	Williams, Bob	=CONCATENATE(D8,", ",C8)
9	Carol	Davies	Davies, Carol	=CONCATENATE(D9,", ",C9)

What Does It Do?

This function joins separate pieces of text into one item.

Syntax

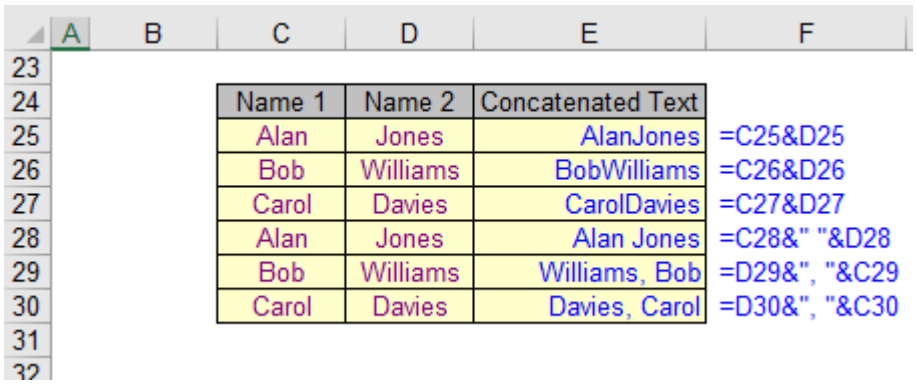
=CONCATENATE(Text1,Text2,Text3...Text30)

Up to thirty pieces of text can be joined.

Formatting

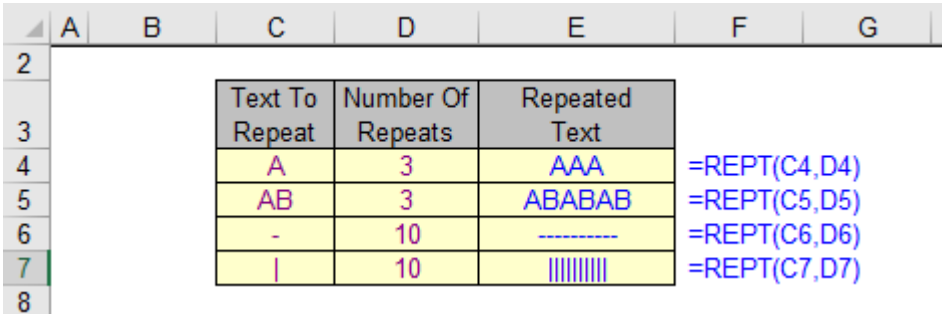
No special formatting is needed, the result will be shown as normal text.

Note
You can achieve the same result by using the **&** operator.



	Name 1	Name 2	Concatenated Text	
25	Alan	Jones	AlanJones	=C25&D25
26	Bob	Williams	BobWilliams	=C26&D26
27	Carol	Davies	CarolDavies	=C27&D27
28	Alan	Jones	Alan Jones	=C28&" "&D28
29	Bob	Williams	Williams, Bob	=D29&", "&C29
30	Carol	Davies	Davies, Carol	=D30&", "&C30

14. REPT



	Text To Repeat	Number Of Repeats	Repeated Text	
4	A	3	AAA	=REPT(C4,D4)
5	AB	3	ABABAB	=REPT(C5,D5)
6	-	10	----------	=REPT(C6,D6)
7	|	10	||||||||||	=REPT(C7,D7)

What Does It Do ?
This function repeats a piece of text a specified number of times.
You need to specify the text to be repeated and how many times to repeat it.

Syntax
=REPT(TextToRepeat,Repetitions)
The maximum number of repetitions is 200.

15. TODAY

Show current date

=TODAY()

16. NOW

Show current date and time

=NOW()

17. INT:

Return number value before decimal place, INT stand for integer

=INT(NUMBER)

=INT(5.789) → 5

18. . PROPER:

Use for convert title case

=PROPER(TEXT)

=PROPER("What is this?") → What Is This?

19. UPPER:

Use for convert upper case

=UPPER(TEXT)

=UPPER("What is this?") → WHAT IS THIS?

20. LOWER:

Use for convert lower case

=LOWER(TEXT)

=LOWER("What is this?") → what is this?

Chapter 5: If-Then-Else-Nested If commands

You can produce different set of results based on slabs, conditions, stages etc. It requires logical understating not any programming skills.

What is the IF Function

Excel's IF function is one of simplest and most useful spreadsheet functions. It can fill cell fields for you based on evaluating a condition.

Syntax

IF(logical_test, value_if_false, value_if_true)

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

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

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

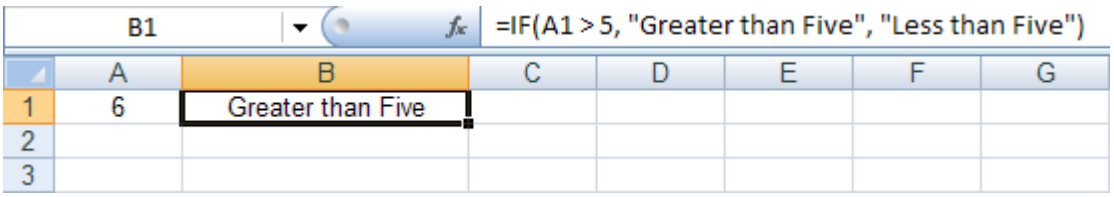
value_if_false
: This is what you want to do if the answer to the first argument is NO. (Award a FAIL grade.)

If that's not terribly clear, an example may clear things up. Open a new spreadsheet, and do the following:

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

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

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



Advanced If statement usage: Using multiple criteria with the “AND” and “OR” functions

Sometimes you need to check more than one criteria with the If statement.
For example:
Only if the student has grades greater than 80 in Math, greater than 80 in English and greater than 80 in History, only then write “good student”, else write “Average Student”.

The way to implement such a case is using the “AND” function which will include all the multiple criteria inside of it.
This “AND” function, is then put inside the criteria section of the If statement.
Thus for the above example, the whole function could look something like this:

=IF(AND(C1>80,D1>80,E1>80) , “Good student” , “Average Student”)

Note that the criteria part: AND(C1>80,D1>80,E1>80) will be met only if all three parts of it are met.

The function “OR” is used in a same manner, but its meaning is slightly different. Instead of checking if all its parts is met (as is the case of the “AND” function), it checks if at least one of the criteria inside it is met. If it is, then the whole “OR” is considered met.

Hence, in the following formula:

=IF(OR(C1>80,D1>80,E1>80) , “Good student” , “Average Student”)

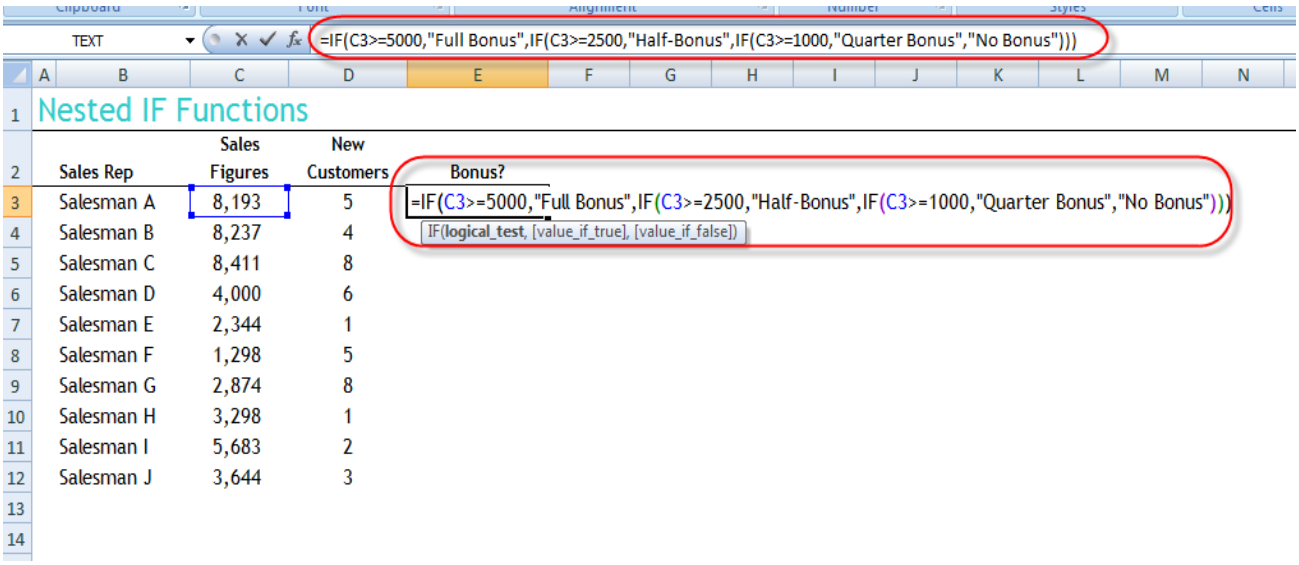
It is enough that C1 is really greater than 80 , or that D1 is really greater than 80 or that E1 is really greater than 80 (or some combination of these three), to have the if function write “Good student”. Only if none of these cells (C1, D1 or E1) are greater than 80 the If function will result writing “Average Student”.

Nested IF Functions: If within if statement is called nested if statement.

	A	B	C	D	E
1	Nested IF Functions				
2		Sales Rep	Sales Figures	New Customers	Bonus?
3		Salesman A	8,193	5	
4		Salesman B	8,237	4	
5		Salesman C	8,411	8	
6		Salesman D	4,000	6	
7		Salesman E	2,344	1	
8		Salesman F	1,298	5	
9		Salesman G	2,874	8	
10		Salesman H	3,298	1	
11		Salesman I	5,683	2	
12		Salesman J	3,644	3	

Criteria:
-- if the sales rep has achieved more than $5,000 in sales, he/she is eligible for “full bonus”,
-- if the sales rep has achieved more than $2,500 in sales, he/she is eligible for “half-bonus”,
-- If the sales rep has achieved more than $1,000 in sales, he/she is eligible for “quarter bonus”, and
-- If the sales rep has achieved less than $1,000 in sales,he/she is not eligible for any bonus – “no bonus”

Formula:
=IF(C3>=5000,"Full Bonus",IF(C3>=2500,"Half-Bonus",IF(C3>=1000,"Quarter Bonus","No Bonus")))



Nested IF Functions

Sales Rep	Sales Figures	New Customers	Bonus?
Salesman A	8,193	5	Full Bonus
Salesman B	8,237	4	Full Bonus
Salesman C	8,411	8	Full Bonus
Salesman D	4,000	6	Half-Bonus
Salesman E	2,344	1	Quarter Bonus
Salesman F	1,298	5	Quarter Bonus
Salesman G	2,874	8	Half-Bonus
Salesman H	3,298	1	Half-Bonus
Salesman I	5,683	2	Full Bonus
Salesman J	3,644	3	Half-Bonus

Index ()

This function picks a value from a range of data by looking down a specified number of rows and then across a specified number of columns. It can be used with a single block of data, or non-continues blocks.

Syntax: INDEX(RangeToLookIn,Coordinate)

This is used when the RangeToLookIn is either a single column or row. The Co-ordinate indicates how far down or across to look when picking the data from the range. Both examples below use the same syntax, but the Co-ordinate refers to a row when the range is vertical and a column when the range is horizontal.

Holiday booking price list.

Weeks	People 1	2	3	4
1	₹ 500	₹ 300	₹ 250	₹ 200
2	₹ 600	₹ 400	₹ 300	₹ 250
3	₹ 700	₹ 500	₹ 350	₹ 300

How many weeks required :	2
How many people in the party :	4
Cost per person is :	250

=INDEX(D7:G9,G11,G12)

Colours
Red
Green
Blue

Type either 1, 2 or 3 :	2
The colour is :	Green

=INDEX(D32:D34,D36)

Size	Large	Medium	Small

Type either 1, 2 or 3 :	2
The size is :	Medium

=INDEX(G34:I34,H36)

Chapter 6: Vlookup / Hlookup

This is back bone of excel. You have large amount of data placed at different locations and you want to merge it based on common values and it's relevance. Excel's VLOOKUP function, which stands for vertical lookup, is used to find specific information that has been stored in a spreadsheet table. This tutorial includes step by step instructions of how to use Excel's VLOOKUP function.

Syntax :

= VLOOKUP (lookup_value, table_array, col_index_num, range_lookup)

lookup _value: The value you want to find in the first column of the table_array.

table_array: This is the table of data that VLOOKUP searches to find the information you are after. The table_array must contain at least two columns of data. The first column contains the lookup_values.

col_index_num: The number of the column in the table_array that contains the data you want returned.

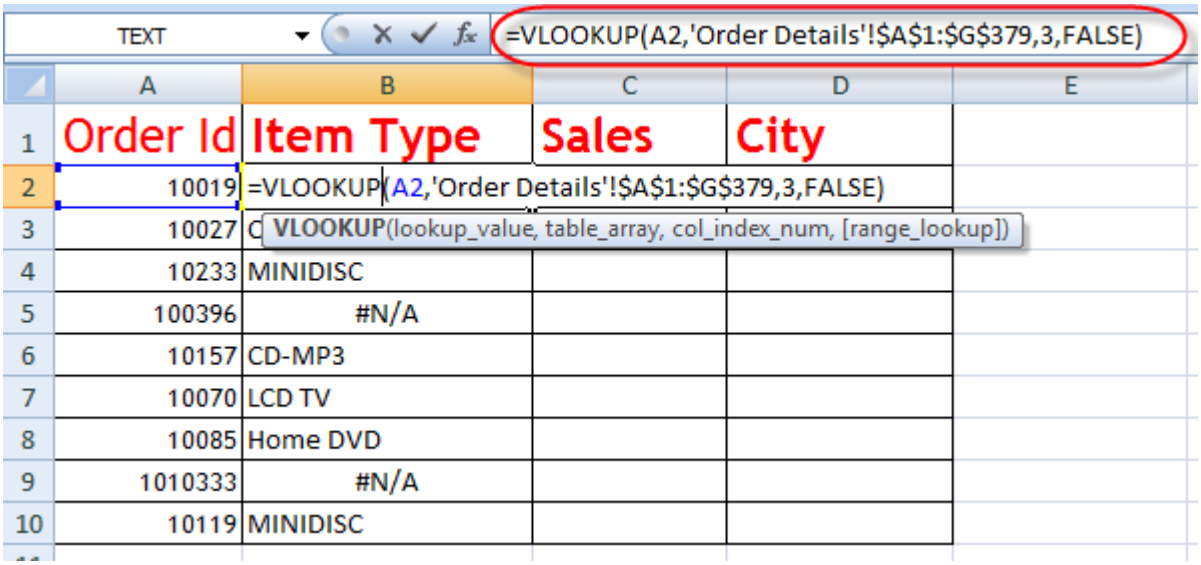
range_lookup: A logical value (TRUE or FALSE only) that indicates whether you want VLOOKUP to find an exact or an approximate match to the lookup_value. Typing *False* will return exact matches only.

	A	B	C	D	E	F	G	H
1	Order Id	Order Date	Item Type	Sales Rep	Sales	Incentive	City	Item Description
2	10011	01-02-02	Port DVD	Sales Person A	99,998.00	19,999.60	Delhi	Portable DVD-Video Player
3	10012	01-07-02	CD-MP3	Sales Person A	29,550.00	5,910.00	Mumbai	SlimX CD/MP3 Player with 8 min ASP and UpgradKolkatable FirmDelhire
4	10013	01-07-02	MINIDISC	Sales Person A	11,148.50	2,229.70	Mumbai	Sony Portable Mini-Disc Player/Recorder
5	10014	01-07-02	CD-MP3	Sales Person A	11,565.00	2,313.00	Mumbai	MP3-CD Player/Mumbair Kit/Dot Matrix Display/Anti-Skip
6	10015	01-08-02	Home DVD	Sales Person A	29,976.00	5,995.20	Delhi	DVD-Video Player with MP3 Playback
7	10016	01-13-02	MICROSYS	Sales Person A	39,999.00	7,999.80	Delhi	CD/CD-R Executive Desktop System with Cherrywood SpKolkatakers
8	10017	01-18-02	Port DVD	Sales Person A	173,726.00	34,745.20	Mumbai	Portable DVD-Video Player
9	10018	01-18-02	CD-MP3	Sales Person A	11,915.00	2,383.00	Mumbai	CD/MP3 Player with 120 Second Anti-Shock
10	10019	01-24-02	HKolkataDPHONE	Sales Person A	26,965.00	5,393.00	Delhi	Wireless HKolkatadphone
11	10020	01-24-02	Port DVD	Sales Person A	53,960.00	10,792.00	Delhi	Portable DVD Player
12	10021	01-29-02	MICROSYS	Sales Person A	29,998.50	5,999.70	Chennai	3-CD 120-Delhitt CD-R/RW Compatible Compact Stereo
13	10022	01-29-02	CD-MP3	Sales Person A	9,999.50	1,999.90	Chennai	SlimX CD/MP3 Player with 8 min ASP and UpgradKolkatable FirmDelhire
14	10023	01-29-02	MICROSYS	Sales Person A	7,499.50	1,499.90	Chennai	CD Executive Mini System
15	10024	02-02-02	MICROSYS	Sales Person A	37,497.50	7,499.50	Delhi	Executive Microsystem with Woodgrain SpKolkatakers
16	10025	02-02-02	HKolkataDPHONE	Sales Person A	17,998.50	3,599.70	Mumbai	Wireless HKolkatadphone
17	10026	02-02-02	MINIDISC	Sales Person A	37,498.50	7,499.70	Mumbai	Sony Portable Mini-Disc Player/Recorder
18	10027	02-02-02	CD-MP3	Sales Person A	24,970.00	4,994.00	Delhi	CD-MP3 Jukebox--8 min ASP and Artist, Title, Genre, and Album Directory
19	10028	02-02-02	Home DVD	Sales Person A	13,999.00	2,799.80	Delhi	DVD Player with Progressive SMumbain, MP3, PAL, and Karaoke
20	10029	02-06-02	MINIDISC	Sales Person A	13,783.50	2,756.70	Delhi	Sony Minidisc Recorder
21	10030	02-06-02	HKolkataDPHONE	Sales Person A	24,853.00	4,970.60	Delhi	Acoustic ResKolkatarch Wireless Surround HKolkatadphones
22	10031	02-06-02	Port DVD	Sales Person A	89,374.50	17,874.90	Delhi	Portable DVD Player
23	10032	02-06-02	MICROSYS	Sales Person A	115,835.00	23,167.00	Delhi	Executive Microsystem with Subwoofer
24	10033	02-06-02	MINIDISC	Sales Person A	7,745.50	1,549.10	Delhi	Sharp Portable MiniDisc Player/Recorder

	A	B	C	D
1	Order Id	Item Type	Sales	City
2	10019			
3	10027			
4	10333			
5	10039			
6	10157			
7	10070			
8	10085			
9	10103			
10	10119			

Suppose we have two table one is master database which contents all order details of all the sales rep.

We have another table where only I have few orderID is given on order id is available in both table on basis of order id we want to populate the other details, or we want to match the order id.



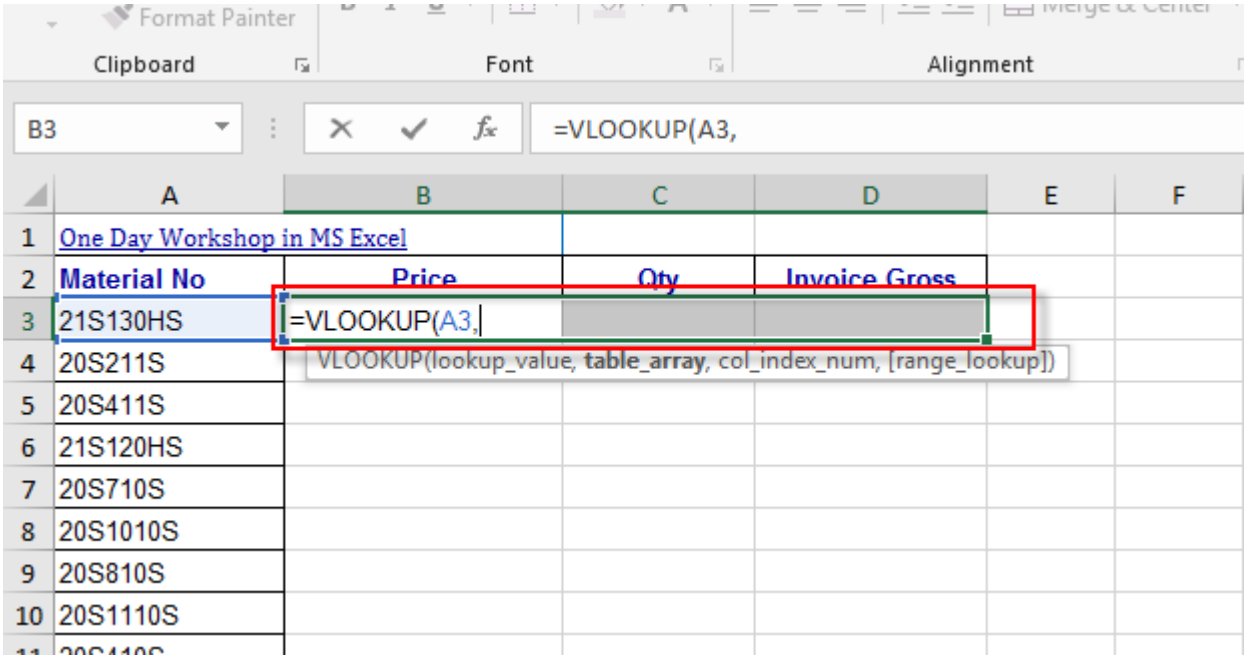
=VLOOKUP(A2,'Order Details'!$A$1:$G$379,3,FALSE)

If we want to display meaning full message instead of #N/A, We can use below formula.

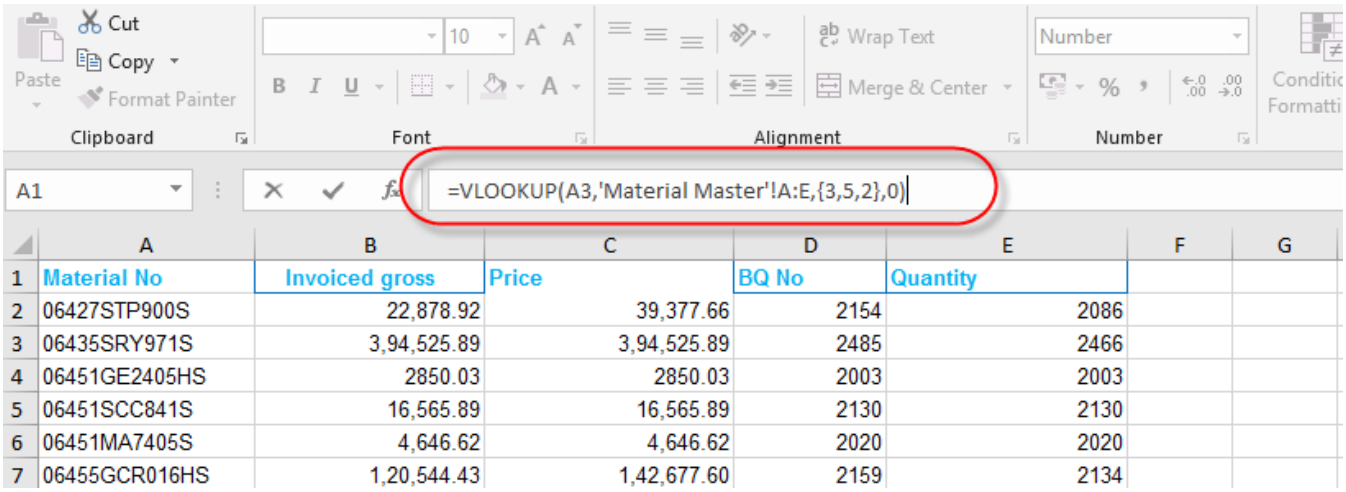
=Iferror(VLOOKUP(A2,'Order Details'!$A$1:$G$379,3,FALSE),"Not Found")

➔ Steps to populate multiple columns using single VLOOKUP function.

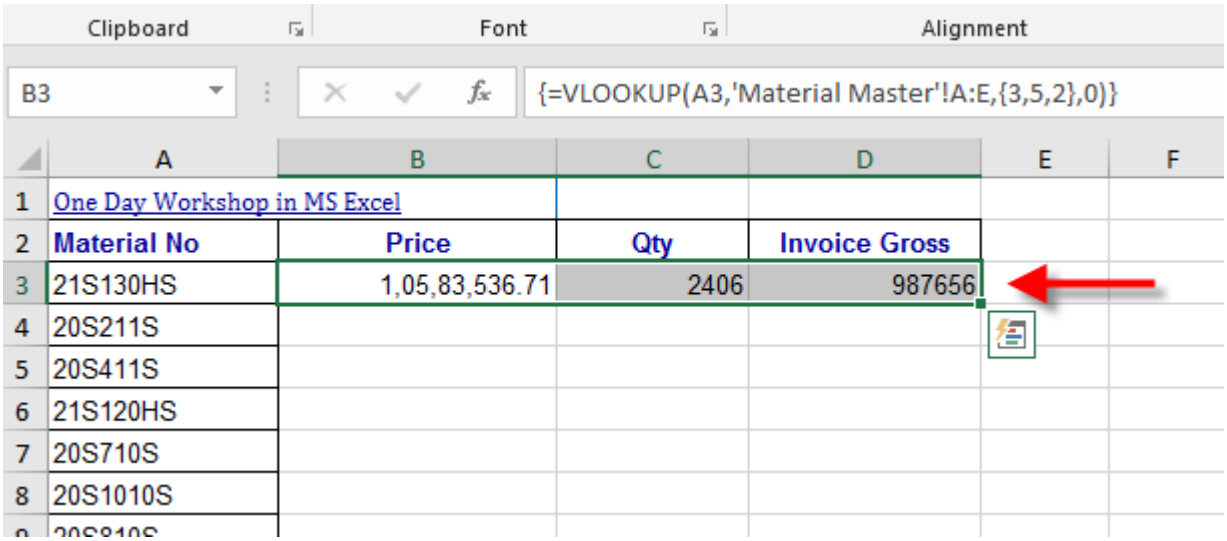
1) Select all columns.



2) Type this formula
=VLOOKUP (A3,'Material Master'!A:E,{3,5,2},0)



3) Press Ctrl+Shift+Enter to execute array formula.



	A	B	C	D	E	F
1	One Day Workshop in MS Excel					
2	**Material No**	**Price**	**Qty**	**Invoice Gross**		
3	21S130HS	1,05,83,536.71	2406	987656		
4	20S211S					
5	20S411S					
6	21S120HS					
7	20S710S					
8	20S1010S					

Reverse Vlookup

We can apply backwards Vlookup In Reverse Order in Excel.

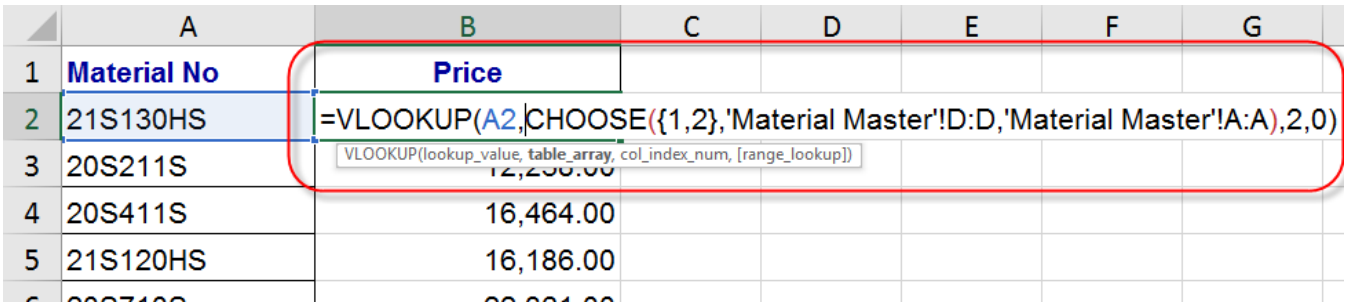
Suppose you have Two tables as below screenshot shown. This is master sheet where matching column material no is available in right hand side and price which we want to populate is available is in left hand side then we can use reverse lookup.

	A	B	C	D
1	**Price**	**BQ No**	**Quantity**	**Material No**
2	19,915.00	2154	2086	427STP900S
3	18,541.00	2485	2466	435SRY971S
4	22,362.00	2003	2003	51GE2405HS
5	27,071.00	2130	2130	451SCC841S
6	16,969.00	2020	2020	451MA7405S
7	23,815.00	2159	2134	55GCR016HS
8	21,048.00	6,320	6,200	455SCC841S
9	18,063.00	2103	2103	455SVE861S
10	27,046.00	2064	2057	455SVT911S
11	28,988.00	2007	2001	70HH198001
12	23,937.00	2031	2021	70HH198002
13	25,370.00	2002	2002	70HH198003
14	23,578.00	2006	2001	70HH198004
15	10,938.00	2030	2000	70HH198006
16	29,748.00	2004	2001	70HH198007
17	14,667.00	2020	2020	70HH198011
18	12,509.00	2002	2002	70HH198029
19	27,508.00	2040	2000	70HH198035
20	14,742.00	2007	2001	70HHSFN002
21	23,746.00	2020	2000	70HHSFN022
22	21,768.00	2002	2000	0HHSRYH001

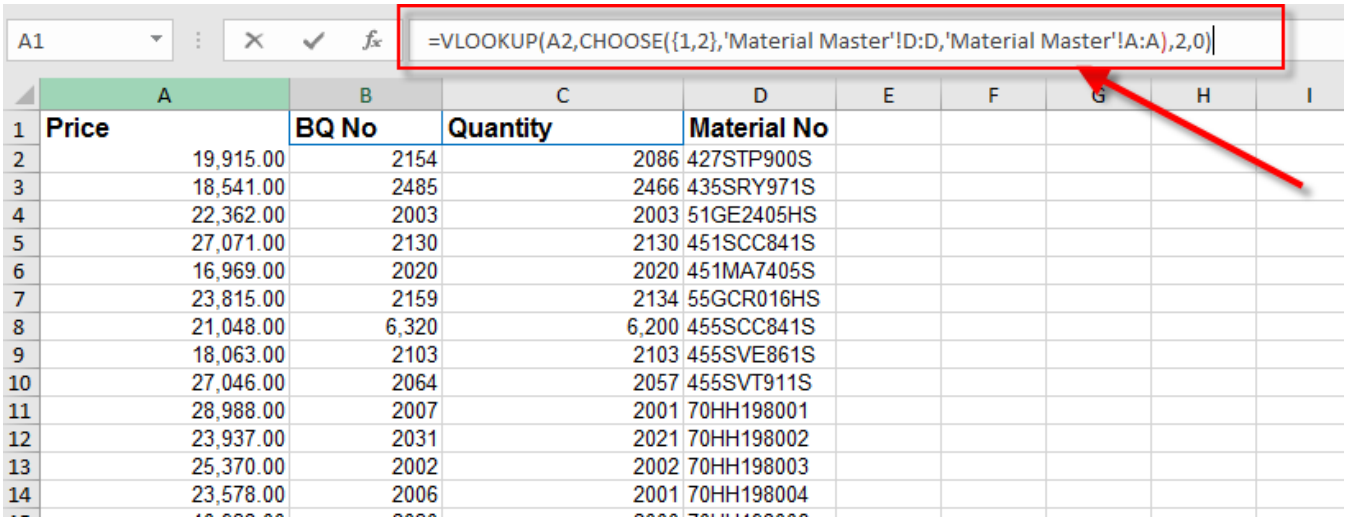
This is another table where we want to populate price.

Enter the formula =VLOOKUP (A2, CHOOSE({1,2},'Material Master'!D:D,'Material Master'!A:A),2,0) into a B2 cell, and press the **Ctrl** + **Shift** + **Enter keys at the same time. And then you will get the exact price.**

See screens



shot.



Dynamic Vlookup

We are going to learn how the MATCH function can be used inside the VLOOKUP function.

This helps protect the VLOOKUP from returning errors when changes are made to the workbook.

Match Function

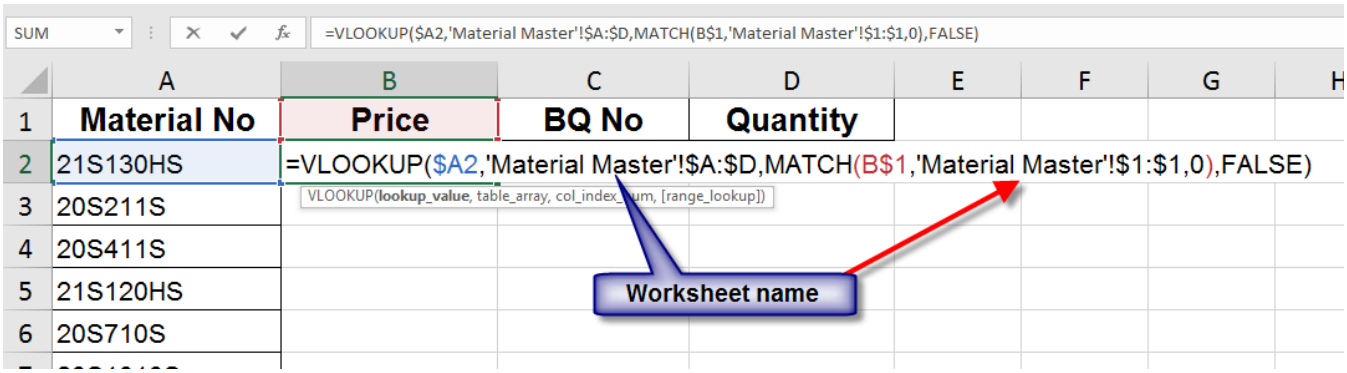
Before you combine VLOOKUP and MATCH, you need to understand match function and its working.

The basic use of MATCH is to find the cell number of the lookup value from a range.

Syntax:

`MATCH(lookup_value,lookup_array,[match_type])`

It has mainly three arguments, lookup value, a range to lookup for the value, and the match type to specify exact match or an approximate match.



HLOOKUP

Excel's HLOOKUP function, which stands for horizontal lookup, is used to find specific information that has been stored in rows in a spreadsheet table.

Syntax :

HLOOKUP(**lookup_value**,**table_array**,**row_index_num**,**range_lookup**)

lookup _value: The value you want to find in the first column of the table_array.

table_array: The range of data that HLOOKUP searches to find your information. The table_array must contain at least two columns of data. The first column contains the lookup_values.

row_index_num: The number of the row in the table_array that contains the data you want returned.

range_lookup: A logical value (TRUE or FALSE only) that indicates whether you want VLOOKUP to find an exact or an approximate match to the lookup_value. Typing *False* will return exact matches only.

	A	B	C	D	E	F	G	H	I	J
1	Material No	06427GTP900G	06435GRY974G	06451GE2485HG	06451GGG841G	06451MA7485G	06455GGR916HG	06455GGG841G	06455GVE861G	06455
2	Invoiced gross	22,878.92	3,79,168.08	2850.03	16,565.89	4,646.62	1,20,544.43	11,59,022.98	46,468.82	29,725.7
3	Price	39,377.66	3,94,525.89	2850.03	16,565.89	4,646.62	1,42,677.60	11,92,073.02	46,468.82	33,126.0
4	QTY	2086	2466	2003	2130	2020	2134	6,200	2103	205
5	BQ No	2154	2485	2003	2130	2020	2159	6,320	2103	206
6										
7										
8										
9										
10										
11										

Chapter 7: Graphs & Chart

Graphs offer a visual representation of the data. Instead of having to analyze columns of values of spreadsheet, it can interpret the meaning of the data of a single look. A graph transmits the messages quickly. With a graph, the data of spreadsheet can be transformed to show comparisons, patterns and tendencies.

J12

	A	B	C	D	E
1		Month	Cost (Rs. Lacs)	Sales (Rs. Lacs)	Profit (Rs. Lacs)
2		Jan-10	4320	5157	837
3		Feb-10	4855	5341	486
4		Mar-10	5109	5620	511
5		Apr-10	4900	5390	490
6		May-10	4819	5301	482
7		Jun-10	5300	5830	530
8		Jul-10	5219	5741	522
9		Aug-10	5512	6063	551
10		Sep-10	5645	6210	565
11		Oct-10	6055	6661	606
12		Nov-10	6500	7150	650
13		Dec-10	6601	8000	1399

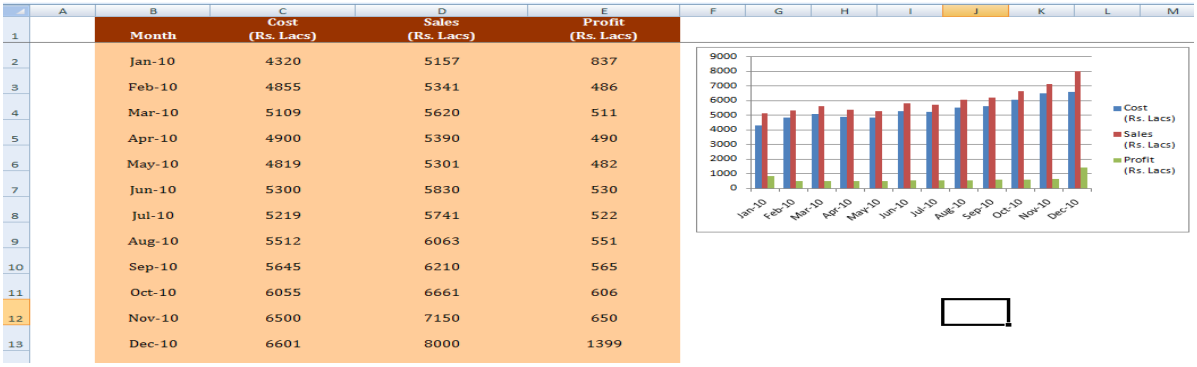
Creating a Chart

1) Open data sheet.
2) Select the data that wish to represent, including the titles of the columns.
3) Next, it clicks in the ***Insert Group*** and, in the sub group ***Charts***, click in the ***Column*** button.



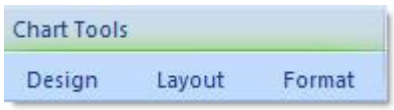
4) The chart will be created and placed near the data table.

Press F11- > Create Column Graph on New Worksheet
Alt N C Enter -> Create Column Graph On Active Sheet
Alt N N Enter -> Create Line Graph on Active Sheet

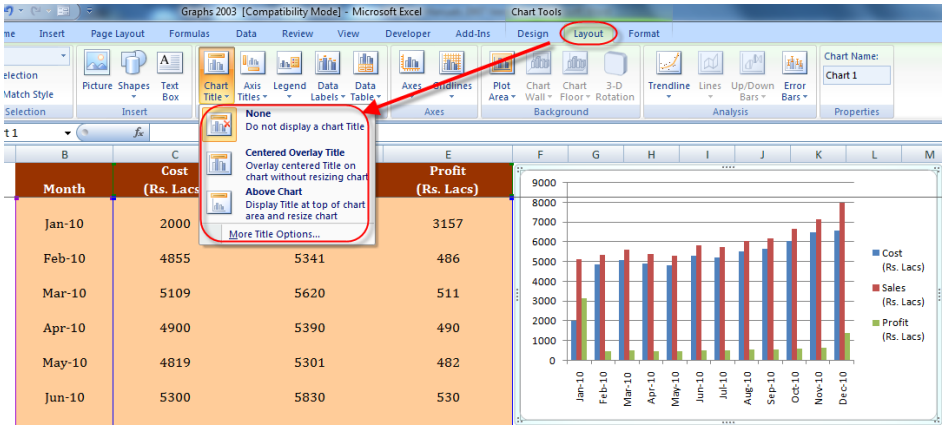


Month	Cost (Rs. Lacs)	Sales (Rs. Lacs)	Profit (Rs. Lacs)
Jan-10	4320	5157	837
Feb-10	4855	5341	486
Mar-10	5109	5620	511
Apr-10	4900	5390	490
May-10	4819	5301	482
Jun-10	5300	5830	530
Jul-10	5219	5741	522
Aug-10	5512	6063	551
Sep-10	5645	6210	565
Oct-10	6055	6661	606
Nov-10	6500	7150	650
Dec-10	6601	8000	1399

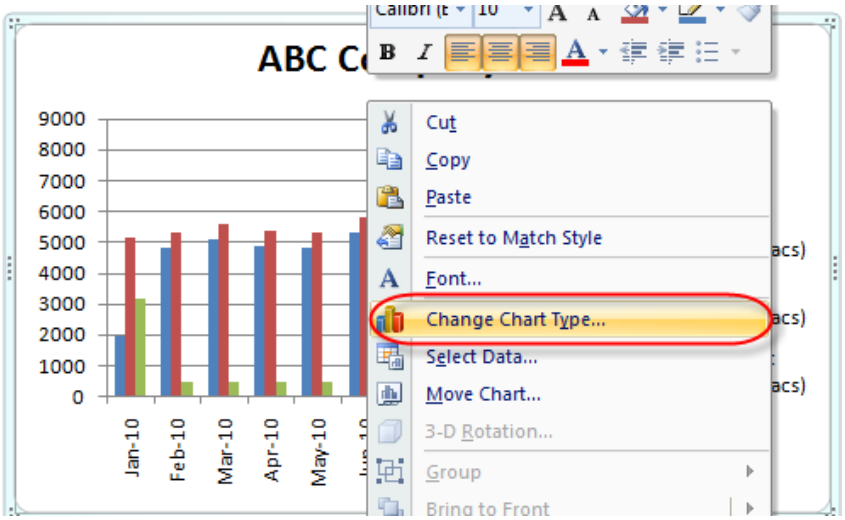
5) After creating a graph, you can add new elements easily. For example, you can add titles to it to offer more information or change the element's position.
6) When creating a graph, in the ***Options Tape*** appears the ***Graph's Tools***, which include ***Design, Distribution and Format groups***. In these groups you will find the commands necessary to work with the graphs



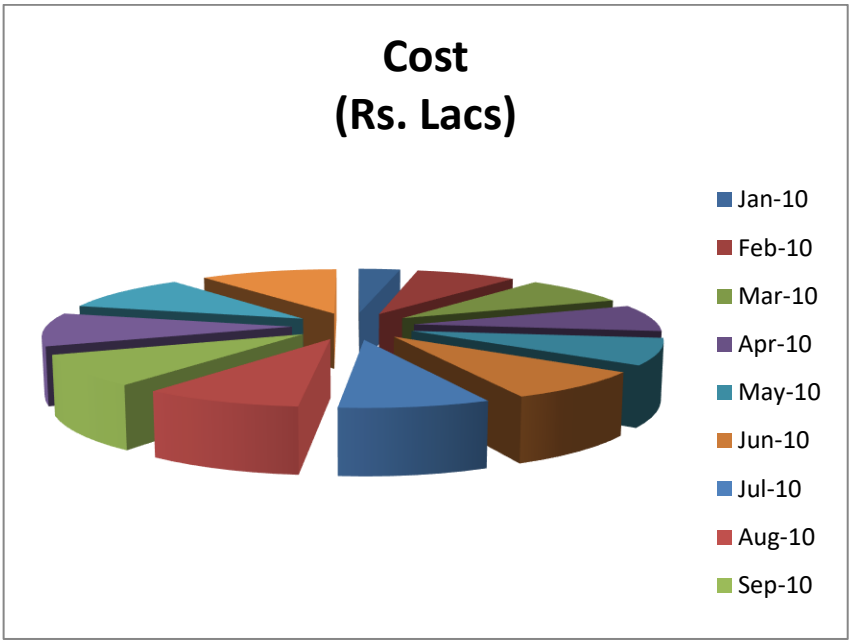
7) When the graph is finished, click outside it. The Graph's Tools will disappear. Click within the graph so that they will be displayed again
8) To change the graph title, Click Layout tab->Chart Title-> Select option and type chart title.



9) To change the Chart type select the chart area, then right click and select the Change
Chart Type menu item.

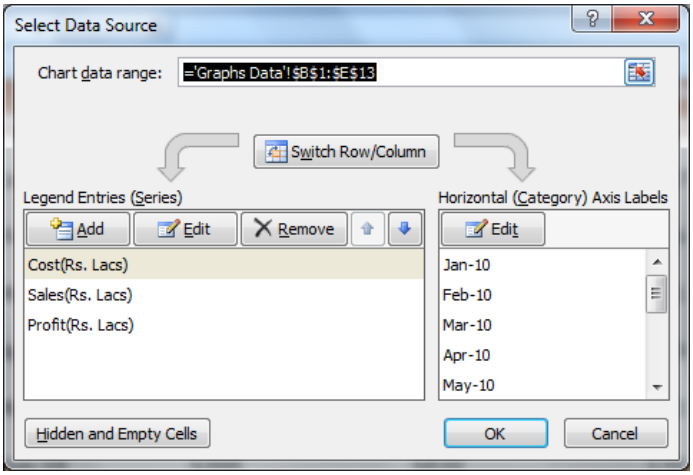


Select Pie chart.



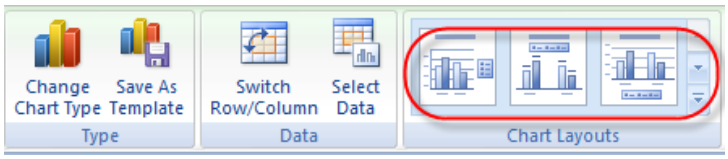
Change Data Source:

1) Click on the design tab-> Select Data Source.



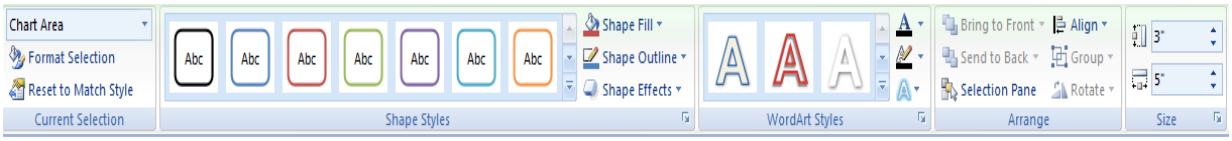
Change Chart Layout

1) Click on the design Tab -> Select Layout Group.



Format Chart

1) Select chart -> Click on the format or right chick on the Chart and choose Format option

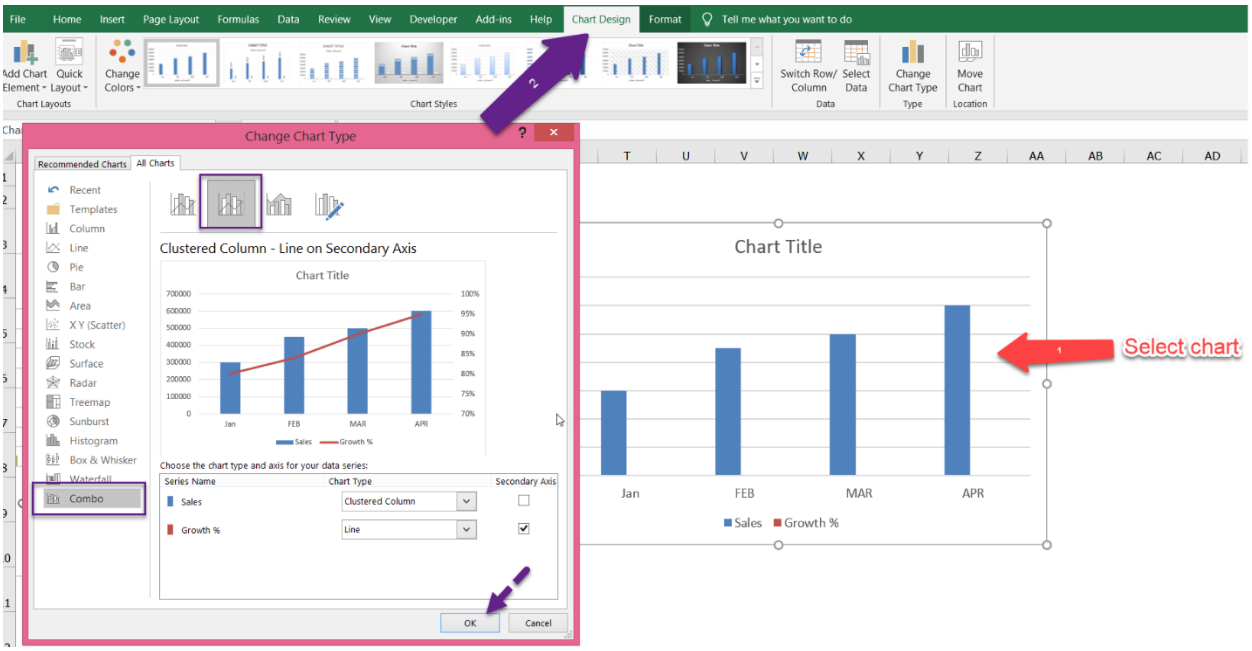


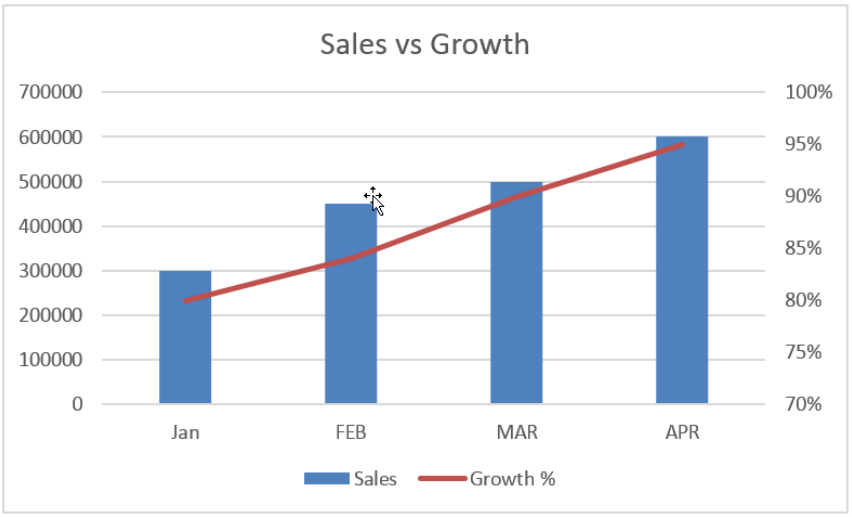
Display data on the Secondary Axis

When number in the chart vary from data series to series or when we have mixed type of data like sales and growth% where sales value is very high then we cannot display both data on the same axis. We can use following steps to display data on the both axes.

1. Select Data table press F11 (Column Chart)
2. Select a chart to open Chart Tools.
3. Select Design > Change Chart Type.
4. Select Combo > Cluster Column - Line on Secondary Axis.
5. Select Secondary Axis for the data series you want to show.
6. Select the drop-down arrow and choose Line.

1) Select OK.





Chapter 8: Hyper / Data Linking

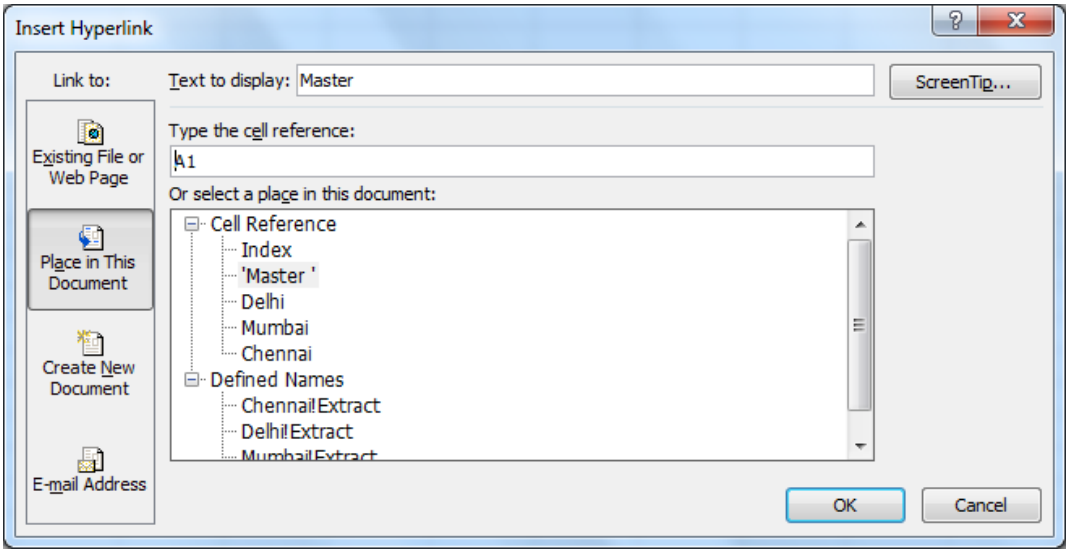
Hyper & data linking, within or outside Worksheet / Excel File is an important feature of Excel. This helps update data automatically or based on user requirements without any additional effort to produce combination or results and simulations.If you have a lot of different worksheets and want a quick way to jump between them, you can use Hyperlinks. Hyperlinks are those underlined bits of text on the internet that lead to web pages

Link Data to Different Worksheets in Microsoft Excel

Create a index sheet.

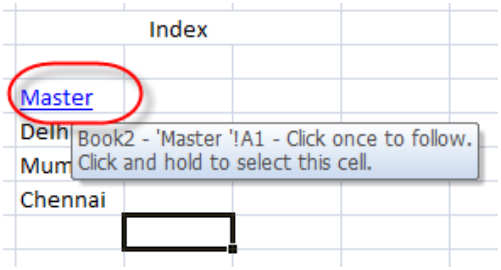
Index
Master
Delhi
Mumbai
Chennai

1) Type Hyper Link Text
2) Select the Hyperlink Text press Ctrl+ K or Insert Tab-> Hyperlink



3) From Insert Hyperlink dialog box select Target Location cell reference like Master Sheet

Index
Master
Delhi
Mumbai
Chennai



Create a hyperlink to a specific location in a workbook

To link to a location in the current workbook or another workbook, you can either define a namefor the cells or use a cell reference.

1) To use a name, you must name the destination cells in the destination workbook.
2) On a worksheet of the workbook, click the cell where you want to create a hyperlink.
3) On the **Insert** tab, in the **Links** group, click **Hyperlink**.

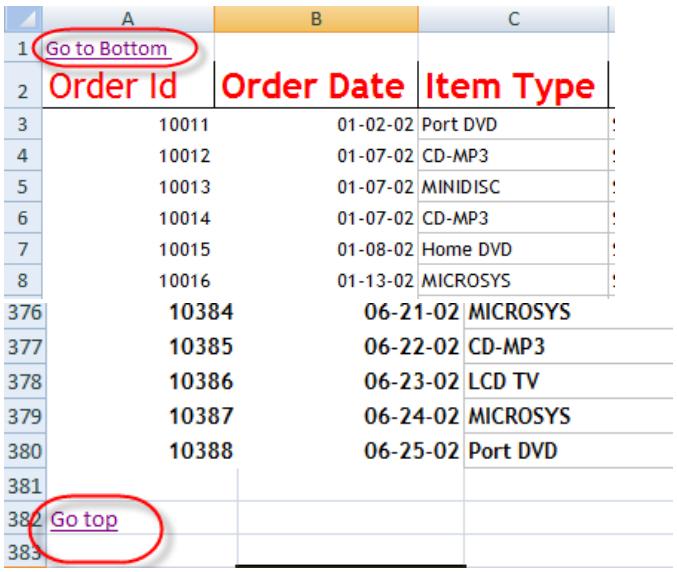


3. Under **Link to**, do one of the following:

- To link to a location in your current workbook, click **Place in This Document**.

- To link to a location in another workbook, click **Existing File or Web Page**, locate and select the workbook that you want to link to, and then click **Defined Names**.

4. Do one of the following:
   - In the **Or select a place in this document** box, under **Cell Reference**, click the worksheet that you want to link to, type the cell reference in the **Type in the cell reference** box, and then click **OK**.
   - In the list under **Defined Names**, click the name that represents the cells that you want to link to, and then click **OK**.
5. In the **Text to display** box, type the text that you want to use to represent the hyperlink.
6. To display helpful information when you rest the pointer on the hyperlink, click **ScreenTip**, type the text that you want in the **ScreenTip text** box, and then click **OK**.



Chapter 9: Grouping / Ungrouping

Have lot of data which needs to be grouped for summarized results and crisp view. No problem, grouping and ungrouping feature of Excel will help you group / ungroup data with lot of ease and on click of a mouse.

Insert a Group

1. Select the rows or columns you want to group together.

2. Click on the Group button.

3. You're done!

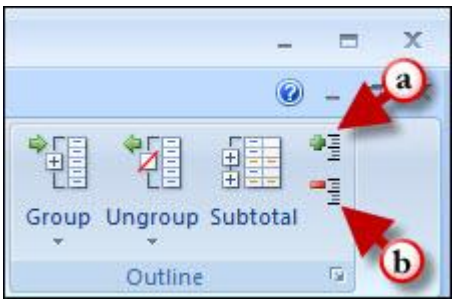
	A	B	C	D
1	Solar System	Bid	Duration	Jumps
2	Abudban	Buy	7	6
3	Abudban	Buy	90	4
4	Abudban	Sell	30	4
5	Abudban	Sell	30	4
6	Abudban	Sell	90	4
7	Ammold	Buy	14	2
8	Ammold	Buy	90	5

Now see the outline symbols 1 2 and the + and – buttons.

You can either click on the + and – buttons to hide or unhide the rows in the group, or you can click the outline symbols.

You can add up to 8 levels to your outline by grouping rows within an existing group. The more levels of groups the more outline symbols you will have.

In the above example we have looked at grouping rows, but you can also group columns in the same way.



a. You can Expand a group by clicking on the **Show Detail** button located in the ***Outline*** Group.

b. You can Collapse a group by clicking on the **Hide Detail** button located in the ***Outline*** Group.

Remove a Group (Ungroup)

1. Select the rows or columns you want to ungroup.

2. Go to the **Data** tab and click on **Ungroup** in the **Outline** group.

Alternatively if you want to remove all groups go to the **Data** tab and click on down arrow on the **ungroup** button

Copy the Outlined/Visible Cells Data Only

1. Group your data to show the level of detail you want to copy.

2. Select the range of cells you want to copy.

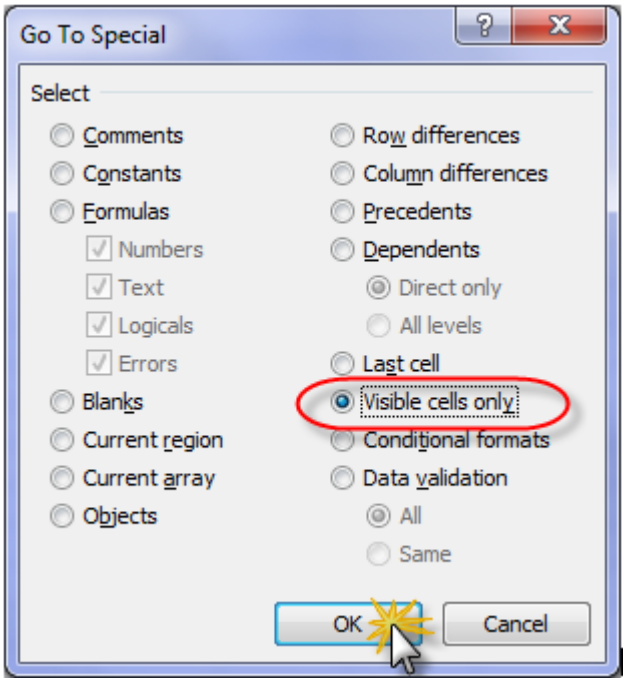
3. CTRL+G to open the Go To window.

4. Select **Special.**

5. Click the **Visible Cells Only** radio button and click **OK**.

6. Now you can copy and paste.

Alt +; -> Copy Visible Cells



Chapter 10: Pivot Table

Excel pivot tables are a feature that you should learn how to use. Instead of analyzing countless spreadsheet records, a pivot table can aggregate your information and show a new perspective in a few clicks. You can also move columns to rows or vice versa. You might think of a pivot table as a user created summary table of your original spreadsheet. You create the table by defining which fields to view and how the information should be displayed. Based on your field selections, Excel organizes the data so you see a different view of your data.

As example, A sample spreadsheet of 300 order, which includes the following data fields:

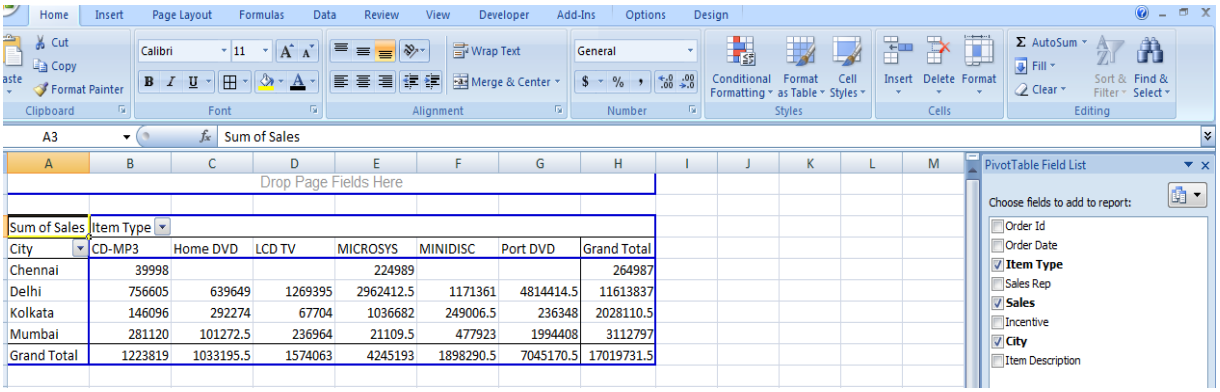
- Order Id
- Order Date
- Item Type
- Sales Rep
- Sales
- Incentive
- City
- Item Description

	A	B	C	D	E	F	G	H
1	Order Id	Order Date	Item Type	Sales Rep	Sales	Incentive	City	Item Description
2	10011	14/06/2011	Port DVD	Sales Person A	99,998.00	19,999.60	Delhi	Portable DVD-Video Player
3	10012	19/06/2011	CD-MP3	Sales Person C	29,550.00	5,910.00	Mumbai	SlimX CD/MP3 Player with 8 min ASP and UpgradKolkatable FirmDelhire
4	10013	19/06/2011	MINIDISC	Sales Person B	11,148.50	2,229.70	Mumbai	Sony Portable Mini-Disc Player/Recorder
5	10014	19/06/2011	CD-MP3	Sales Person A	11,565.00	2,313.00	Mumbai	MP3-CD Player/Mumbair Kit/Dot Matrix Display/Anti-Skip
6	10015	20/06/2011	Home DVD	Sales Person A	29,976.00	5,995.20	Delhi	DVD-Video Player with MP3 Playback
7	10016	25/06/2011	MICROSYS	Sales Person A	39,999.00	7,999.80	Delhi	CD/CD-R Executive Desktop System with Cherrywood SpKolkatakers
8	10017	30/06/2011	Port DVD	Sales Person B	173,726.00	34,745.20	Mumbai	Portable DVD-Video Player
9	10018	30/06/2011	CD-MP3	Sales Person A	11,915.00	2,383.00	Mumbai	CD/MP3 Player with 120 Second Anti-Shock
10	10019	06/07/2011	LCD TV	Sales Person A	26,965.00	5,393.00	Delhi	Wireless LCD TV
11	10020	06/07/2011	Port DVD	Sales Person B	53,960.00	10,792.00	Delhi	Portable DVD Player
12	10021	11/07/2011	MICROSYS	Sales Person A	29,998.50	5,999.70	Chennai	3-CD 120-Delhitt CD-R/RW Compatible Compact Stereo
13	10022	11/07/2011	CD-MP3	Sales Person A	9,999.50	1,999.90	Chennai	SlimX CD/MP3 Player with 8 min ASP and UpgradKolkatable FirmDelhire
14	10023	11/07/2011	MICROSYS	Sales Person C	7,499.50	1,499.90	Chennai	CD Executive Mini System
15	10024	15/07/2011	MICROSYS	Sales Person A	37,497.50	7,499.50	Delhi	Executive Microsystem with Woodgrain SpKolkatakers
16	10025	15/07/2011	LCD TV	Sales Person A	17,998.50	3,599.70	Mumbai	Wireless LCD TV
17	10026	15/07/2011	MINIDISC	Sales Person A	37,498.50	7,499.70	Mumbai	Sony Portable Mini-Disc Player/Recorder
18	10027	15/07/2011	CD-MP3	Sales Person C	24,970.00	4,994.00	Delhi	CD-MP3 Jukebox--8 min ASP and Artist, Title, Genre, and Album Directory
19	10028	15/07/2011	Home DVD	Sales Person A	13,999.00	2,799.80	Delhi	DVD Player with Progressive SMumbain, MP3, PAL, and Karaoke
20	10029	19/07/2011	MINIDISC	Sales Person B	13,783.50	2,756.70	Delhi	Sony Minidisc Recorder
21	10030	19/07/2011	LCD TV	Sales Person C	24,853.00	4,970.60	Delhi	Acoustic ResKolkatarch Wireless Surround LCD TV s
22	10031	19/07/2011	Port DVD	Sales Person A	89,374.50	17,874.90	Delhi	Portable DVD Player
23	10032	19/07/2011	MICROSYS	Sales Person C	115,835.00	23,167.00	Delhi	Executive Microsystem with Subwoofer
24	10033	19/07/2011	MINIDISC	Sales Person A	7,745.50	1,549.10	Delhi	Sharp Portable MiniDisc Player/Recorder

Using Excel pivot tables, you can organize and group the same data in ways that start to answer questions such as:

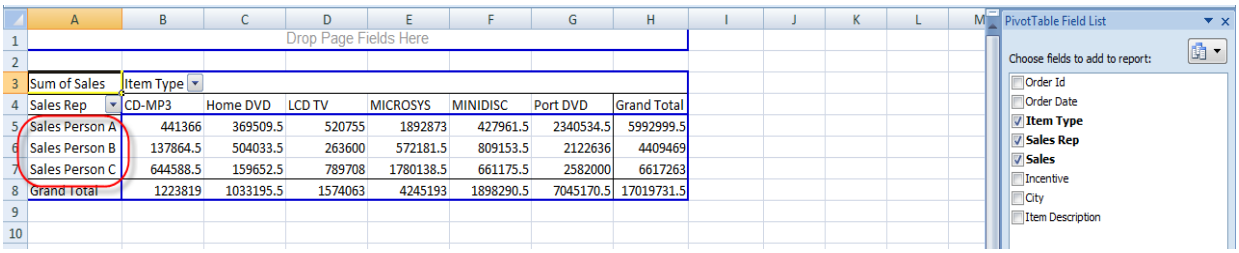
- Total Sales of Delhi
- Total Sales of Sales Person A in Mumbai ?
- Total Order or CD-Mp3
- Total Sales of December Month

Excel pivot tables allow you to group the spreadsheet or external data source by any of your data fields. The thumbnail below shows a Total Sales city wise.

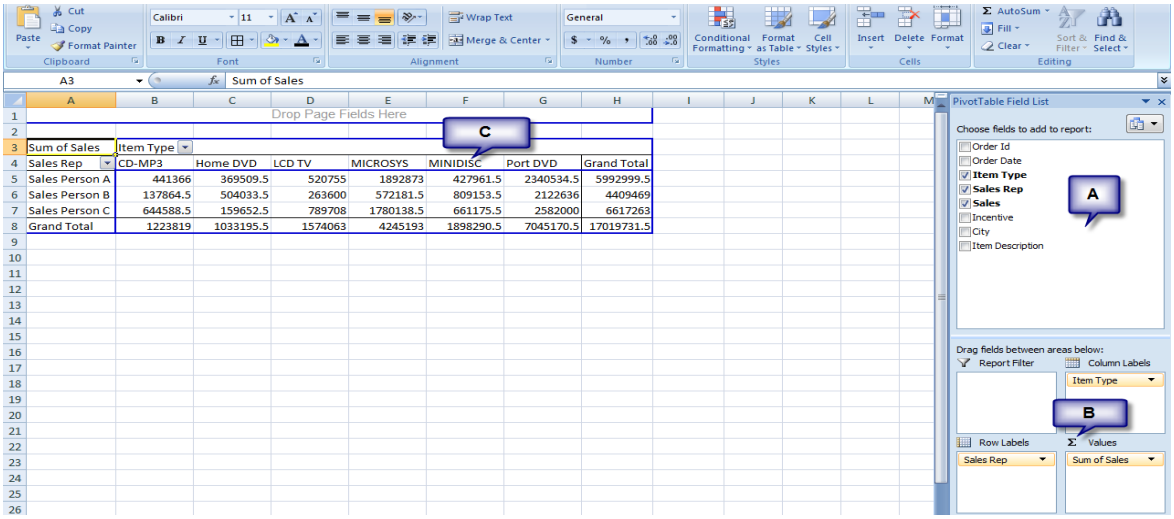


Sum of Sales	Item Type						
City	CD-MP3	Home DVD	LCD TV	MICROSYS	MINIDISC	Port DVD	Grand Total
Chennai	39998			224989			264987
Delhi	756605	639649	1269395	2962412.5	1171361	4814414.5	11613837
Kolkata	146096	292274	67704	1036682	249006.5	236348	2028110.5
Mumbai	281120	101272.5	236964	21109.5	477923	1994408	3112797
Grand Total	1223819	1033195.5	1574063	4245193	1898290.5	7045170.5	17019731.5

Using a pivot table, I can continue to slice the information by selecting additional fields from the **PivotTable Field List**. For example, I can take the same data and segment by Sales Person Wise.



Sum of Sales	Item Type						
Sales Rep	CD-MP3	Home DVD	LCD TV	MICROSYS	MINIDISC	Port DVD	Grand Total
Sales Person A	441366	369509.5	520755	1892873	427961.5	2340534.5	5992999.5
Sales Person B	137864.5	504033.5	263600	572181.5	809153.5	2122636	4409469
Sales Person C	644588.5	159652.5	789708	1780138.5	661175.5	2582000	6617263
Grand Total	1223819	1033195.5	1574063	4245193	1898290.5	7045170.5	17019731.5



Pivot Table Structures

In the balloons above, labelled the main areas of the pivot table.

(A) PivotTable Field List – this section in the top right displays the fields in your spreadsheet. You may check a field or drag it to a quadrant in the lower portion.

(2) The lower right quadrants - this area defines **where** and **how** the data shows on your pivot table. You can have a field show in either a column or row. You may also indicate if the information should be counted, summed, averaged, filtered and so on.

(3) The outlined area to the left is the result of your selections from (A) and (B).

There are several ways to build a pivot table. Excel has logic that knows the field type and will try to place it in the correct row or column if you check the box. For example, numeric data such as Sales sum tends to appear to the right in columns. Textual data, such as City would appear in rows.

While you can simply check fields to display and let Excel build your pivot table, I prefer to use the “drag and drop” method. This is partly because I like to visualize my data in columns and rows. I think it may also be easier if you have fields, which can appear to be numbers like a precinct value.

Steps to create an Excel Pivot Table

1. Open your original spreadsheet and remove any blank rows or columns.

2. Make sure each column has a heading, as it will be carried over to the Field List.

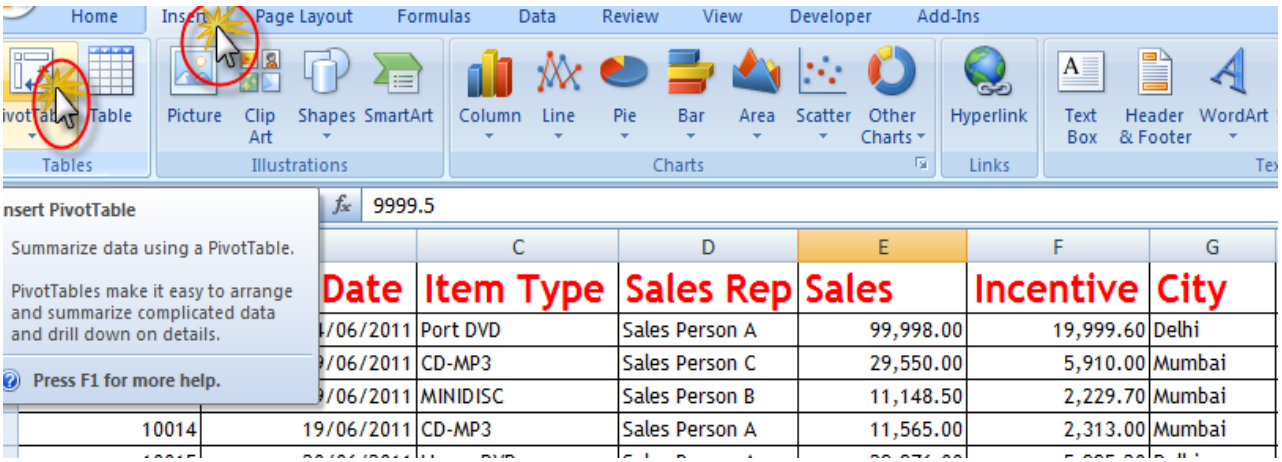
3. Make sure your cells are properly formatted for their data type.

4. Highlight your data range

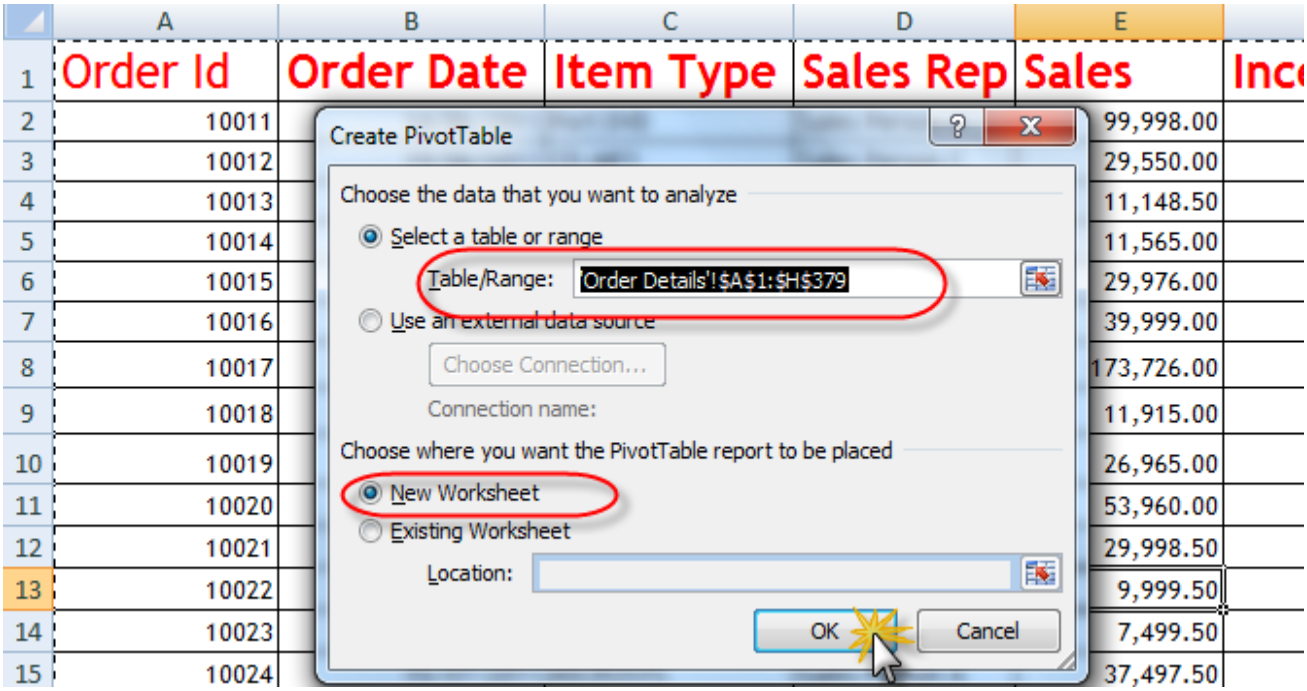
5. Click the **Insert** tab.

6. Select the **PivotTable** button from the **Tables** group.

7. Select **PivotTable** from the list.



The **Create PivotTable** dialog appears.

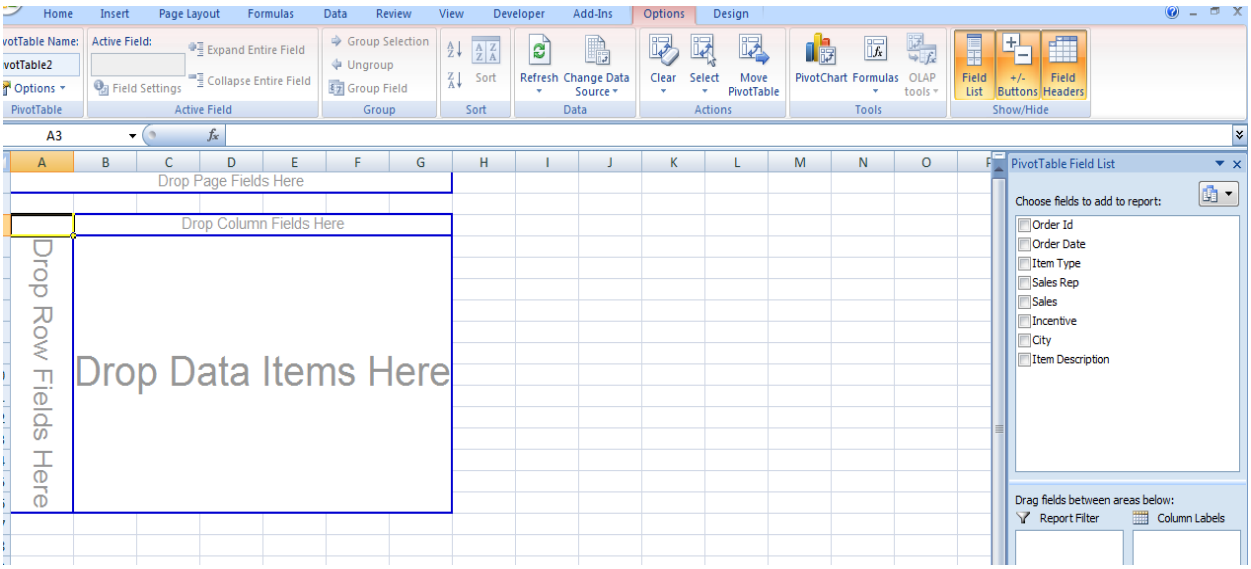


8. Double-check your **Table/Range:** value.

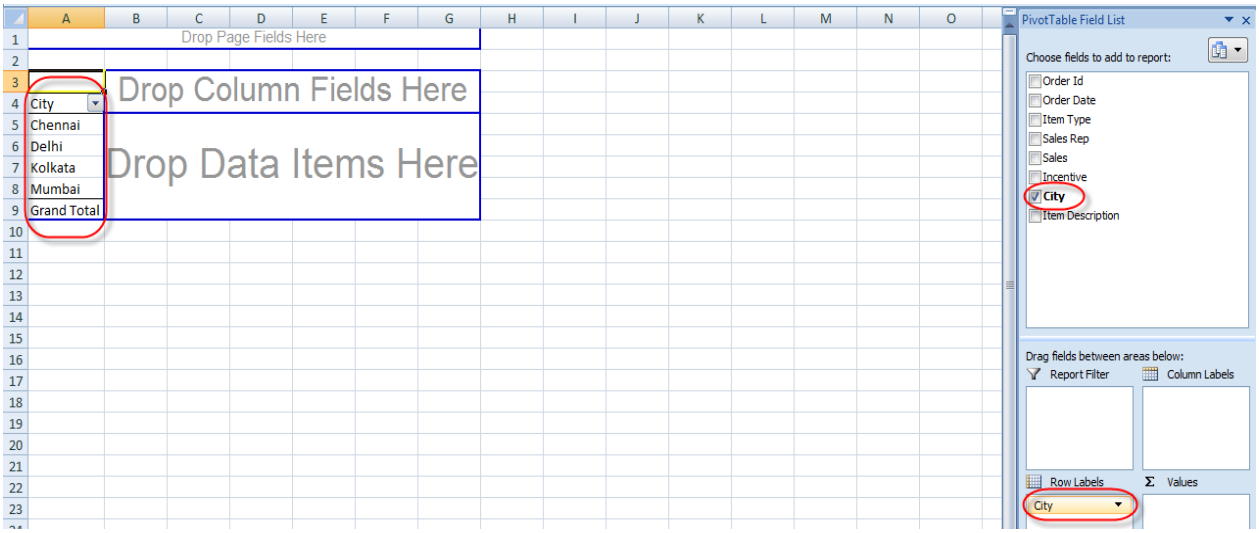
9. Select the radio button for **New Worksheet**.

10. Click **OK**.

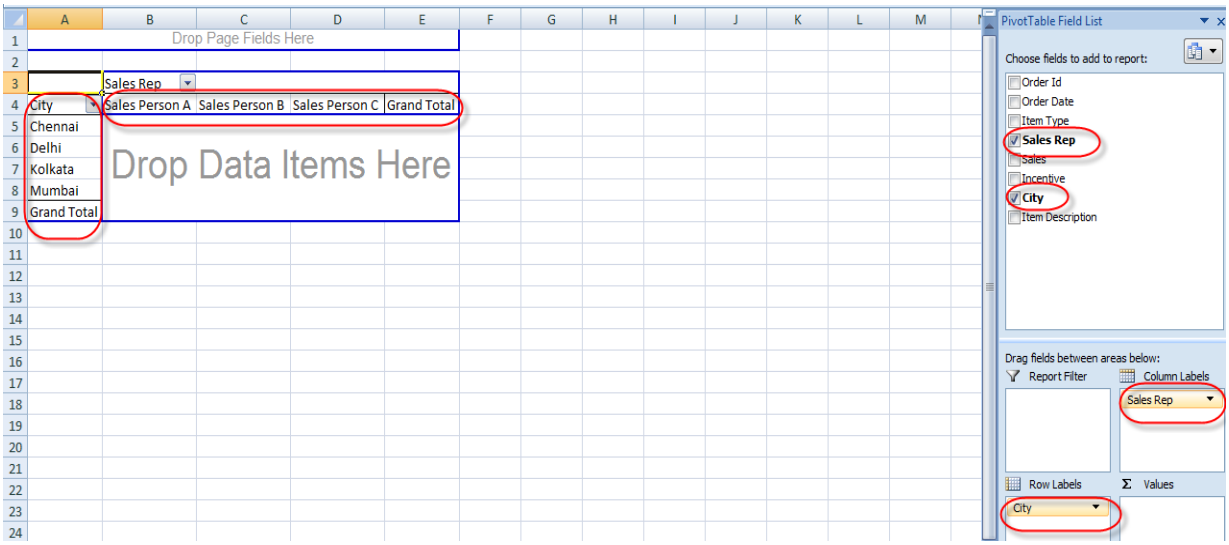
A new worksheet opens with a blank pivot table. You'll see that the fields from our source spreadsheet were carried over to the **PivotTable Field List**.



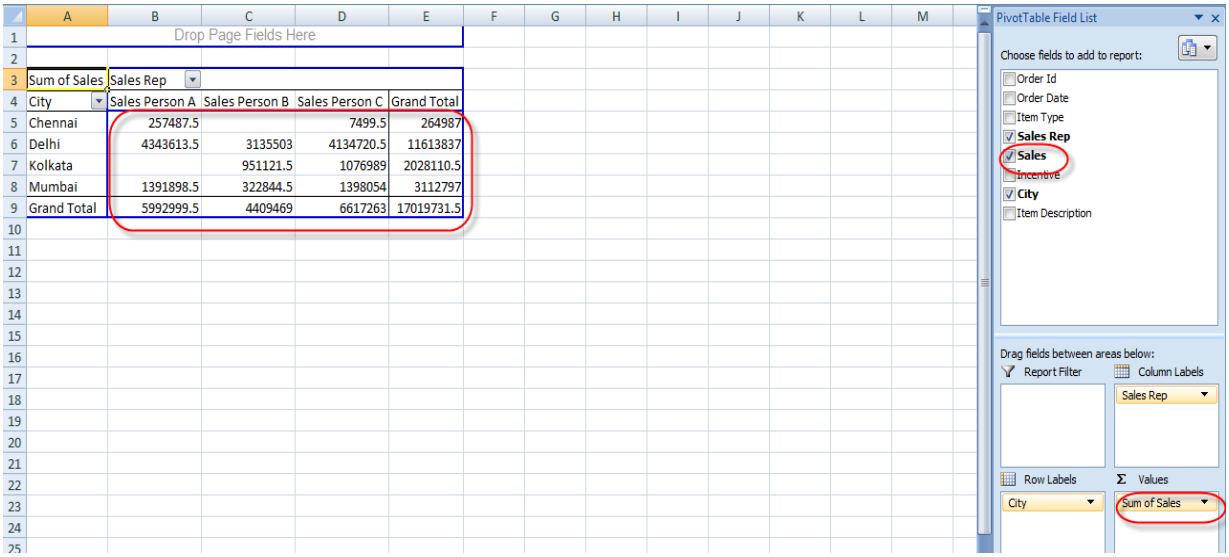
11. Drag an item such as City from the **PivotTable Field List** down to the **Row Labels** quadrant.



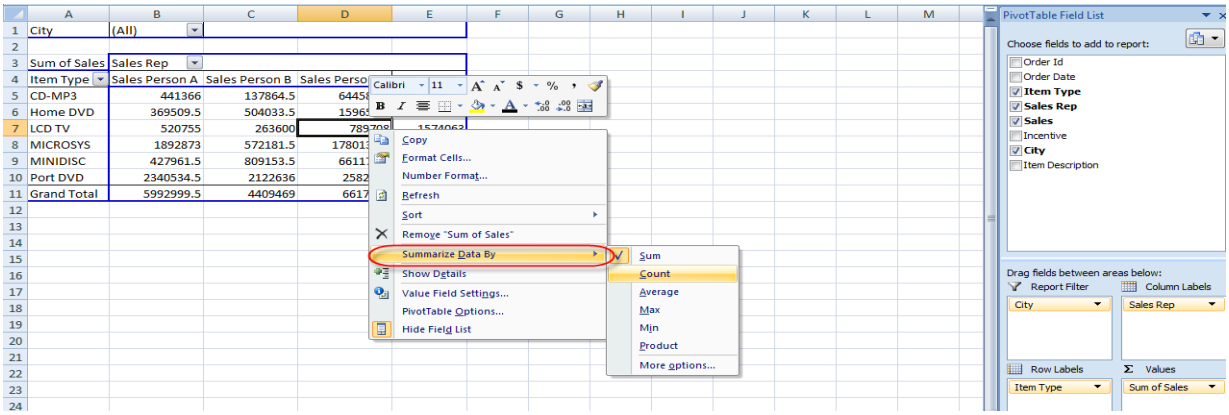
12. The next step is to ask what you would like to know about each city. I'll drag the Sales rap field from the **PivotTable Field List** to the **Column Labels** quadrant. This will provide an additional column for each city. Note that you won't see any numerical data.



13. Now Drag Sales Field from the **PivotTable Field List** to the **Value Labels** quadrant.



You could change the summarization's formulas by right click on the header to change and selecting the ***Summarize Data By***. Menu item.



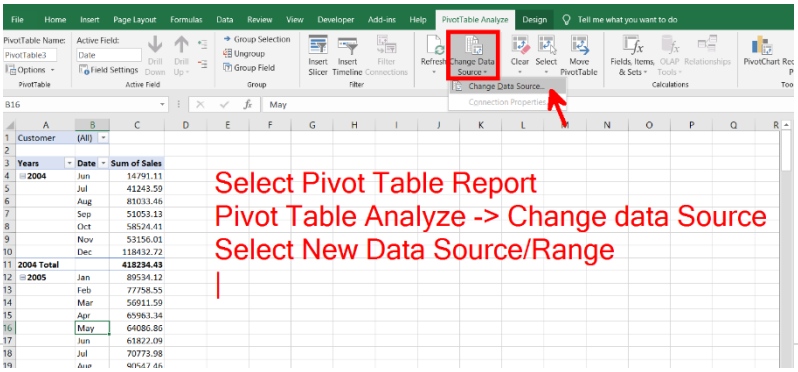
If you change the source data sheet, refresh the Pivot table by right click and select the ***Refresh*** menu item. Or Click on the Option Tab and Refresh.

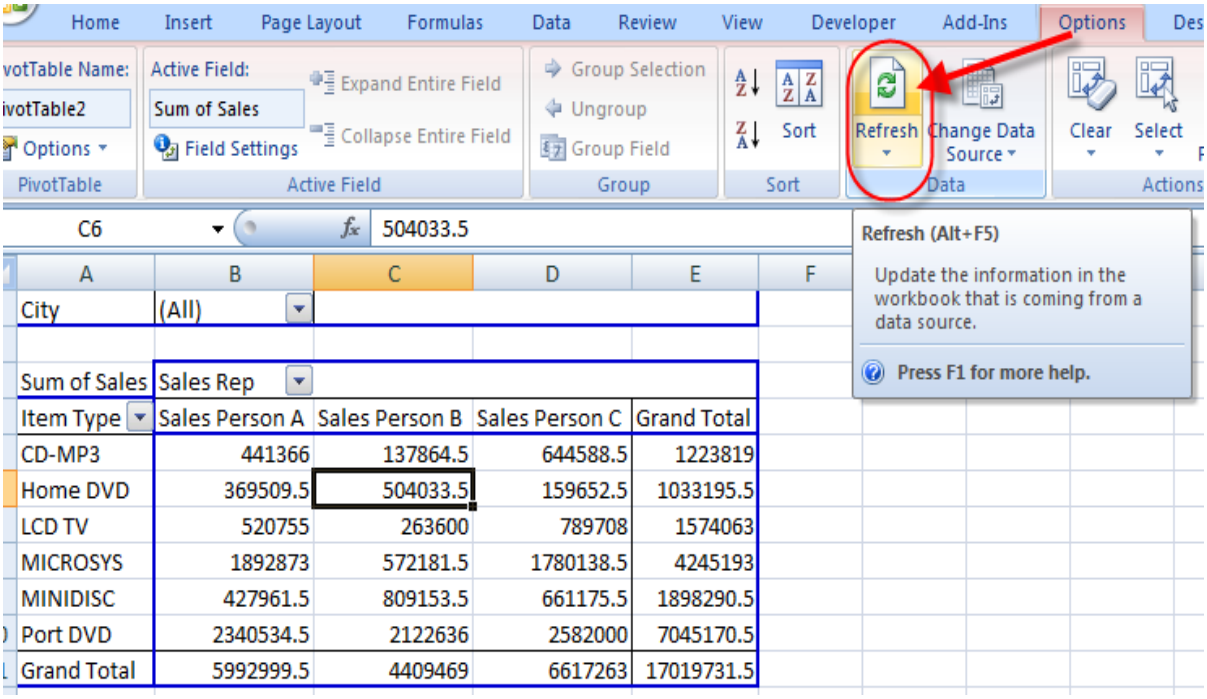
Refresh Pivot Table

Steps 1: Place your cursor in pivot table report area and right click and click on the refresh.

Change Data Source for a Pivot Table

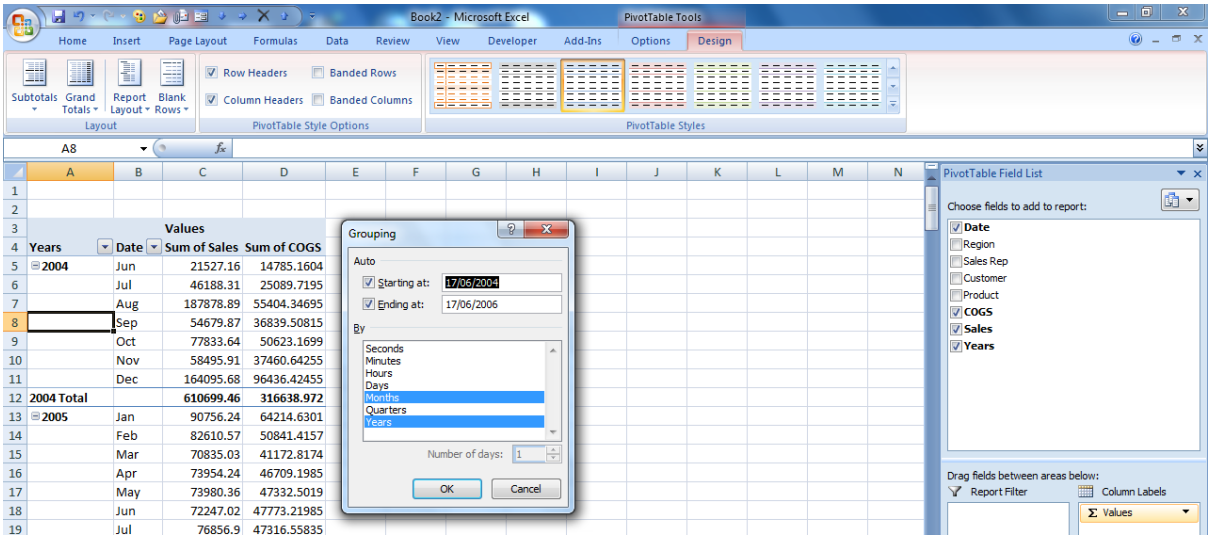
1) Select Pivot Table Report
2) Click on the Pivot Table Analyze tab
3) Click on the change data source.
4) Select data source or range.



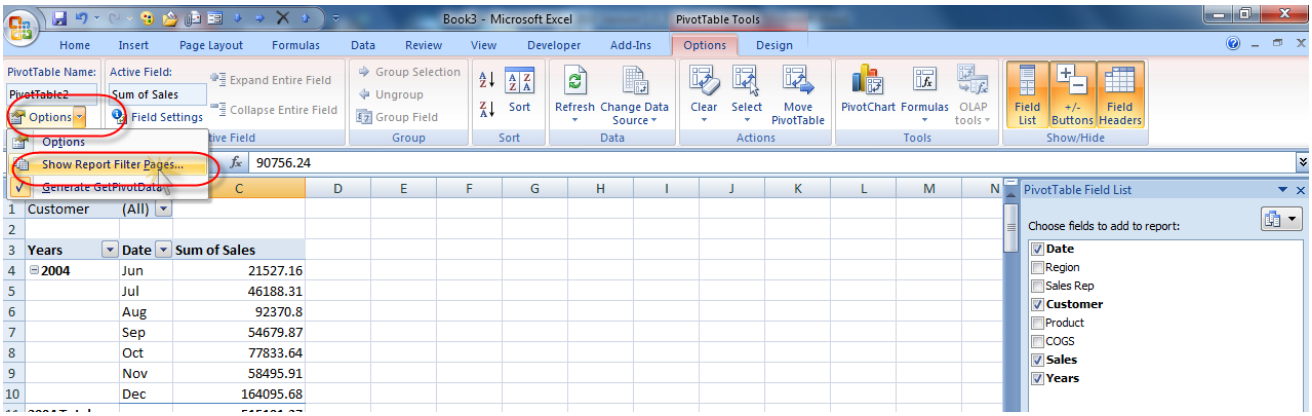


Apply data grouping in Pivot Table

Add date check box -> Right Click on the date Column -> Select Group -> Select Year

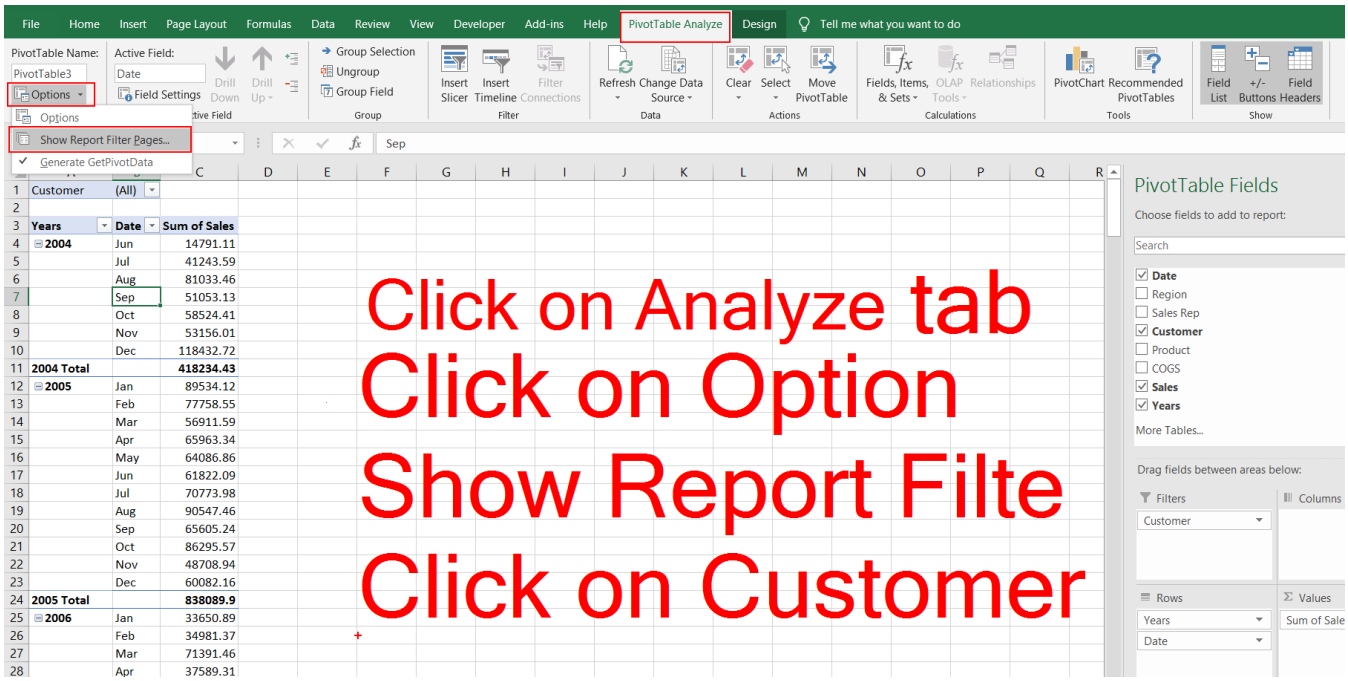


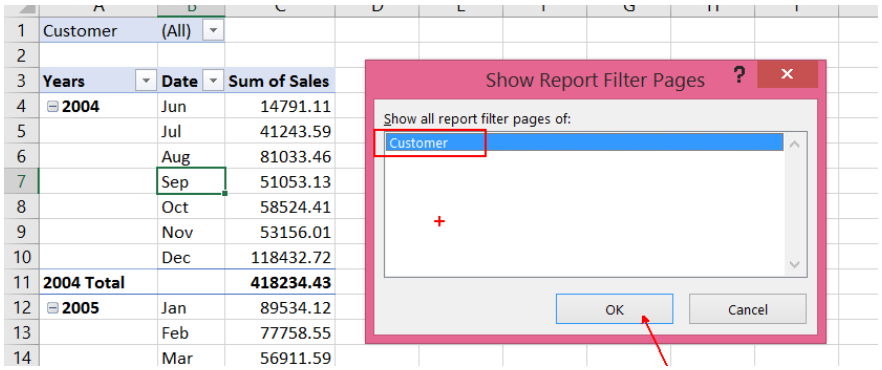
Create Multiple Pivot Table Reports with Show Report Filter Pages



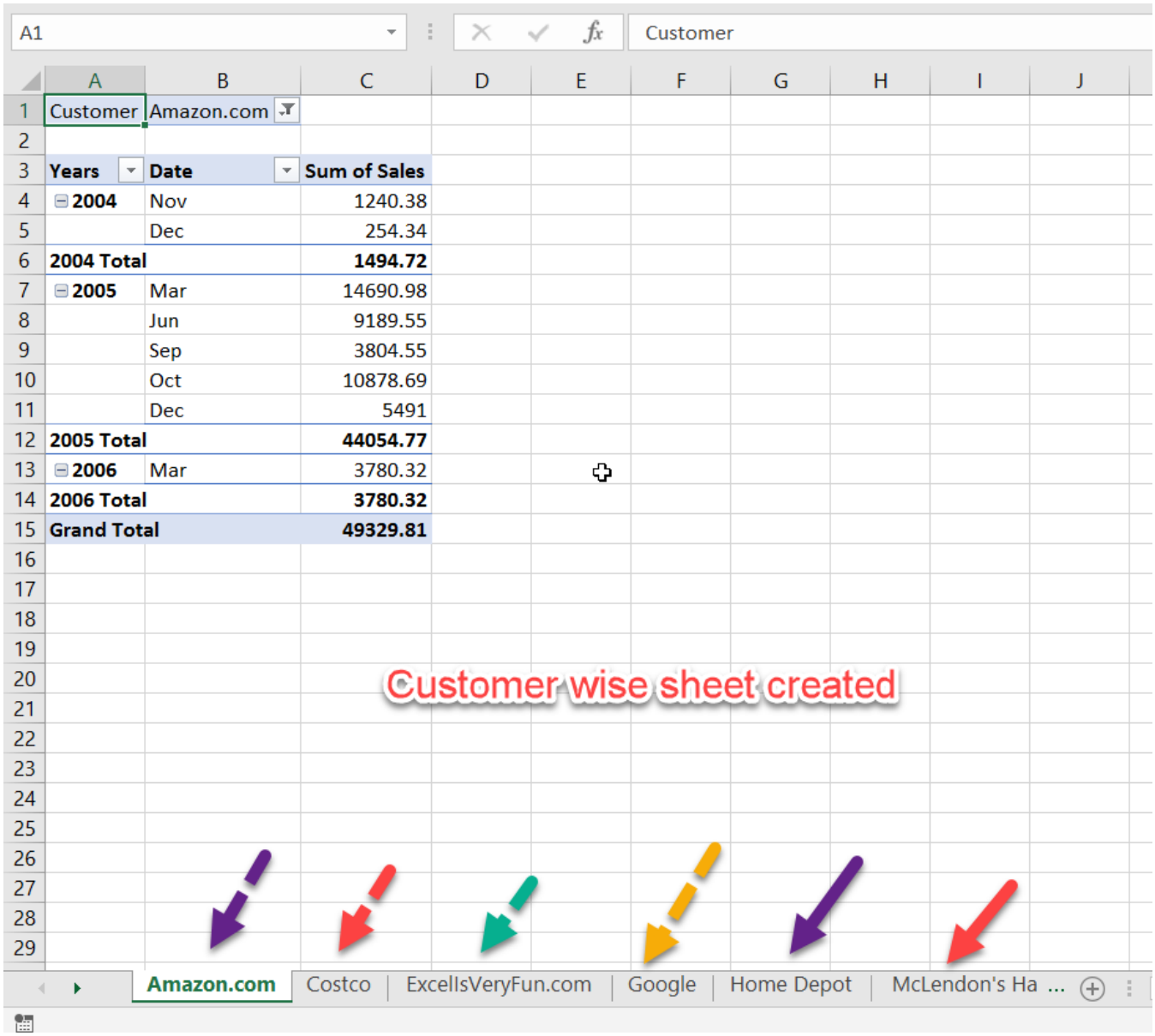
Option-> Option -> Show Report Filter Pages ->OK (2007)

In 2010/2013/2016 We can click on analyze tab.





Click on the customer filed because we want to extract /Create page customer wise.

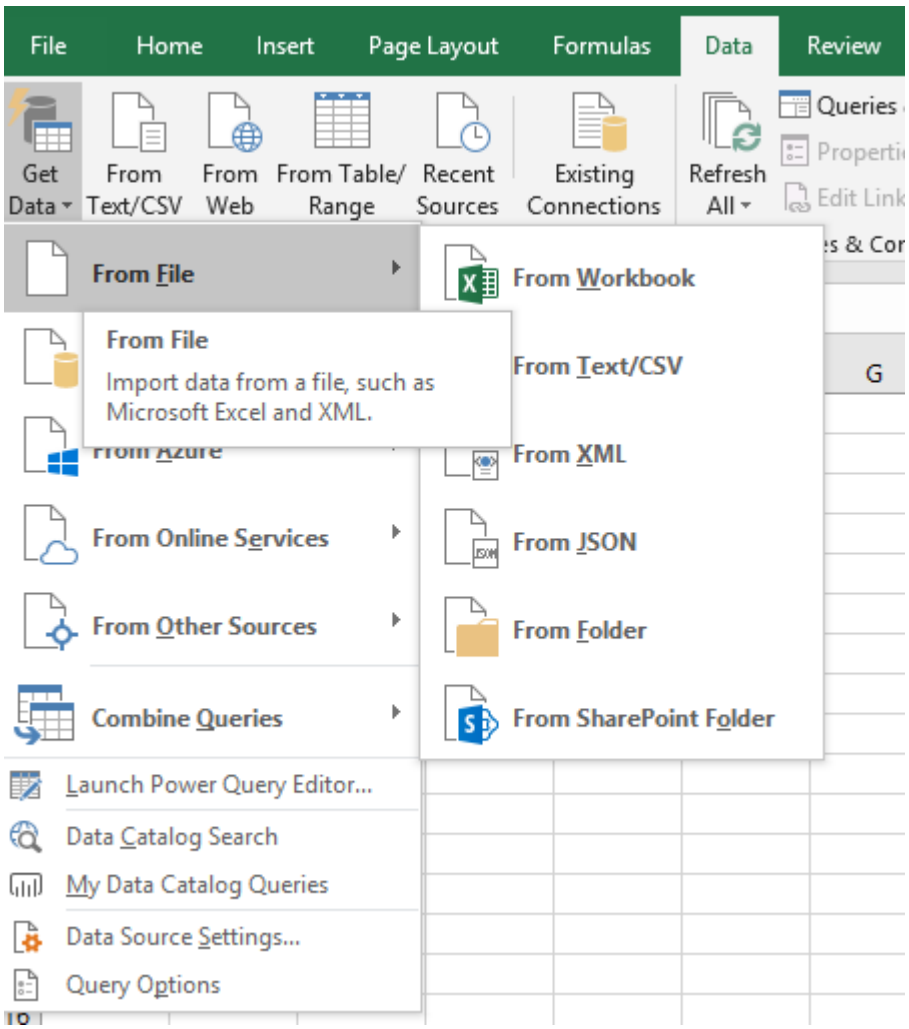


	A	B	C
1	Customer	Amazon.com	
2			
3	**Years**	**Date**	**Sum of Sales**
4	**2004**	Nov	1240.38
5		Dec	254.34
6	**2004 Total**		**1494.72**
7	**2005**	Mar	14690.98
8		Jun	9189.55
9		Sep	3804.55
10		Oct	10878.69
11		Dec	5491
12	**2005 Total**		**44054.77**
13	**2006**	Mar	3780.32
14	**2006 Total**		**3780.32**
15	**Grand Total**		**49329.81**

Chapter 11 : Import data from external data sources (Power Query)

The main benefit of connecting to external data is that you can periodically analyze this data in Microsoft Office Excel without repeatedly copying the data, which is an operation that can be time-consuming and error-prone. After connecting to external data, you can also automatically refresh (or update) your Excel workbooks from the original data source whenever the data source is updated with new information.

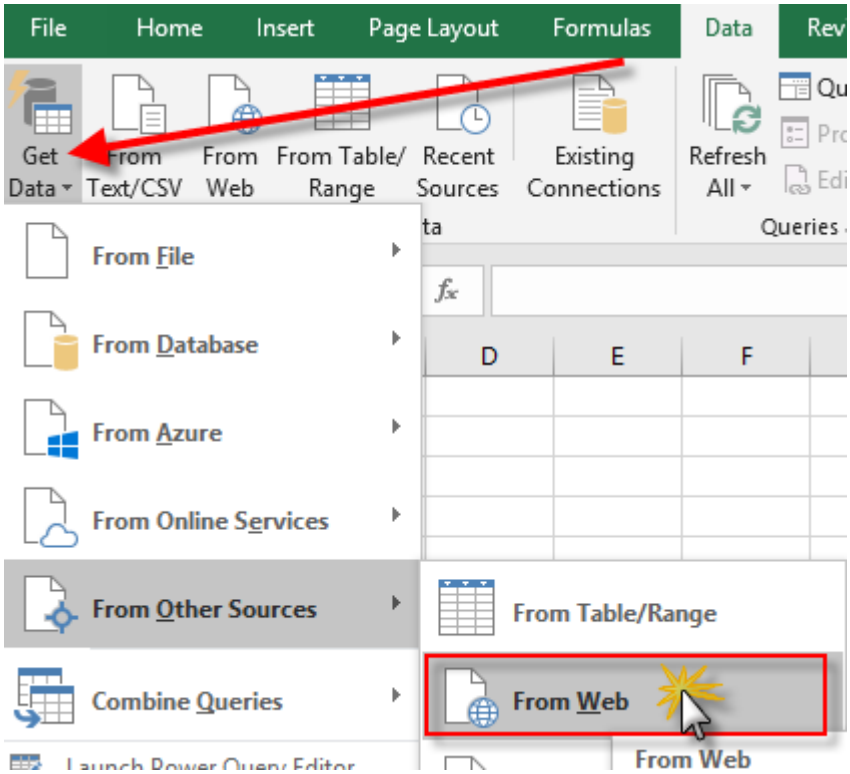
Use Excel's Get & Transform (**Power Query**) experience to import data into Excel from a wide variety of data sources. You can then use the Query Editor to edit query steps to shape or transform data.



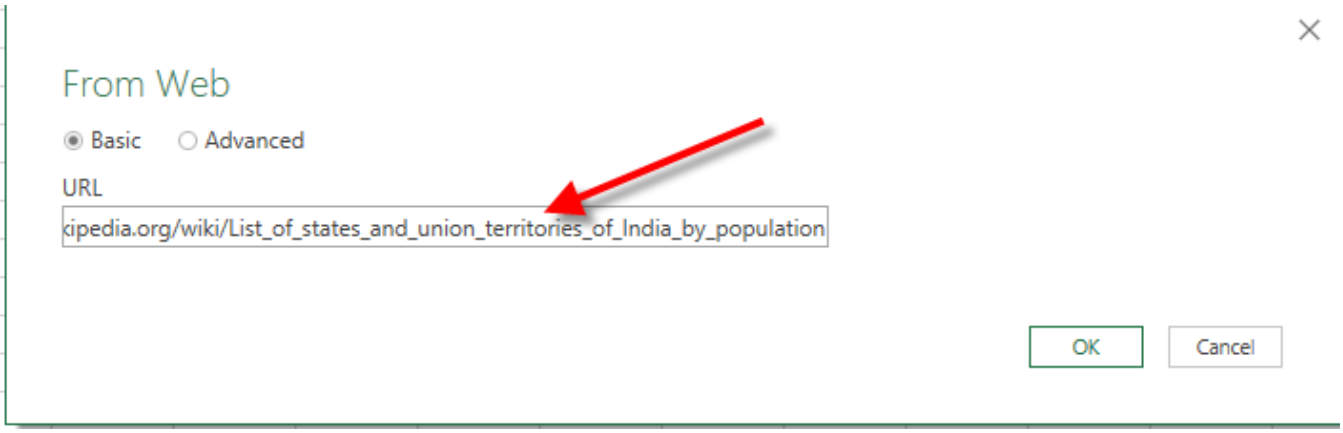
Import Data from Web

Use Excel's Get & Transform (Power Query) experience to connect to a web page and import information

Click the **Data** tab, then **From Other Sources** > **From Web**.

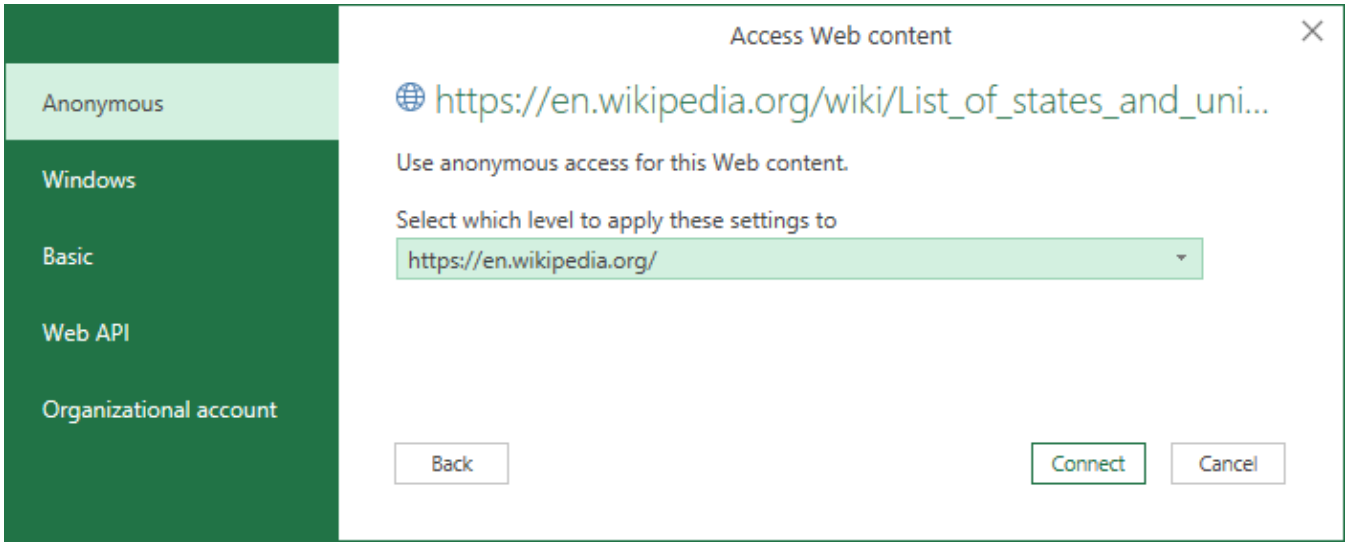


In the **From Web** dialog box, enter a web page **URL**, then **OK**.



In this book, we're using this Web Page URL:

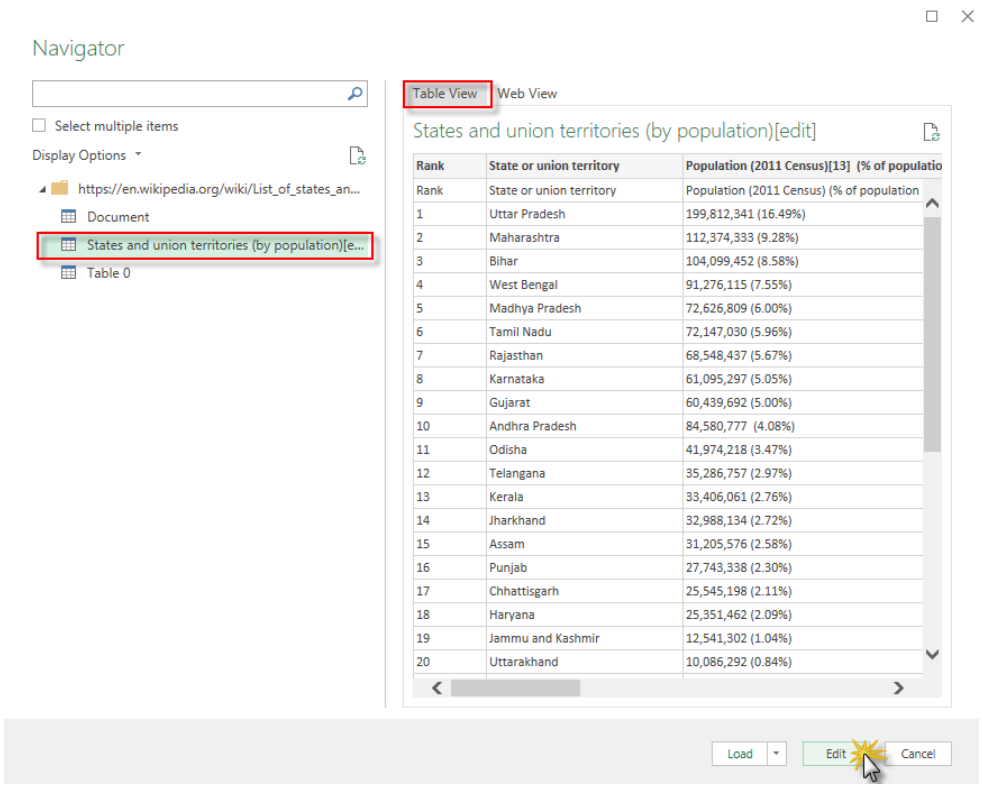
https://en.wikipedia.org/wiki/List_of_states_and_union_territories_of_India_by_population



Click on the connect.

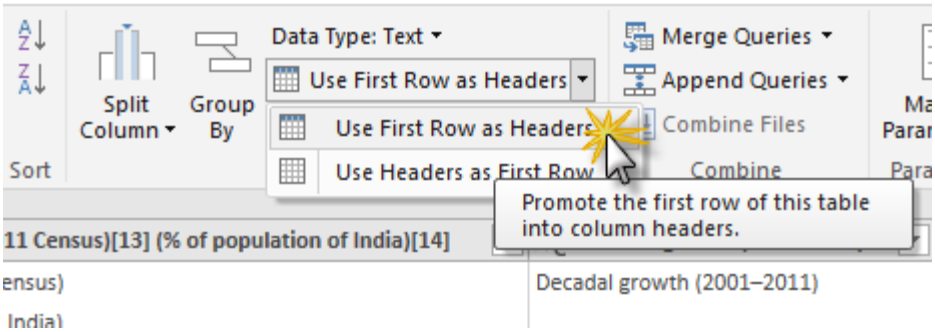
Power Query will analyze the web page and load the **Navigator** pane in **Table View**.

If you know which table you want to connect to, then click it from the list. For this example, we chose the State & Union Territories table.

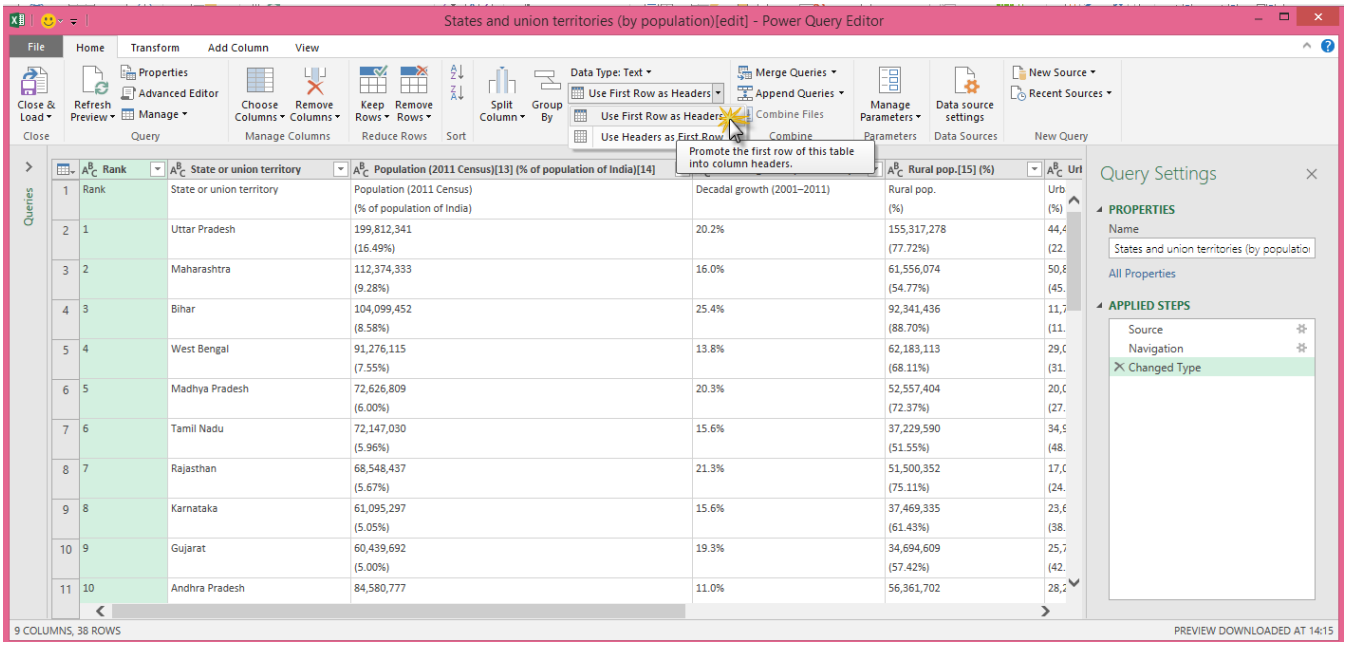


Rank	State or union territory	Population (2011 Census)[13] (% of populatio
Rank	State or union territory	Population (2011 Census) (% of population
1	Uttar Pradesh	199,812,341 (16.49%)
2	Maharashtra	112,374,333 (9.28%)
3	Bihar	104,099,452 (8.58%)
4	West Bengal	91,276,115 (7.55%)
5	Madhya Pradesh	72,626,809 (6.00%)
6	Tamil Nadu	72,147,030 (5.96%)
7	Rajasthan	68,548,437 (5.67%)
8	Karnataka	61,095,297 (5.05%)
9	Gujarat	60,439,692 (5.00%)
10	Andhra Pradesh	84,580,777 (4.08%)
11	Odisha	41,974,218 (3.47%)
12	Telangana	35,286,757 (2.97%)
13	Kerala	33,406,061 (2.76%)
14	Jharkhand	32,988,134 (2.72%)
15	Assam	31,205,576 (2.58%)
16	Punjab	27,743,338 (2.30%)
17	Chhattisgarh	25,545,198 (2.11%)
18	Haryana	25,351,462 (2.09%)
19	Jammu and Kashmir	12,541,302 (1.04%)
20	Uttarakhand	10,086,292 (0.84%)

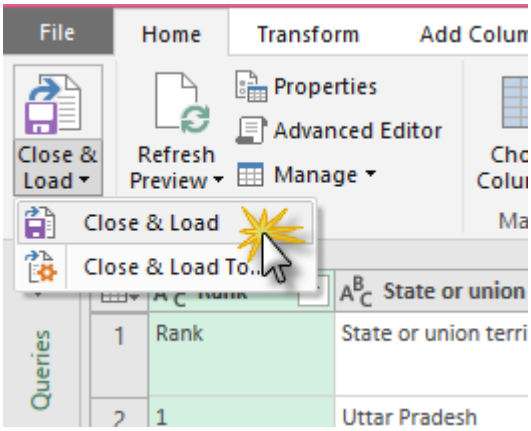
Click **Edit**, and **Power Query** will load the web data you selected into Power Query Window.

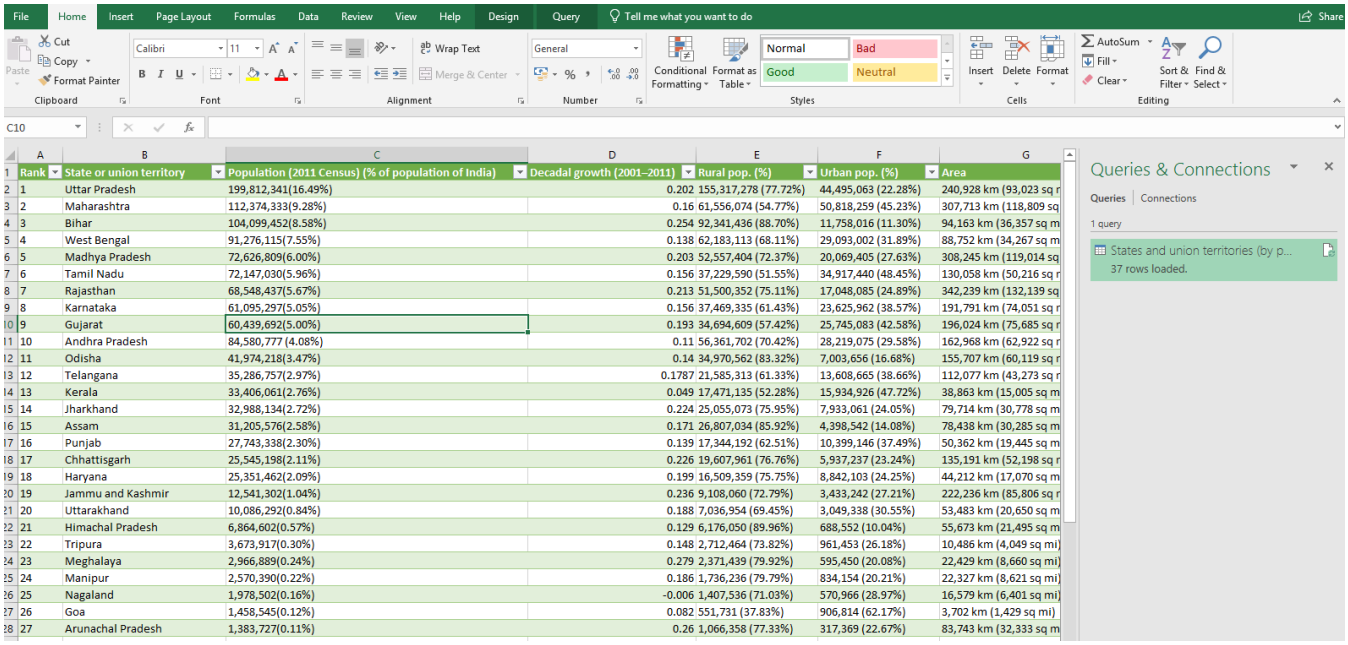


Click on Home tab and click **Use First Row as Headers**



Click on Close & Load to Exit from Query window and return to excel sheet.



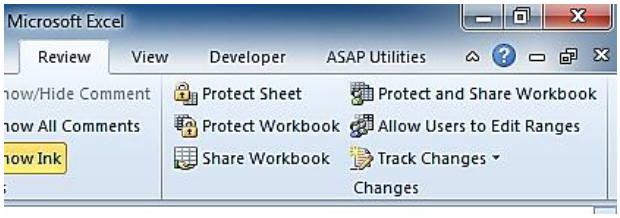


Rank	State or union territory	Population (2011 Census) (% of population of India)	Decadal growth (2001–2011)	Rural pop. (%)	Urban pop. (%)	Area
1	Uttar Pradesh	199,812,341(16.49%)	0.202	155,317,278 (77.72%)	44,495,063 (22.28%)	240,928 km (93,023 sq r
2	Maharashtra	112,374,333(9.28%)	0.16	61,556,074 (54.77%)	50,818,259 (45.23%)	307,713 km (118,809 sq
3	Bihar	104,099,452(8.58%)	0.254	92,341,436 (88.70%)	11,758,016 (11.30%)	94,163 km (36,357 sq m
4	West Bengal	91,276,115(7.55%)	0.138	62,183,113 (68.11%)	29,093,002 (31.89%)	88,752 km (34,267 sq m
5	Madhya Pradesh	72,626,809(6.00%)	0.203	52,557,404 (72.37%)	20,069,405 (27.63%)	308,245 km (119,014 sq
6	Tamil Nadu	72,147,030(5.96%)	0.156	37,229,590 (51.55%)	34,917,440 (48.45%)	130,058 km (50,216 sq r
7	Rajasthan	68,548,437(5.67%)	0.213	51,500,352 (75.11%)	17,048,085 (24.89%)	342,239 km (132,139 sq
8	Karnataka	61,095,297(5.05%)	0.156	37,469,335 (61.43%)	23,625,962 (38.57%)	191,791 km (74,051 sq r
9	Gujarat	60,439,692(5.00%)	0.193	34,694,609 (57.42%)	25,745,083 (42.58%)	196,024 km (75,685 sq r
10	Andhra Pradesh	84,580,777 (4.08%)	0.11	56,361,702 (70.42%)	28,219,075 (29.58%)	162,968 km (62,922 sq r
11	Odisha	41,974,218(3.47%)	0.14	34,970,562 (83.32%)	7,003,656 (16.68%)	155,707 km (60,119 sq r
12	Telangana	35,286,757(2.97%)	0.1787	21,585,313 (61.33%)	13,608,665 (38.66%)	112,077 km (43,273 sq r
13	Kerala	33,406,061(2.76%)	0.049	17,471,135 (52.28%)	15,934,926 (47.72%)	38,863 km (15,005 sq m
14	Jharkhand	32,988,134(2.72%)	0.224	25,055,073 (75.95%)	7,933,061 (24.05%)	79,714 km (30,778 sq m
15	Assam	31,205,576(2.58%)	0.171	26,807,034 (85.92%)	4,398,542 (14.08%)	78,438 km (30,285 sq m
16	Punjab	27,743,338(2.30%)	0.139	17,344,192 (62.51%)	10,399,146 (37.49%)	50,362 km (19,445 sq m
17	Chhattisgarh	25,545,198(2.11%)	0.226	19,607,961 (76.76%)	5,937,237 (23.24%)	135,191 km (52,198 sq r
18	Haryana	25,351,462(2.09%)	0.199	16,509,359 (75.75%)	8,842,103 (24.25%)	44,212 km (17,070 sq m
19	Jammu and Kashmir	12,541,302(1.04%)	0.236	9,108,060 (72.79%)	3,433,242 (27.21%)	222,236 km (85,806 sq r
20	Uttarakhand	10,086,292(0.84%)	0.188	7,036,954 (69.45%)	3,049,338 (30.55%)	53,483 km (20,650 sq m
21	Himachal Pradesh	6,864,602(0.57%)	0.129	6,176,050 (89.96%)	688,552 (10.04%)	55,673 km (21,495 sq m
22	Tripura	3,673,917(0.30%)	0.148	2,712,464 (73.82%)	961,453 (26.18%)	10,486 km (4,049 sq mi)
23	Meghalaya	2,966,889(0.24%)	0.279	2,371,439 (79.92%)	595,450 (20.08%)	22,429 km (8,660 sq mi)
24	Manipur	2,570,390(0.22%)	0.186	1,736,236 (79.79%)	834,154 (20.21%)	22,327 km (8,621 sq mi)
25	Nagaland	1,978,502(0.16%)	-0.006	1,407,536 (71.03%)	570,966 (28.97%)	16,579 km (6,401 sq mi)
26	Goa	1,458,545(0.12%)	0.082	551,731 (37.83%)	906,814 (62.17%)	3,702 km (1,429 sq mi)
27	Arunachal Pradesh	1,383,727(0.11%)	0.26	1,066,358 (77.33%)	317,369 (22.67%)	83,743 km (32,333 sq m

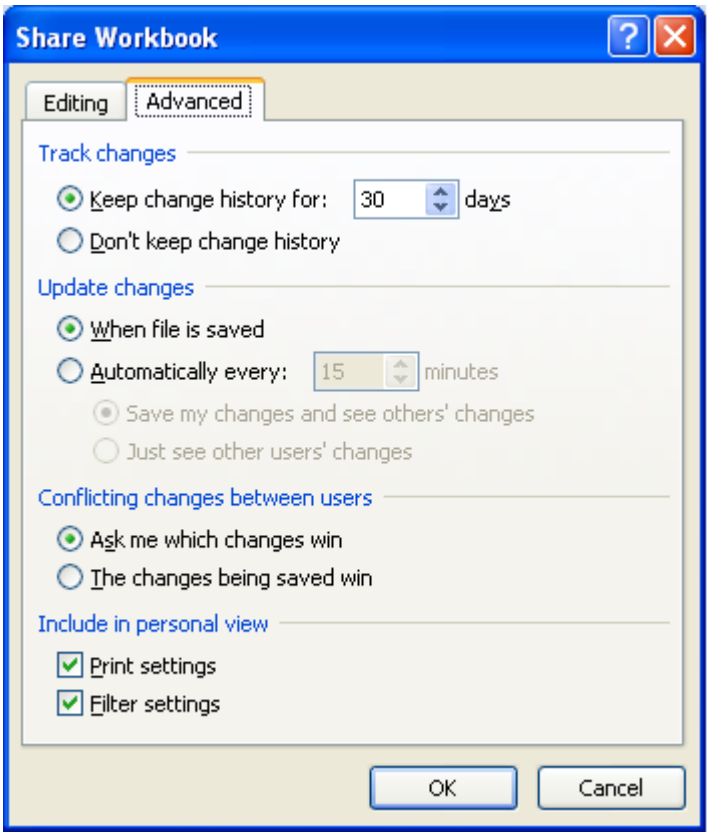
Chapter 12 : Track Changes Excel

Shared workbooks allow team members to access and change data as needed during projects. This can cause a problem when you need to verify the data, or when discrepancies arise. Microsoft Excel contains several tools to help ease your collaboration woes. The track changes function marks the workbook with the date, time and name of the editor of each cell. Use track changes on all your shared documents and you will know who to contact to verify and correct discrepancies in your data.

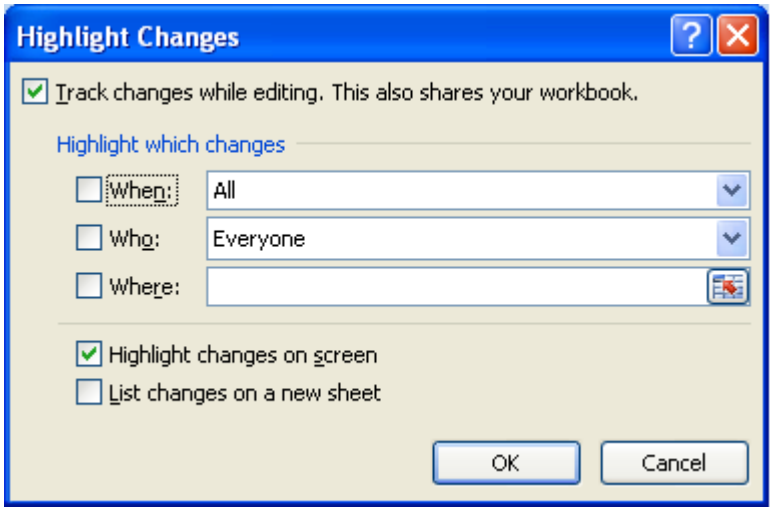
Instructions



1. Open Microsoft Excel.
2. Select "Open" from the menu. Find and highlight the file where you want to track the changes. Click the "Open" button.
3. Select “Share Workbook” from the “Changes” group of the “Review” menu. Check the box beside “Allow changes by more than one user at the same time” in the “Editing” menu.
4. Select the “Advanced” menu. Press “Keep change history for” under the “Track changes” group. Type the number of days to maintain a history of tracked changes in the “days” box.
5. Click “OK” to apply the changes. Click “OK” to save the workbook.
6. Select “Track Changes” from the “Changes” group on the “Review” menu.
7. Click “Highlight Changes.”
8. Check the box beside “Track changes while editing. This also shares your workbook.”



9. Click in the check box next to “When” to select it. Select “All” from the “When” drop-down box.
10. Click in the check box beside “Who.” Select “Everyone” from the “Who” drop-down box.



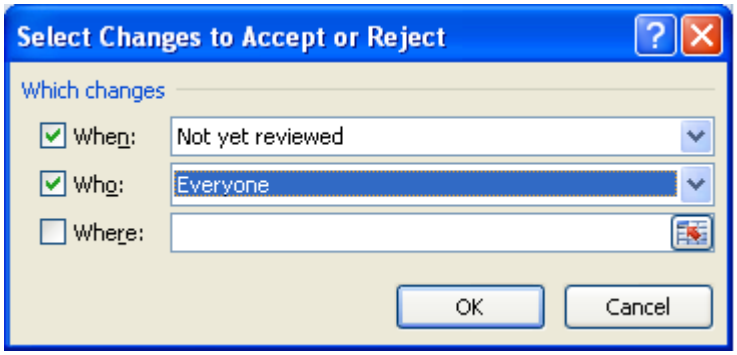
11. Check the box next to "Highlight changes on the screen." Click the "OK" button.

12. Click the "Save" button to save the file.

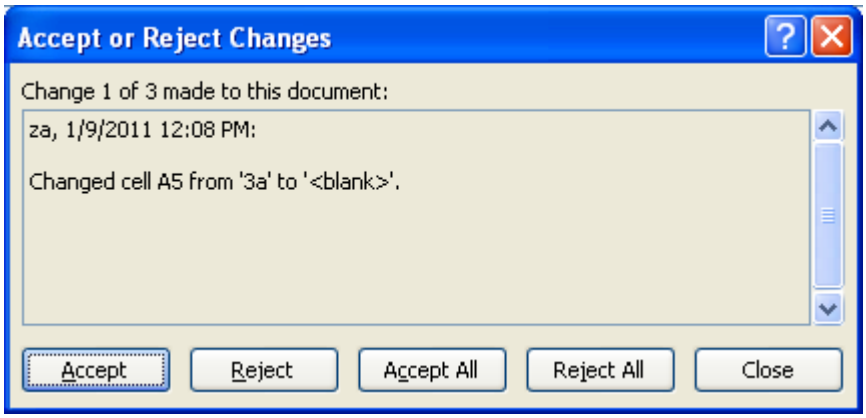
How to Accept or Reject Track Changes

Let us assume you have a received a spreadsheet with changes made by other users. The following are the steps to review and accept or reject them.

1. Select Review > Track Changes > Accept or Reject Changes from the menu. 'Select Changes to Accept or Reject' window appears.



2. Select changes to accept by choosing 'When' and 'Who' options
3. Click 'OK' button. 'Accept or Reject changes' window appears. Review the changes and accept or reject them as required.



Chapter 13: Macros

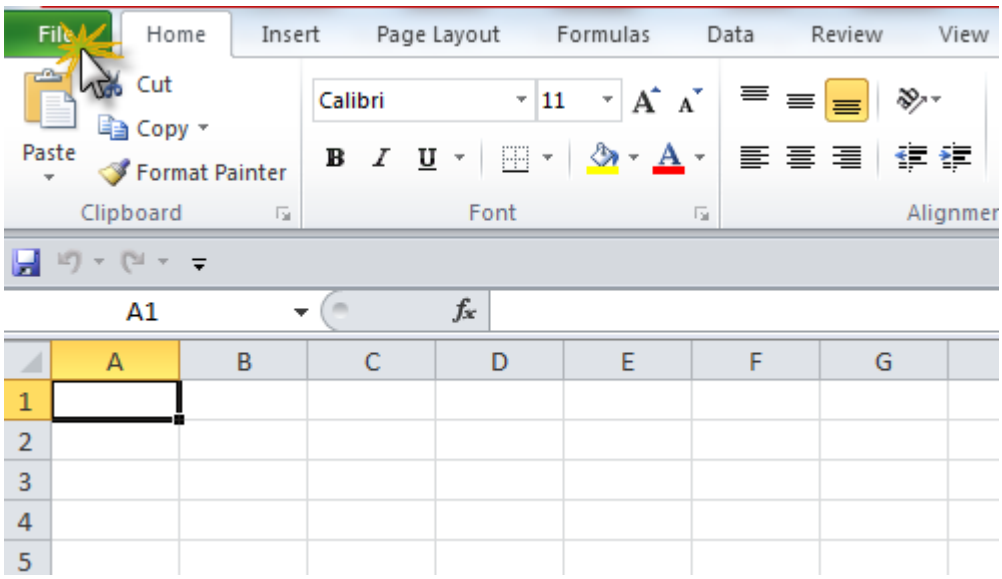
Microsoft Excel 2010/2013 in itself a tool which helps users to work with worksheets & workbooks with ease.
This tool is one of the ultimate timesavers, but there are numerous events when you have to do repetitive tasks which are of a very little value but consume your precious time; yet engage you in a less productive activity, which Excel may do automatically.
Microsoft Excel 2010/2013/2016 macro is the feature which eliminates or at-least minimize these events which take your precious time in repetitive tasks, and you will be able to capitalize this time in more productive & strategic activities.

Recording your first Macro

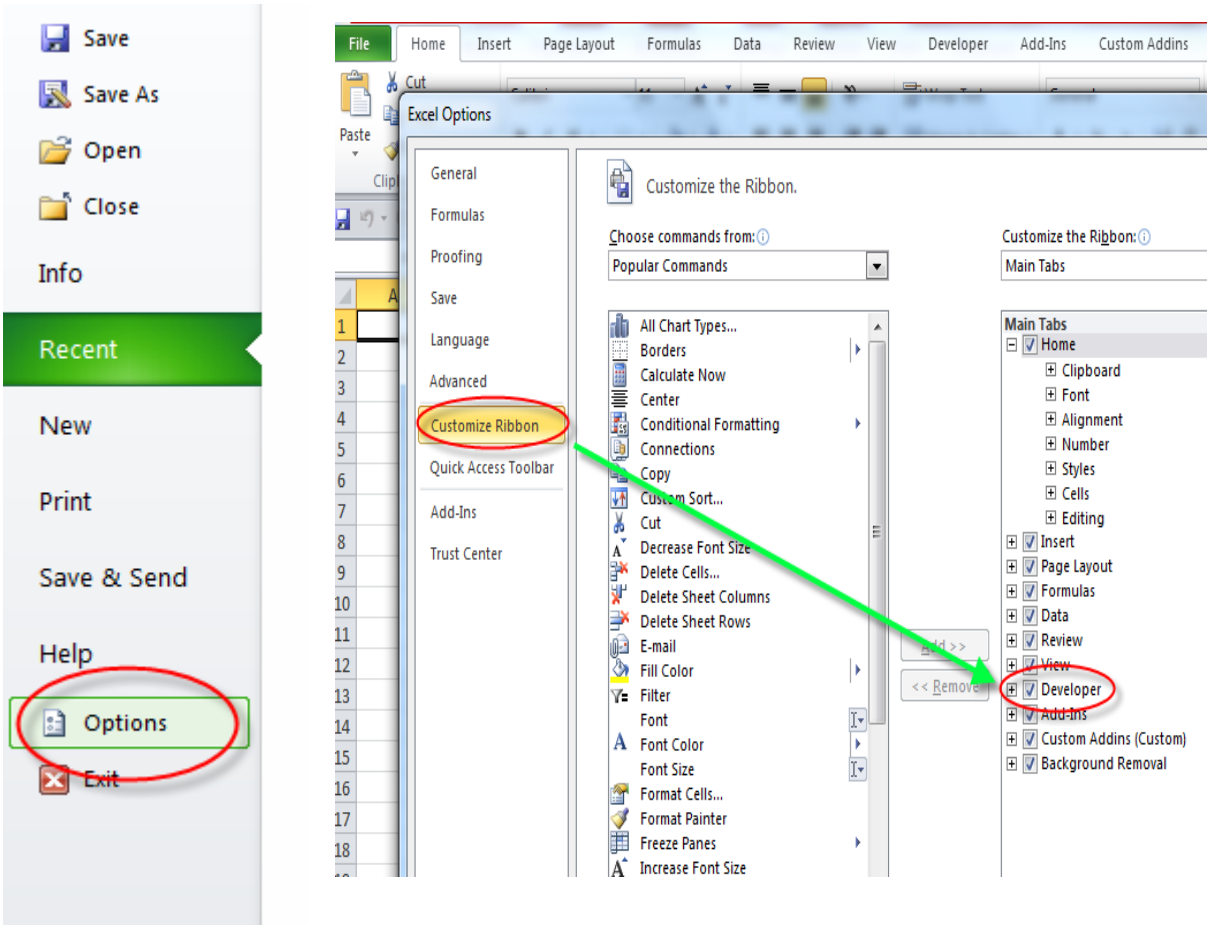
- Microsoft Excel 2010/2013 provides you a very helpful option which enables you to record a macro and also modify and run afterwards
- Microsoft Excel 2010/2013 don't provide you the macro recording option by default for enabling macro recording at first you need to enable the Developer Tab, *next slide defines step by step procedure to enable Developer Tab*

Enabling the Developer Tab

- Click on File Button

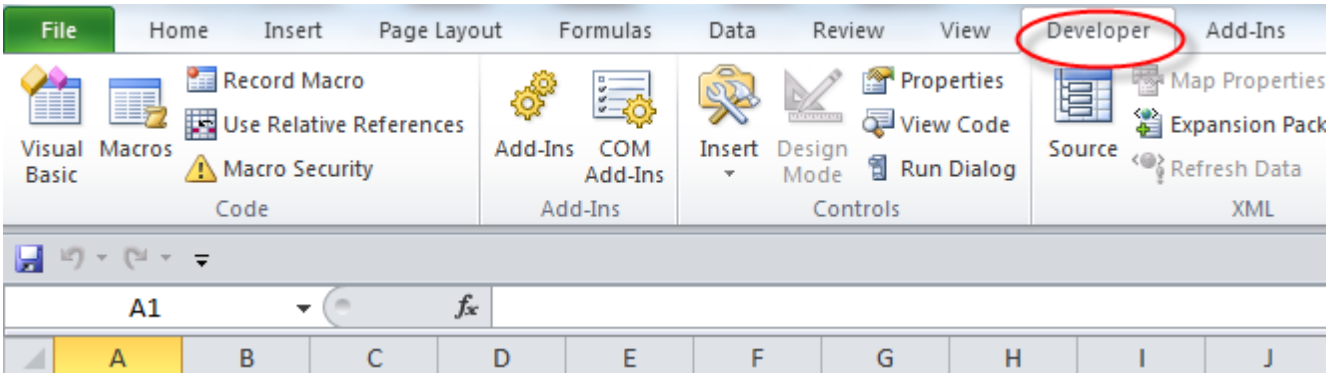


- Click on Options



- Click on the Customize Ribbon Tab check Developer check box.
- Click ok

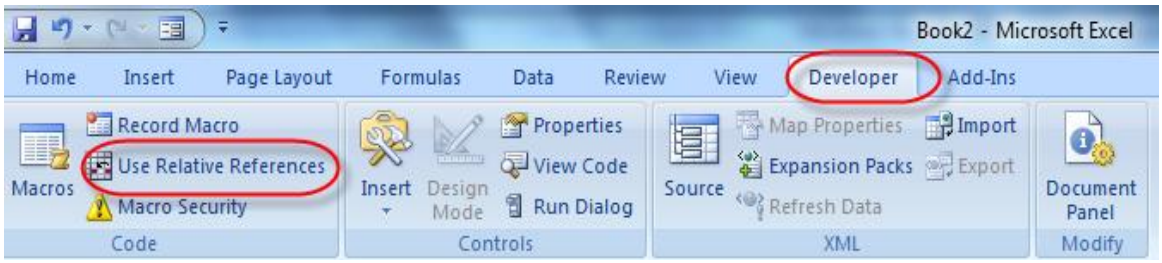
Once you are done with the process you will have the Developer Tab ready

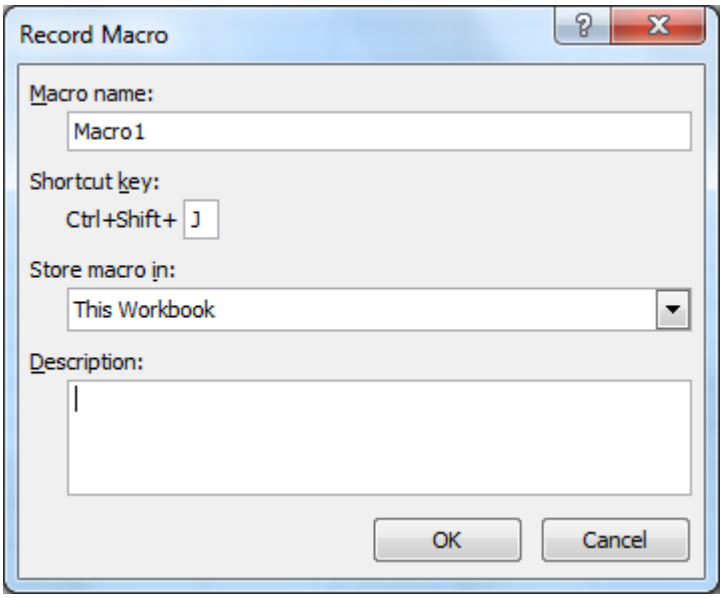


- When you record macro Microsoft Excel 2010/2013 provides you with 2 options either you can record a macro using Absolute References or Relative References
- If you go for Absolute References Excel's behavior will be:
  - You record a macro in Cell A1 type "Excel is Great" format **Bold** Cell B1

- Whenever you play / run this macro Excel will always type “Excel is Great” in Cell A1 and format **Bold** Cell B1 no matter wherever your cursor is

- You can refer to following tab that you can click on Use Relative References which will enable you to record a macro in relative cells, as discussed whenever a relative reference macro is executed it will run in-place



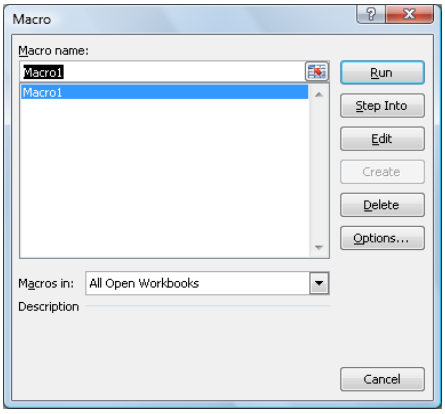


1. Click on Cell A1 type “Excel is Great”
2. Select cells from A1:C1 click on Home Tab and click on Merge & Center
3. Press Bold & Italics
4. Now click on Developer Tab and click on Stop recording

Run your Macro

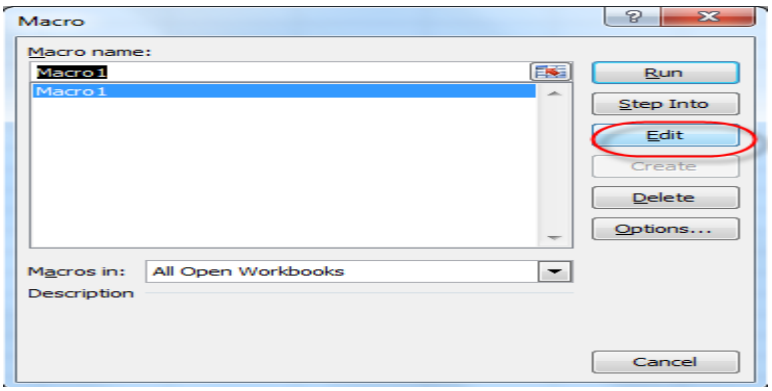
You can execute the macro you just recorded by either clicking on the Macro button on the Developer Tab or by pressing Alt F8 , you can see the list of Recorded macros in the dialog box you can press Run button

to execute the macro as soon as you press run you can see that your recorded macro will execute

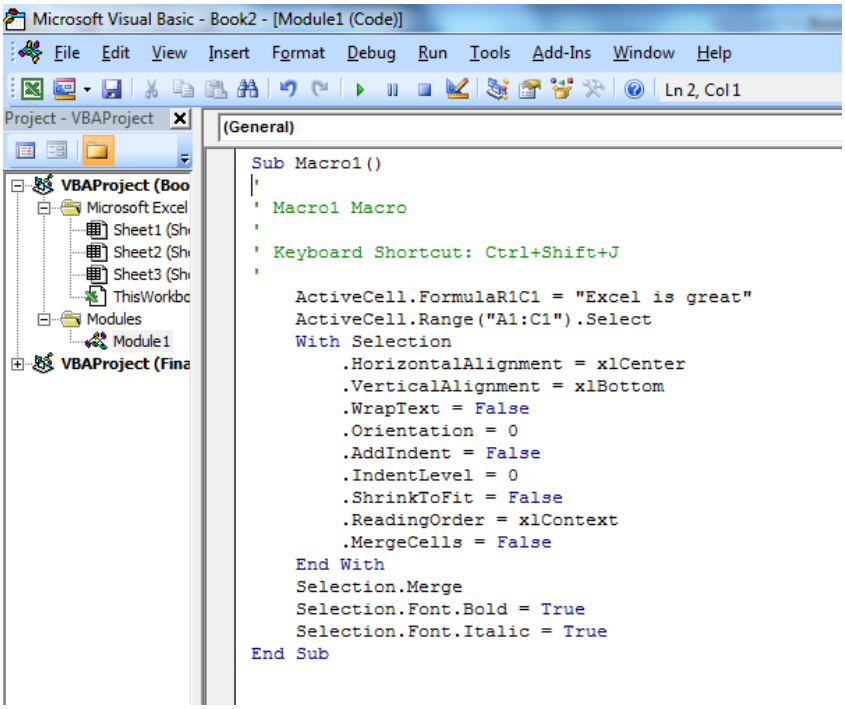


Edit Macros

To see what Excel did behind the scenes you can either click on Macros button on Developer Tab and select Edit or you can press Alt F11

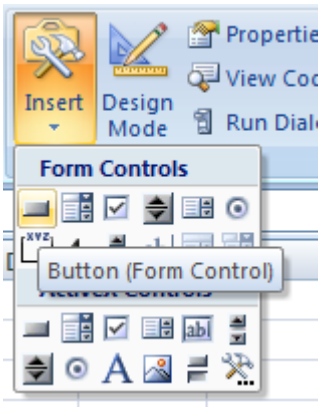


What it looks like

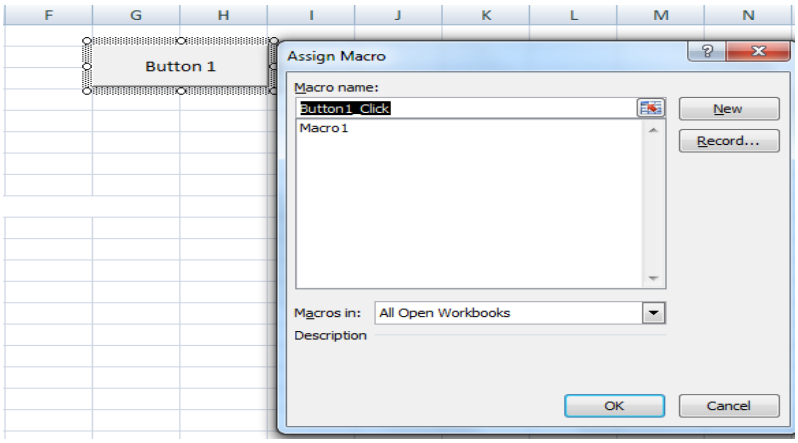


This is what Excel did behind the scenes, it written the code for you. You can change the code if you want. You can either close the window or press Alt F11 again to go back to your Excel
normal screen

Assign Macros on Command Button



- Click on the Developer Tab
- Under Control Group, Click on the insert button & choose Button.
- Create a Button using drag technique.
- Select the Macros from Assign Macros Dialog box. Or If you want to assign macros later first design Button, Right click on the button and click on the assign macros.

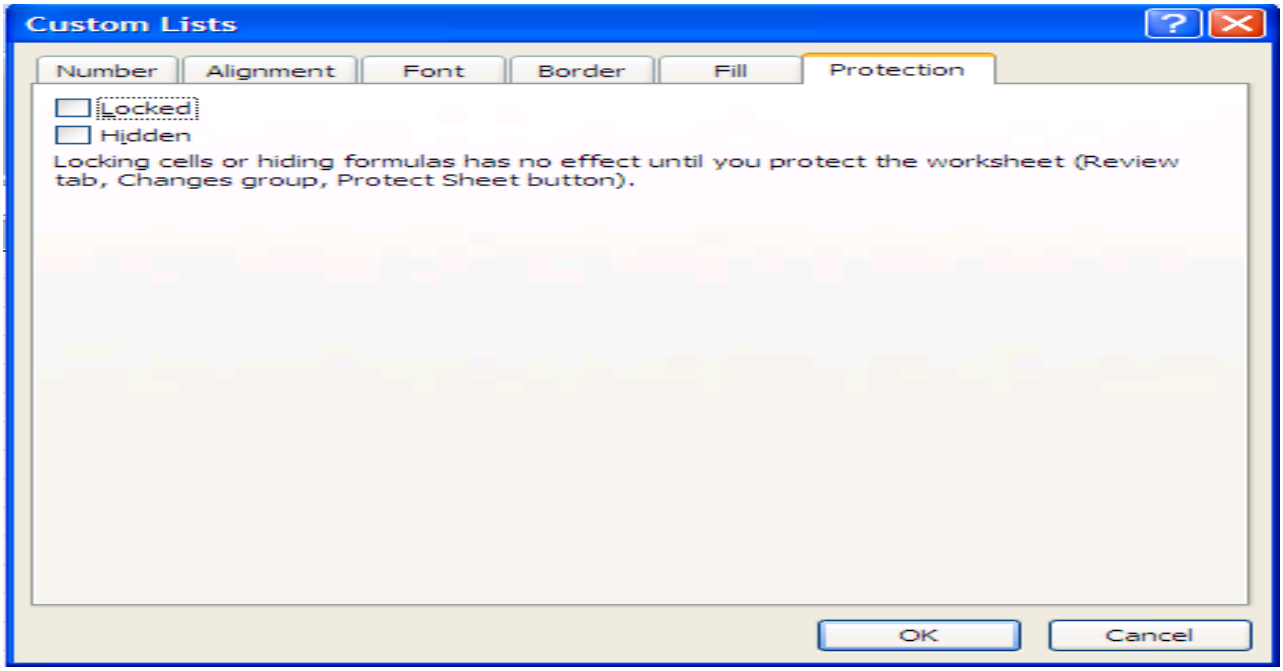


Chapter 14: Security & Protection – for worksheet and file

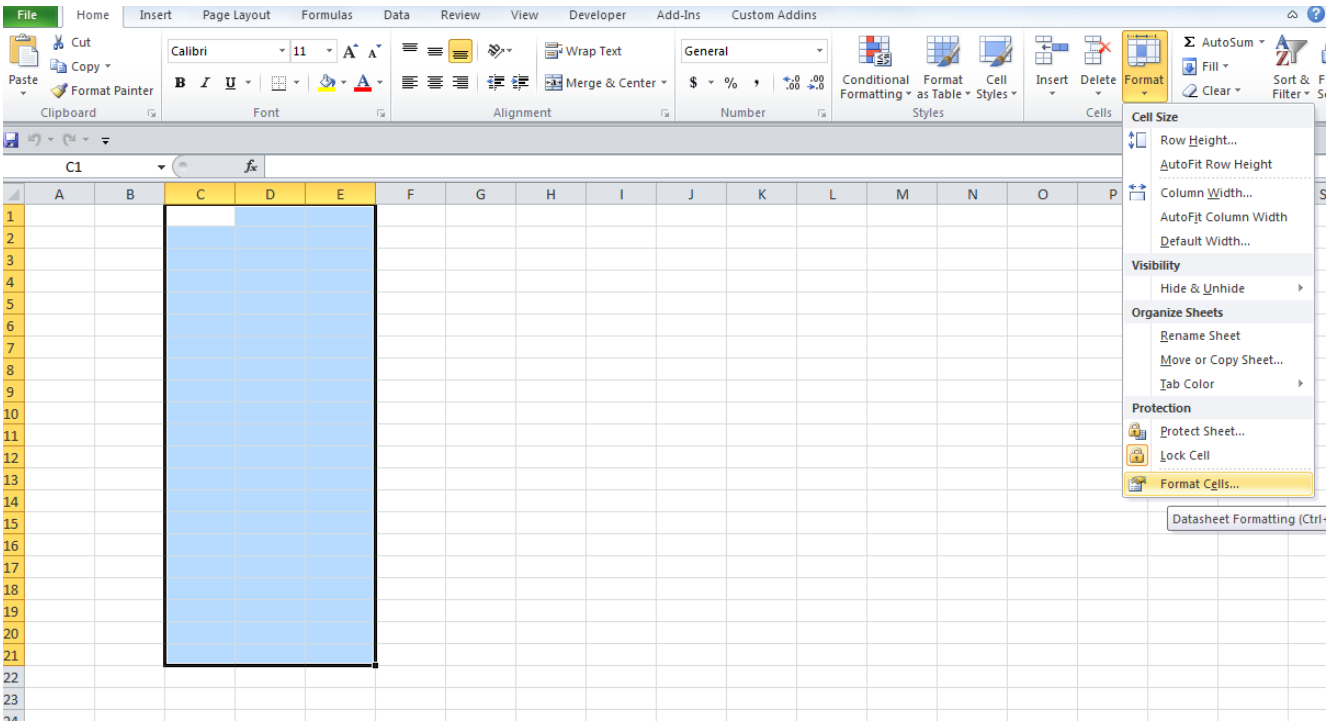
Security and protection will help you protect your cells, worksheet area, worksheet or an excel file from unauthorized or misuse. You can secure your confidential data with this feature.

Select all cell, click on format, format cells….

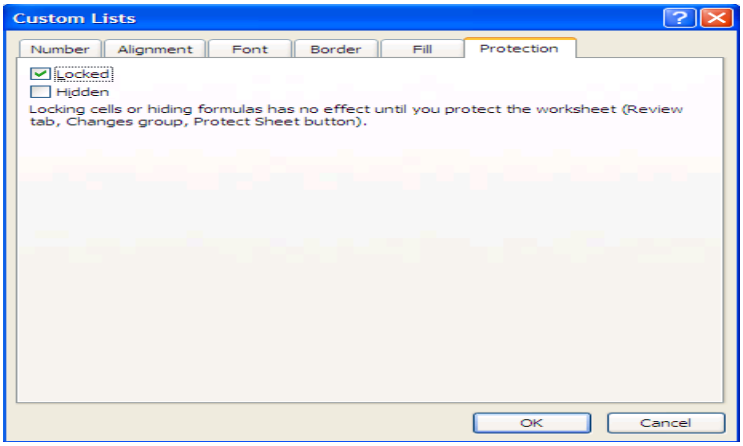
Uncheck the option locked and click ok…



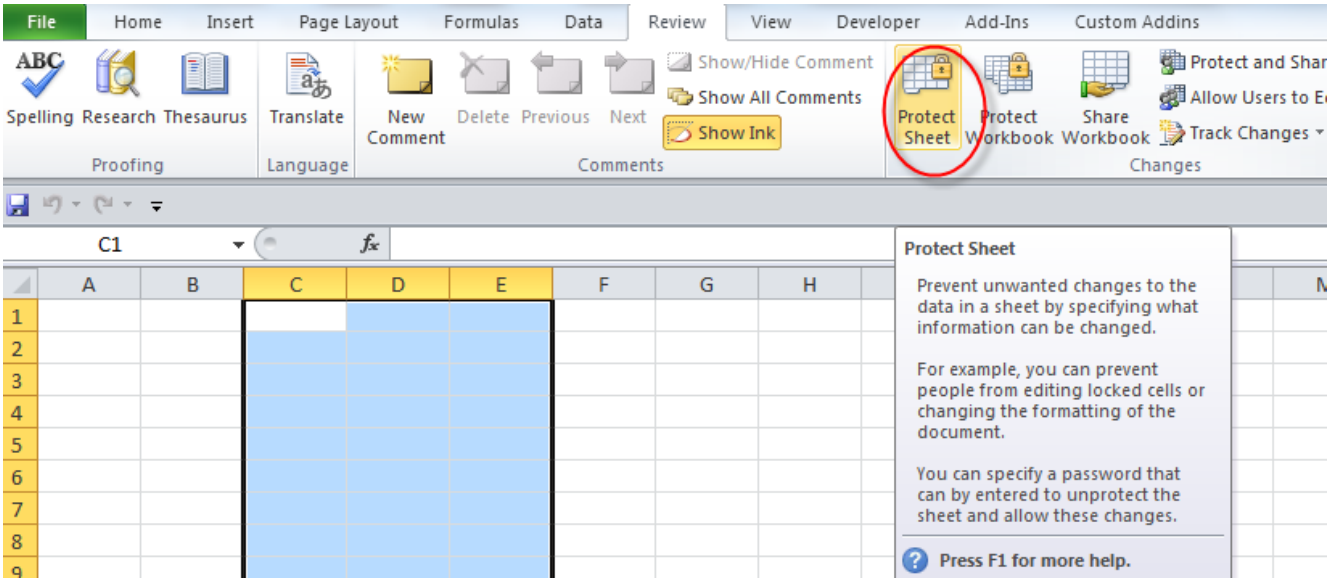
Now, select the cells you want to lock for example as per following snapshot….



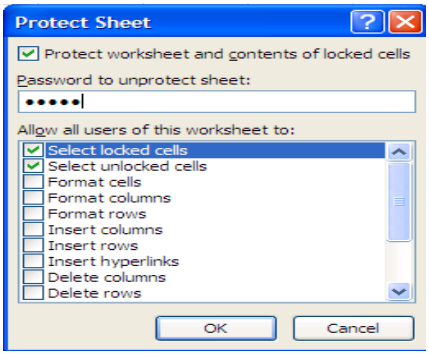
Click on format cell and click on locked and ok….



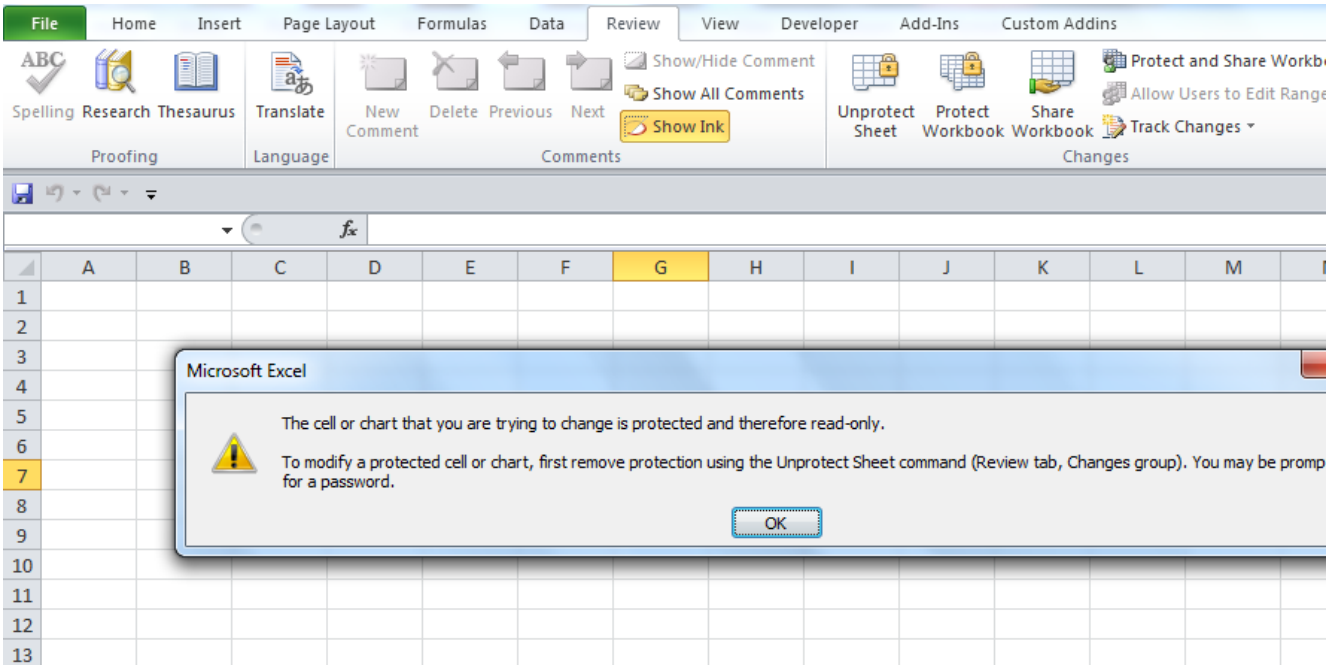
Click on protect sheet from the following menu…



Type the password you want to use for protection / unprotection…

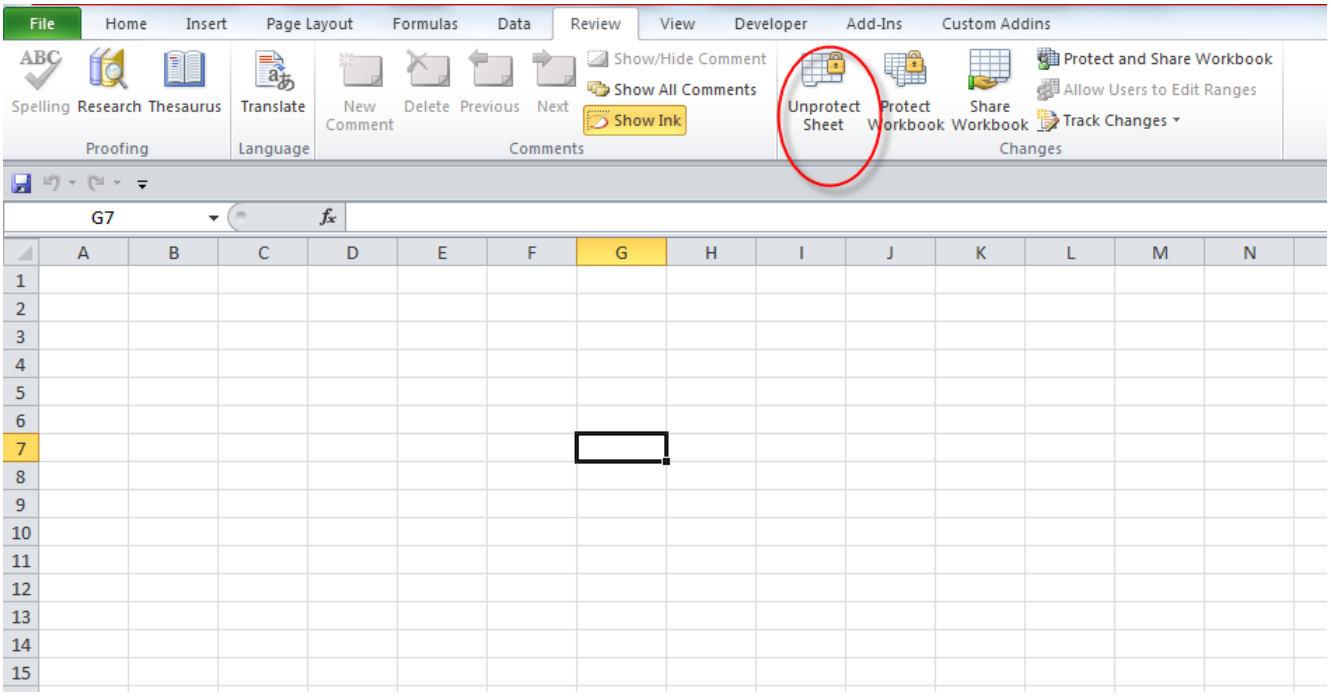


Now when you try to enter the data in protected cells, you will face the following errors….

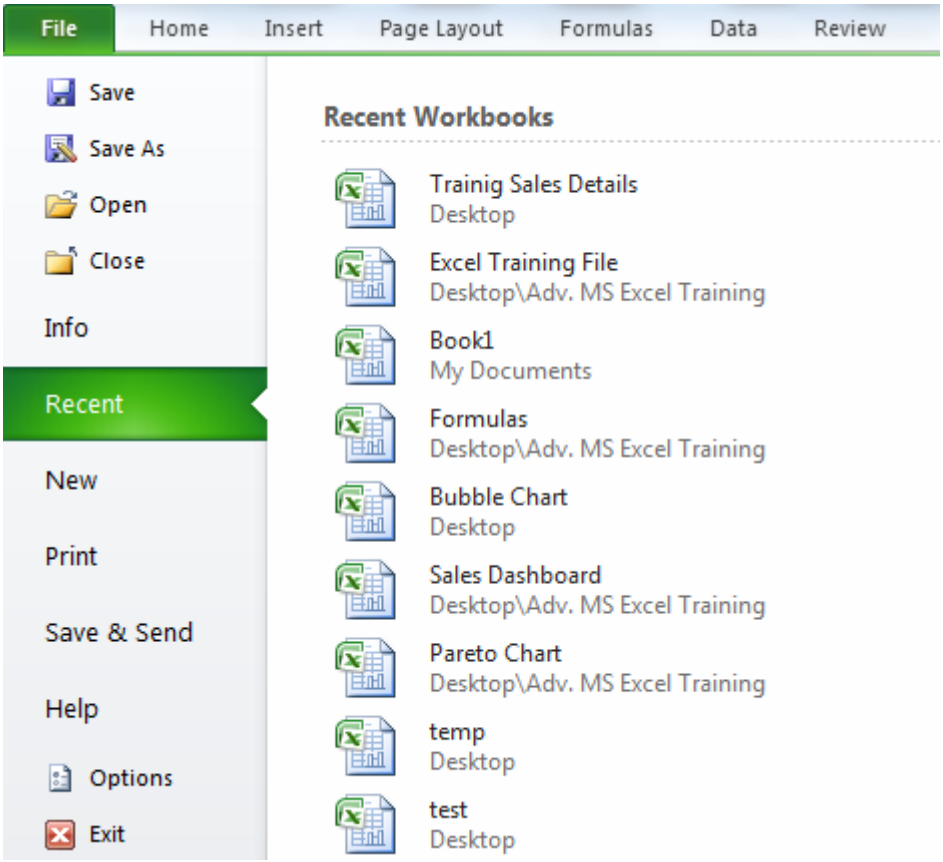


To unprotect the sheet and locked cells…click on unprotect sheet as per following and

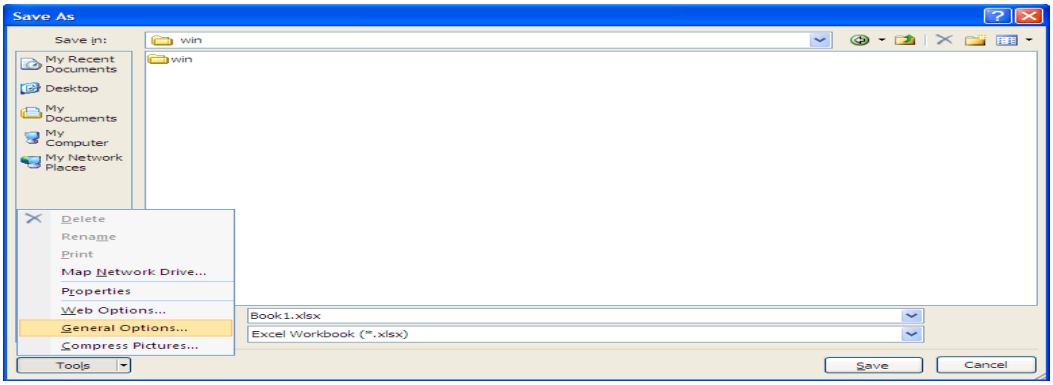
type password…..

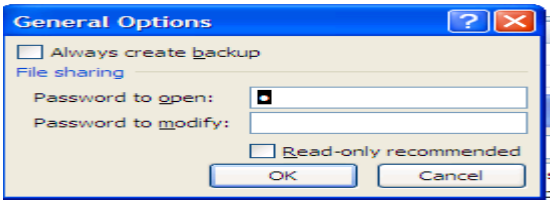


Setting up the file password……click on File Button and save as….



Click on Tools…General Option….



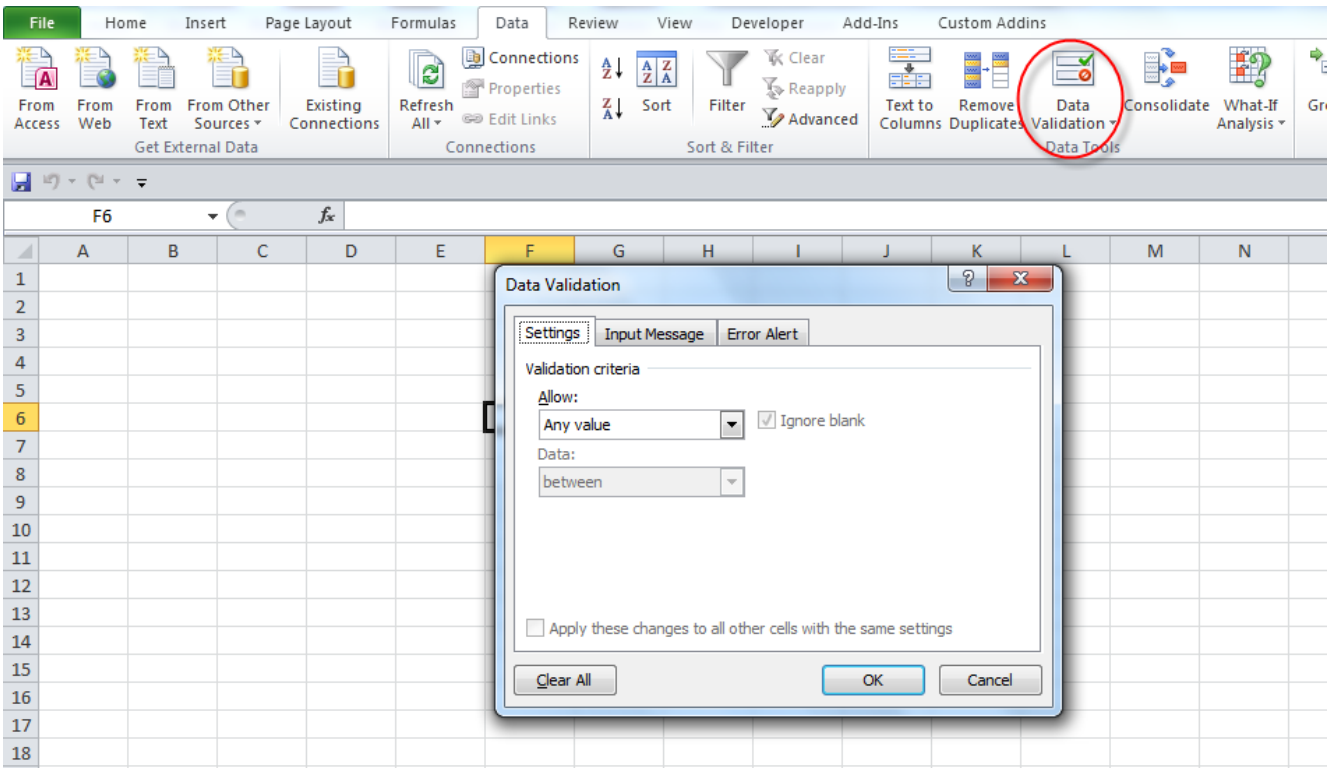


Type the password you want to put and then save the file…..when you will open it will ask for the passwo d.

Chapter 15: Data validation

Suppose you want the user not to enter or to enter some data in some specified fields when they are inputting the data for further analysis or use. You can define your custom-built data validation rules which are easy to implement, use and manage as well.

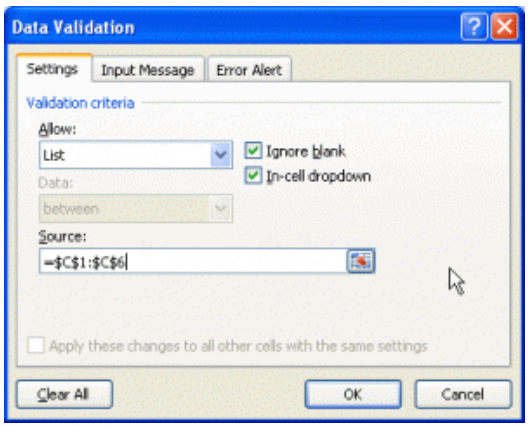
Path : Data Tab → Data Validation



Data validation in Excel –Drop down list

If you want to validate a cell to restrict data entry to values in a drop-down list follow these steps:

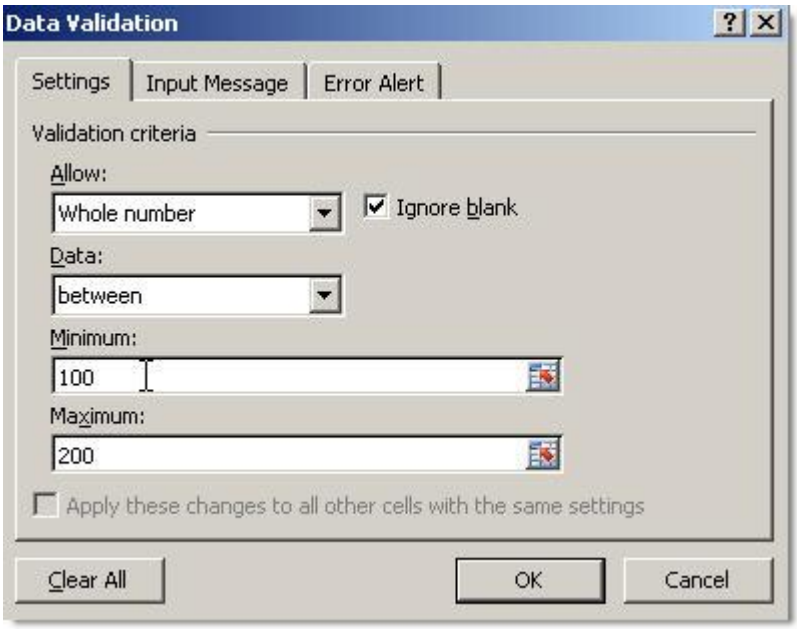
1. Select the cell you want to validate.
2. On the **Data tab**, in the Data Tools group, click **Data Validation**.
3. The **Data Validation** dialog box will open.



- In the Data Validation dialog box, click the Settings tab.
- Click on the Allow box then select List from the drop-down list.

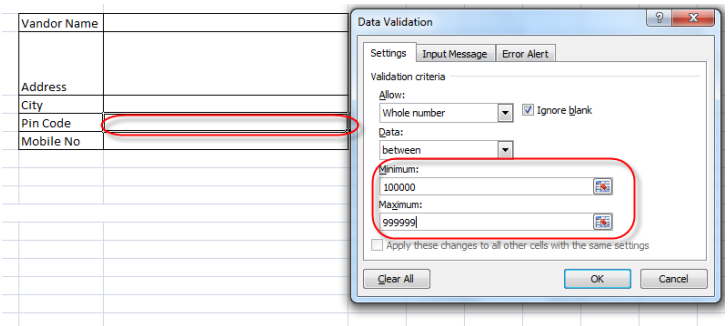
- Click the Source box and then type the valid values separated by the appropriate list separator character depending on your requirement (usually a comma “,” or semicolon “;”). For example, if the cell is for a color of a car then you can limit the values by entering: Silver, Green, Blue.
- Instead of typing your list manually, you can also create the list entries by referring to a range of cells in the same worksheet or another worksheet in the workbook.
- To specify the location of the list of valid entries, do one of the following:
- If the list is in the current worksheet, enter a reference to your list in the Source box, for example enter: =$A$1:$A$6.
- If the list is on a different worksheet, define a name for your list then enter the name that you defined for your list in the Source box, for example, enter: =Valid Projects.

Configure the allowed data for D35 cell: a number between 100 and 200.

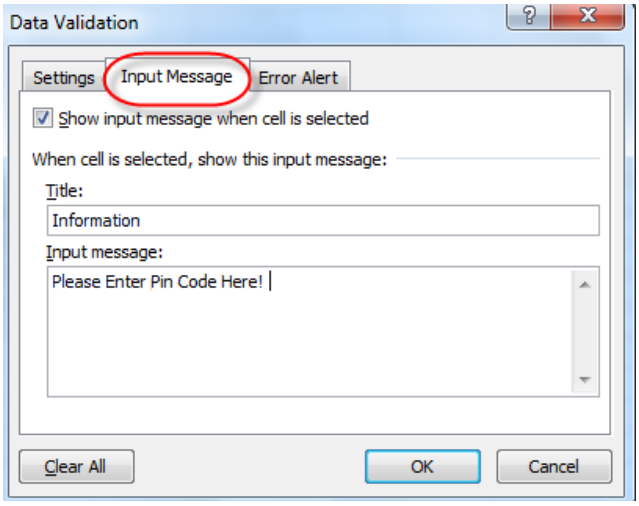


Number Data Validation

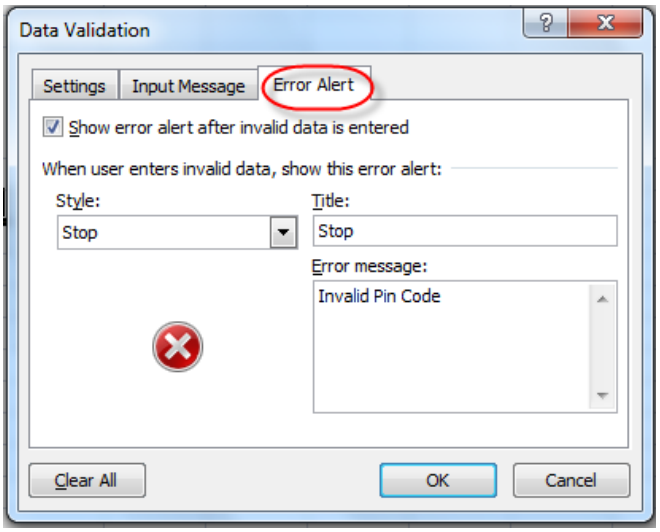
Suppose you want to enter Pin code inside the excel cell as we know pin code must be equal to 6 character it can’t more be than 6 character or less than 6 character and it must be no.



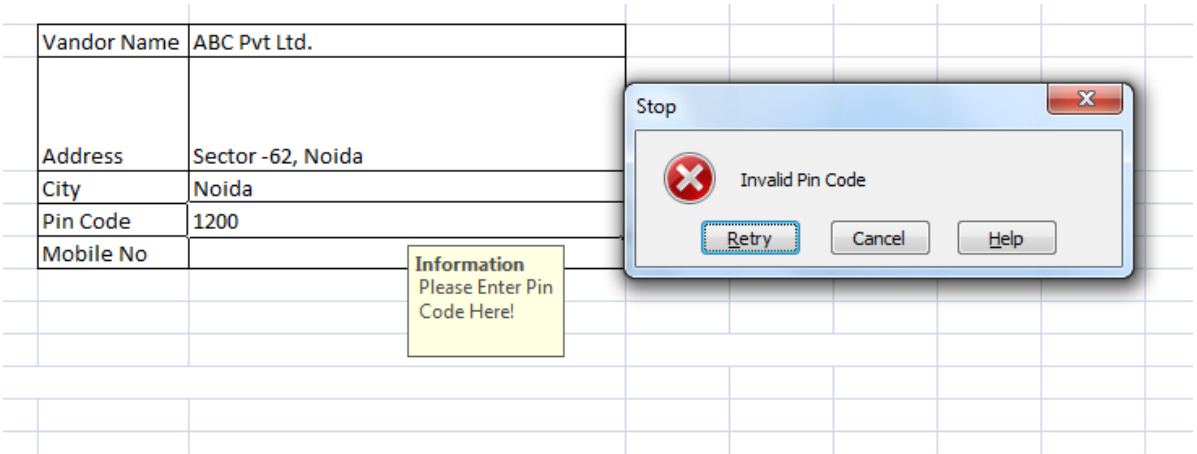
- Create an input message for pin code cell.



- Create an error message.



Click ok Button & try to type invalid pin Code you will get the error message.



Chapter 16: Paste special functions

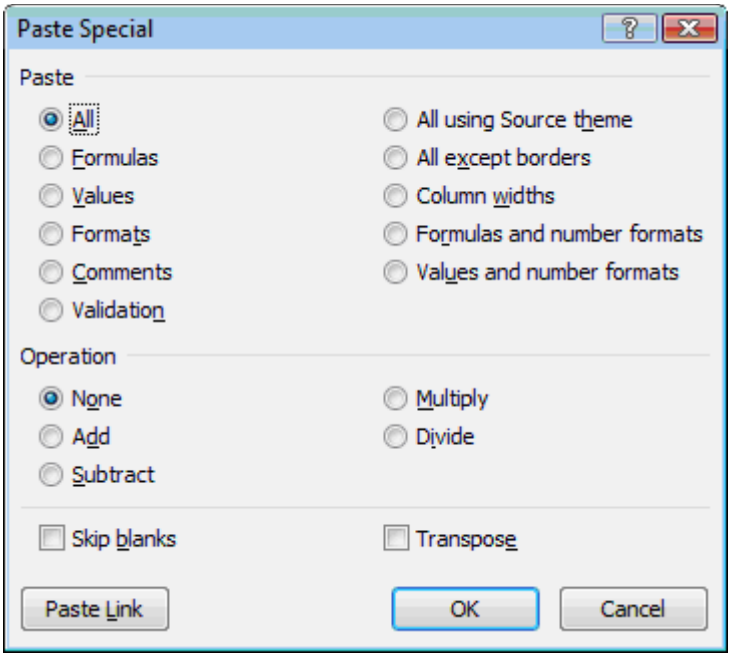
You can play with copied data the way you want with this feature which users rarely know.

Paste Special allows you to specify that only the entries be copied (without the formatting) or that just the formatting be copied (without the entries).

This page going to explains to you the Excel 2010/2013 paste special options.

To use the Paste Special dialog box

- Select the range of data you wish to copy.
- On the **Home** tab, in the **Clipboard** group, click **Copy** icon.
  OR press **Ctrl+C**.
- Click the cell where you want to paste the range.
- On the **Home** tab, in the **Clipboard** group, click the down arrow of the **Paste** icon and click the **Paste Special** option.
- From the **Paste Special** dialog box displayed, select the necessary option from the **Paste** section:



Each option is explain as follow:

All	Pastes the cell's contents, formats, and data validation from the Clipboard.
Formulas	Pastes values and formulas, with no formatting.
Values	Pastes values and the results of formulas (no formatting). The destination for the copy can be a new range or the original range.
Formats	Copies only the formatting.
Comments	Copies only the cell comments from a cell or range. This option doesn't copy cell contents or formatting.
Validation	Copies the validation criteria so the same data validation will apply.
All Using Source Theme	Pastes everything, but uses the formatting from the document theme of the source. This option is relevant only if you're pasting information from a different workbook, and the workbook uses a different document theme than the active workbook.
All Except Borders	Pastes everything except borders that appear in the source range.
Column Widths	Pastes only column width information.
Formulas And Number Formats	Pastes all values, formulas and number formats (but no other formatting).
Values And Number Formats	Pastes all values and numeric formats, but not the formulas themselves.

- In the **Operation** section, select the available suitable option.

- In the **Operation** section, select the available suitable option.
- For example, if you select the **Add** option, Excel adds the corresponding values in the source range and the destination range and replaces the destination range with the new values.
- The **Skip Blanks** option prevents Excel from overwriting cell contents in your paste area with blank cells from the copied range. It is useful if you're copying a range to another area but don't want the blank cells in the copied range to overwrite existing data.
- The **Transpose** option can change the orientation of the pasted entries. For example, if the original cells' entries run down the rows of a single column of the worksheet, the transposed pasted entries will run across the columns of a single row (see steps below).

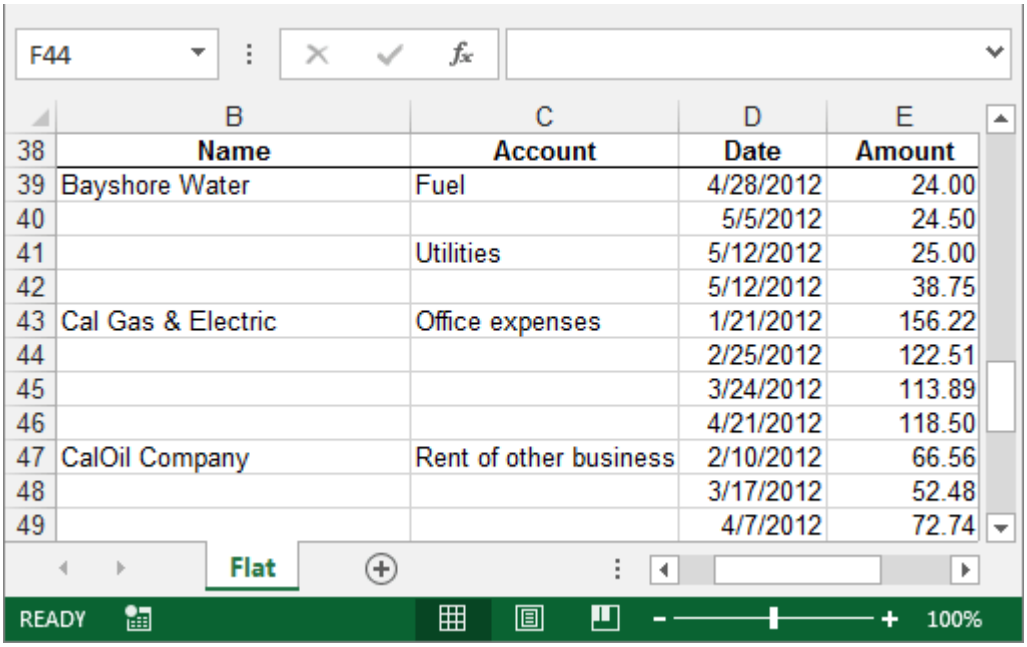
To use the Transpose option

- Select the range of data you wish to copy and transpose.
- On the **Home** tab, in the **Clipboard** group, click **Copy** icon.
  OR press **Ctrl+C**.
- Click the cell where you want to place the range.
- On the **Home** tab, in the **Clipboard** group, click the down arrow of the **Paste** icon and click **Transpose**.

Chapter 17: How to Flatten, Repeat, and Fill Labels Down in Excel

Flattening Data

Many of Excel's features, such as PivotTables, Charting, AutoFilter, and the Subtotal feature, were designed to work with flat data. Flat data is described as data which contains values in all cells within the table. All information about the record is derived from the values in the row, and, not from its position within the table. It is simple to see the difference visually. So, this screenshot shows data that is not flat:

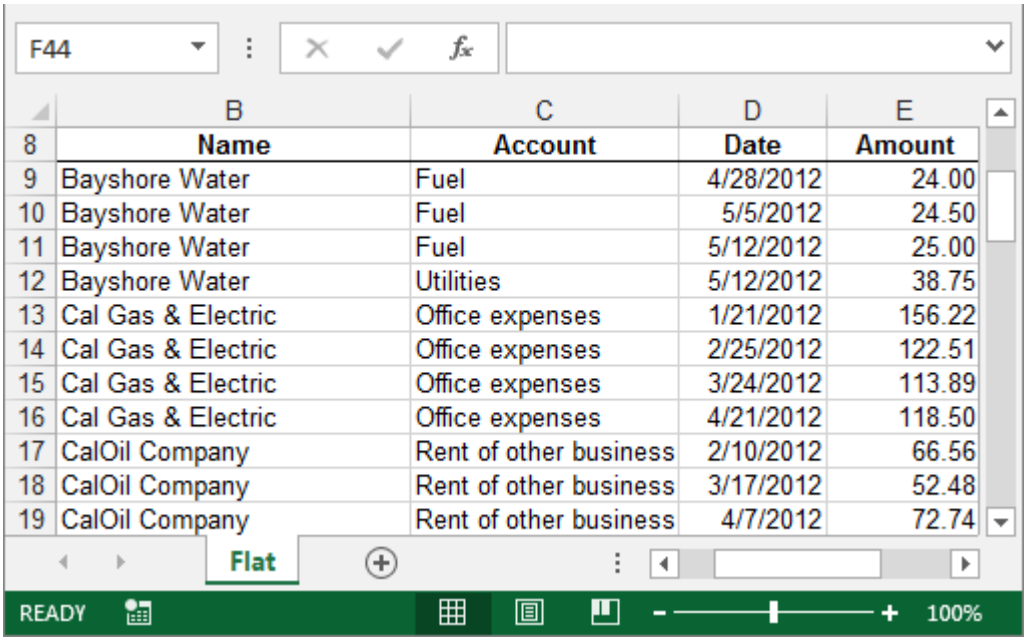


	B	C	D	E
38	**Name**	**Account**	**Date**	**Amount**
39	Bayshore Water	Fuel	4/28/2012	24.00
40			5/5/2012	24.50
41		Utilities	5/12/2012	25.00
42			5/12/2012	38.75
43	Cal Gas & Electric	Office expenses	1/21/2012	156.22
44			2/25/2012	122.51
45			3/24/2012	113.89
46			4/21/2012	118.50
47	CalOil Company	Rent of other business	2/10/2012	66.56
48			3/17/2012	52.48
49			4/7/2012	72.74

Flat

You can see labels are not repeated, and there are cells with missing values. Thus, we must determine information about a record based on the position of the row within the table. For example, we know that row 39 is for Bay shore Water, but, we only know that row 40 is for Bay shore Water based on its position within the table.

In contrast, flat data contains repeats the labels as needed. This screenshot shows flat data:



	B	C	D	E
8	Name	Account	Date	Amount
9	Bayshore Water	Fuel	4/28/2012	24.00
10	Bayshore Water	Fuel	5/5/2012	24.50
11	Bayshore Water	Fuel	5/12/2012	25.00
12	Bayshore Water	Utilities	5/12/2012	38.75
13	Cal Gas & Electric	Office expenses	1/21/2012	156.22
14	Cal Gas & Electric	Office expenses	2/25/2012	122.51
15	Cal Gas & Electric	Office expenses	3/24/2012	113.89
16	Cal Gas & Electric	Office expenses	4/21/2012	118.50
17	CalOil Company	Rent of other business	2/10/2012	66.56
18	CalOil Company	Rent of other business	3/17/2012	52.48
19	CalOil Company	Rent of other business	4/7/2012	72.74

All cells within the table contain values. All information about a record is contained within the row, and is not derived by its position within the table.

Sometimes we obtain data from an accounting system or from a client that is not flat. We want to use it with Excel, and really wish we could easily flatten it. Since this is Excel, there are of course several ways to approach this task, but one of the easiest ways is by using a series of built-in commands.

We'll start with a summary, and then work through the details.

Summary

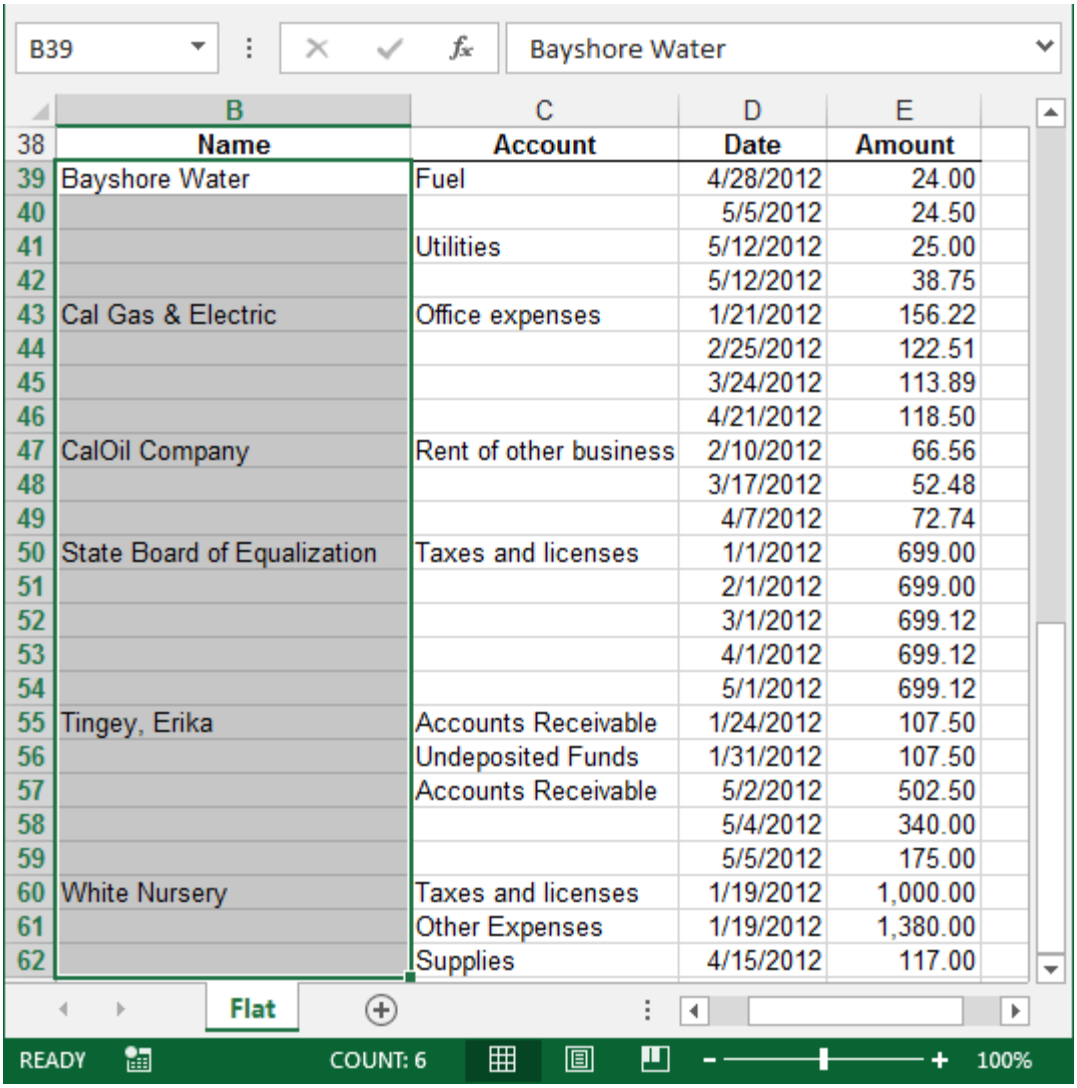
1. Select the range that you want to flatten – typically, a column of labels
2. Highlight the empty cells only – hit F5 (GoTo) and select Special > Blanks
3. Type equals (=) and then the Up Arrow to enter a formula with a direct cell reference to the first data label
4. Instead of hitting enter, hold down Control and hit Enter
5. To replace the formulas with values, select the whole column, and then Copy / Paste Special > Values

Details

Here, we'll walk through each step, and … I brought screenshots!

Step 1:

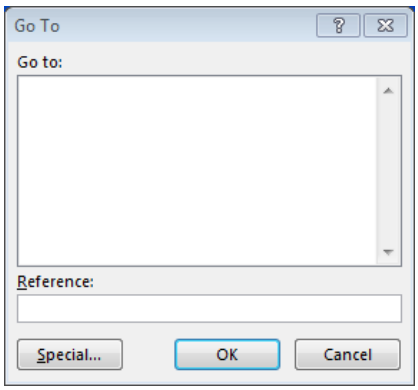
First, select the range that you'd like to flatten. This is typically a column of labels you want to repeat, represented by B39:B62 in the screenshot below:



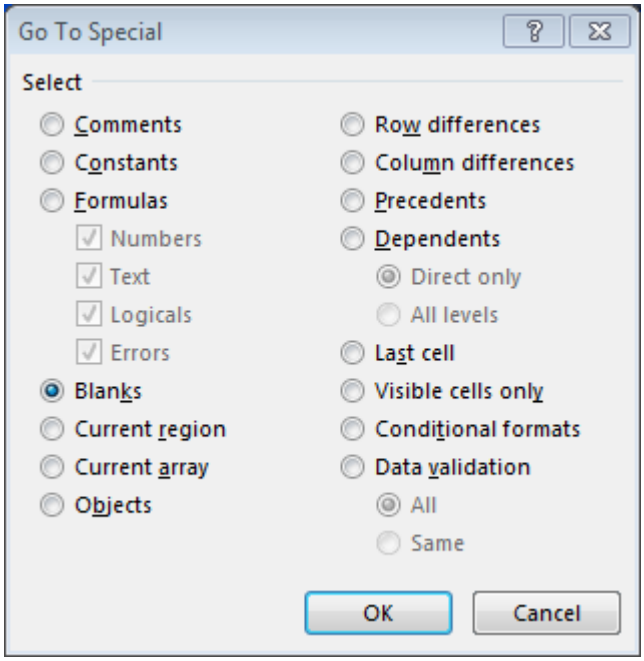
	B	C	D	E
38	Name	Account	Date	Amount
39	Bayshore Water	Fuel	4/28/2012	24.00
40			5/5/2012	24.50
41		Utilities	5/12/2012	25.00
42			5/12/2012	38.75
43	Cal Gas & Electric	Office expenses	1/21/2012	156.22
44			2/25/2012	122.51
45			3/24/2012	113.89
46			4/21/2012	118.50
47	CalOil Company	Rent of other business	2/10/2012	66.56
48			3/17/2012	52.48
49			4/7/2012	72.74
50	State Board of Equalization	Taxes and licenses	1/1/2012	699.00
51			2/1/2012	699.00
52			3/1/2012	699.12
53			4/1/2012	699.12
54			5/1/2012	699.12
55	Tingey, Erika	Accounts Receivable	1/24/2012	107.50
56		Undeposited Funds	1/31/2012	107.50
57		Accounts Receivable	5/2/2012	502.50
58			5/4/2012	340.00
59			5/5/2012	175.00
60	White Nursery	Taxes and licenses	1/19/2012	1,000.00
61		Other Expenses	1/19/2012	1,380.00
62		Supplies	4/15/2012	117.00

Step 2:

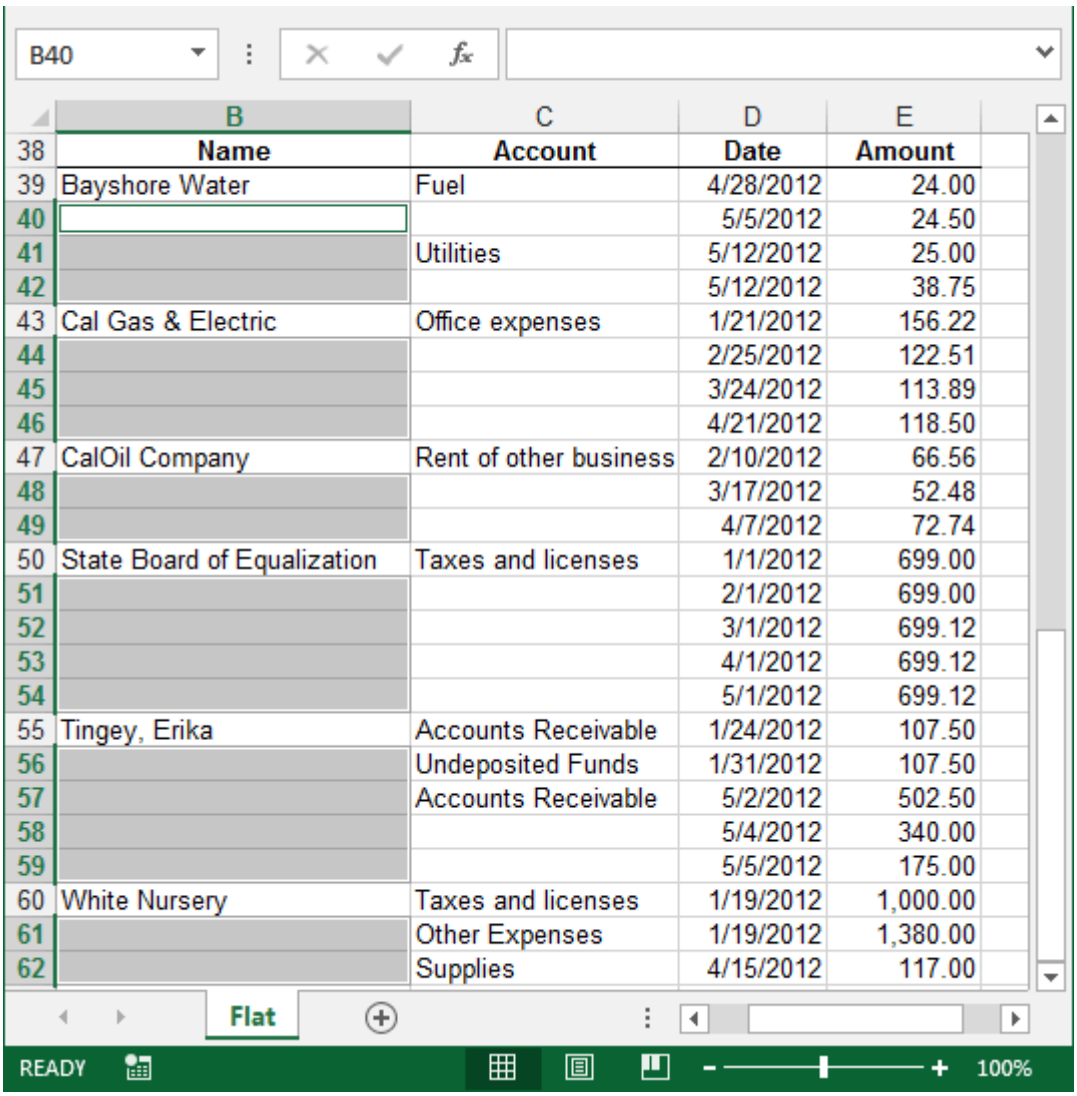
Next, we need to select only the empty cells within the range. We can simply use the Go To command for this. Hit the F5 key on your keyboard to bring up the Go To dialog, as shown below:



Next, hit the Special button to bring up the Go To Special dialog. Select the Blanks option, as shown below:

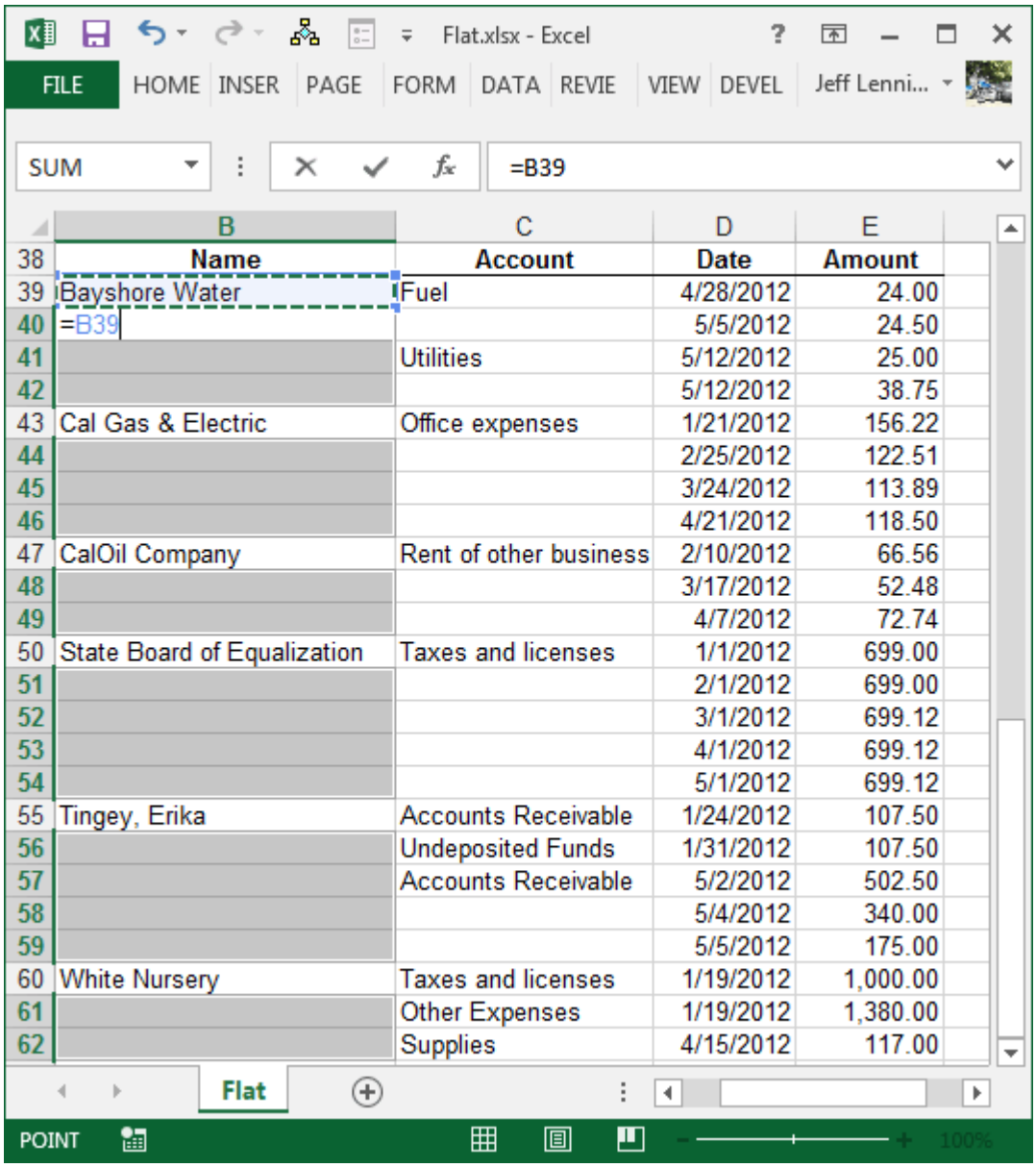


Click OK, and Excel will select only the empty/blank cells within the original range, as shown below:



Step 3:

Now, we need to write a formula that pulls the value from the cell above. This is easily accomplished by typing an equal sign (=), and then hitting the Up-Arrow key on your keyboard. There are other ways, but to me, this is the easiest way to write the formula. Now, resist the urge to hit the Enter key!! Do NOT hit Enter yet. The resulting formula is shown below:



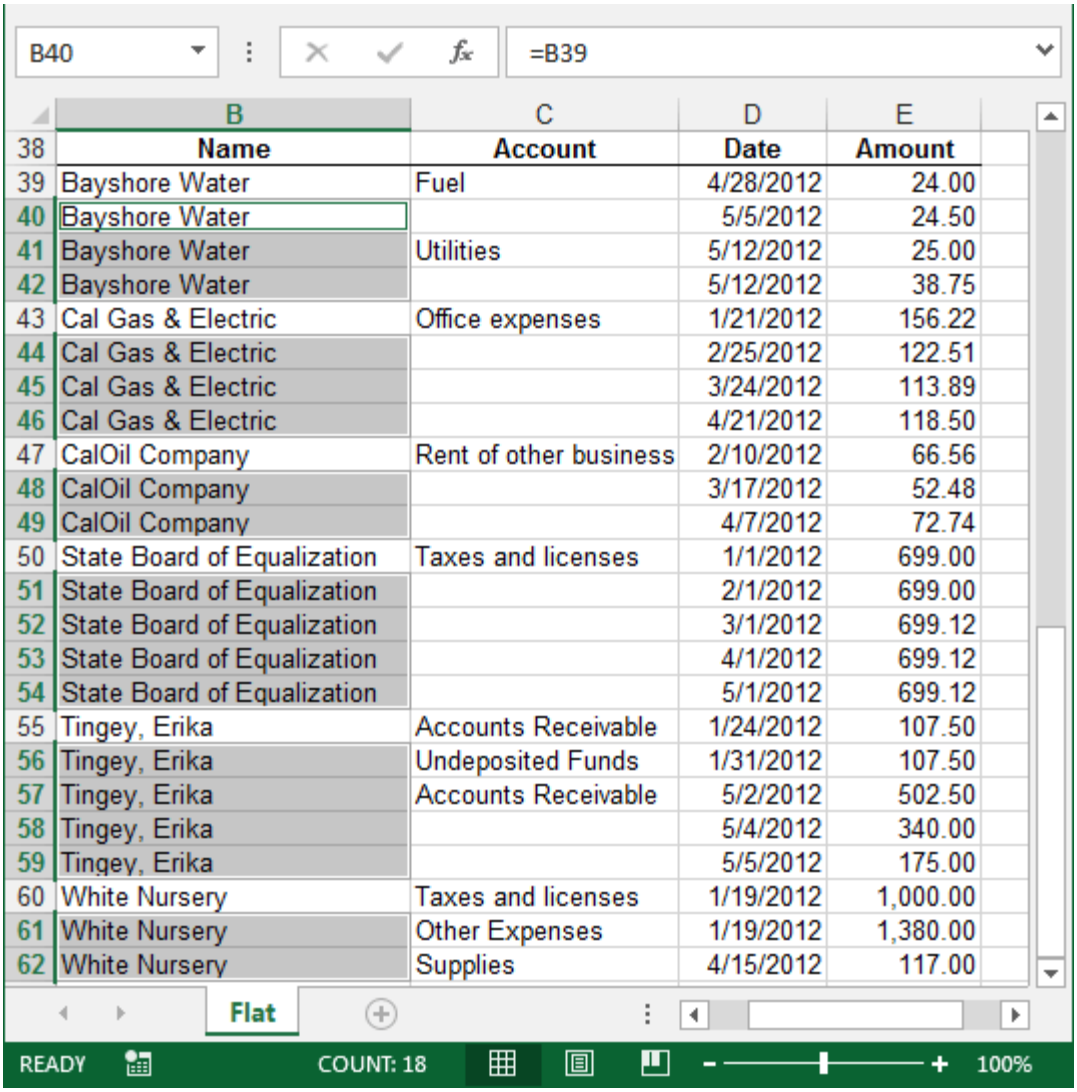
	B	C	D	E
38	Name	Account	Date	Amount
39	Bayshore Water	Fuel	4/28/2012	24.00
40	=B39		5/5/2012	24.50
41		Utilities	5/12/2012	25.00
42			5/12/2012	38.75
43	Cal Gas & Electric	Office expenses	1/21/2012	156.22
44			2/25/2012	122.51
45			3/24/2012	113.89
46			4/21/2012	118.50
47	CalOil Company	Rent of other business	2/10/2012	66.56
48			3/17/2012	52.48
49			4/7/2012	72.74
50	State Board of Equalization	Taxes and licenses	1/1/2012	699.00
51			2/1/2012	699.00
52			3/1/2012	699.12
53			4/1/2012	699.12
54			5/1/2012	699.12
55	Tingey, Erika	Accounts Receivable	1/24/2012	107.50
56		Undeposited Funds	1/31/2012	107.50
57		Accounts Receivable	5/2/2012	502.50
58			5/4/2012	340.00
59			5/5/2012	175.00
60	White Nursery	Taxes and licenses	1/19/2012	1,000.00
61		Other Expenses	1/19/2012	1,380.00
62		Supplies	4/15/2012	117.00

Step 4:

Now, we need to fill this formula down through all selected (blank) cells. This is done by holding down the Control key, and then pressing Enter immediately after writing the formula. If you have written the formula, and have already pressed Enter, then, you'll need to write the formula again, and press Ctrl+Enter instead of Enter.

The Ctrl+Enter shortcut tells Excel to perform two tasks at once. Enter the formula, and, fill it down through all selected cells.

The result of this command is shown below:



B40 =B39

	B	C	D	E
38	Name	Account	Date	Amount
39	Bayshore Water	Fuel	4/28/2012	24.00
40	Bayshore Water		5/5/2012	24.50
41	Bayshore Water	Utilities	5/12/2012	25.00
42	Bayshore Water		5/12/2012	38.75
43	Cal Gas & Electric	Office expenses	1/21/2012	156.22
44	Cal Gas & Electric		2/25/2012	122.51
45	Cal Gas & Electric		3/24/2012	113.89
46	Cal Gas & Electric		4/21/2012	118.50
47	CalOil Company	Rent of other business	2/10/2012	66.56
48	CalOil Company		3/17/2012	52.48
49	CalOil Company		4/7/2012	72.74
50	State Board of Equalization	Taxes and licenses	1/1/2012	699.00
51	State Board of Equalization		2/1/2012	699.00
52	State Board of Equalization		3/1/2012	699.12
53	State Board of Equalization		4/1/2012	699.12
54	State Board of Equalization		5/1/2012	699.12
55	Tingey, Erika	Accounts Receivable	1/24/2012	107.50
56	Tingey, Erika	Undeposited Funds	1/31/2012	107.50
57	Tingey, Erika	Accounts Receivable	5/2/2012	502.50
58	Tingey, Erika		5/4/2012	340.00
59	Tingey, Erika		5/5/2012	175.00
60	White Nursery	Taxes and licenses	1/19/2012	1,000.00
61	White Nursery	Other Expenses	1/19/2012	1,380.00
62	White Nursery	Supplies	4/15/2012	117.00

Flat

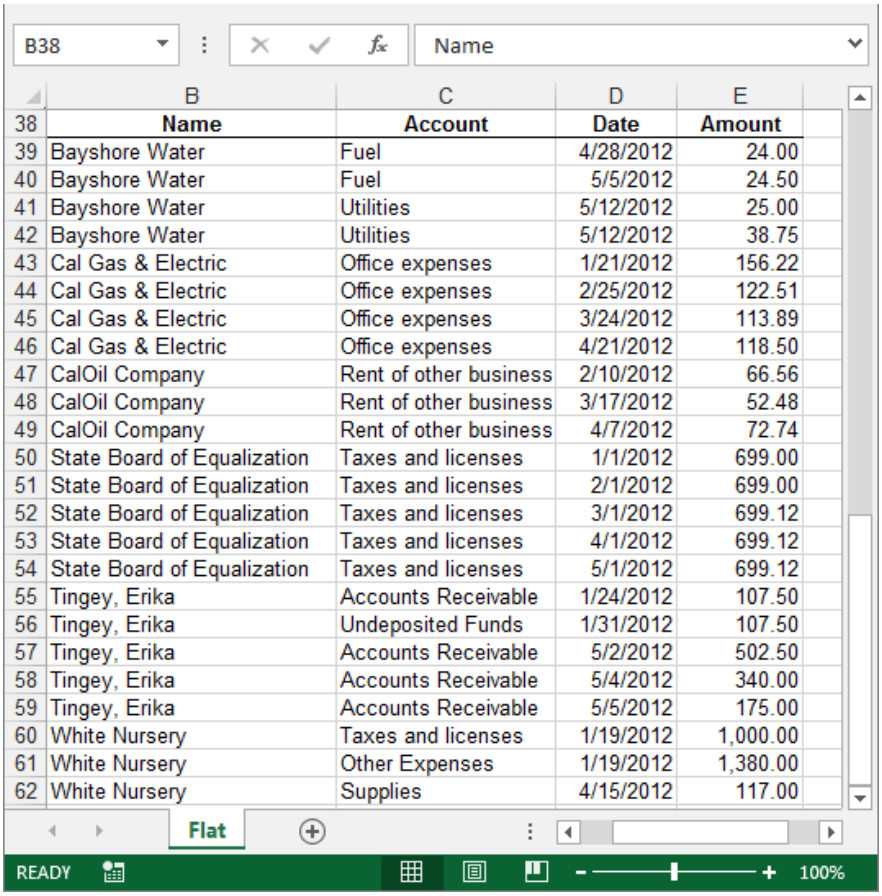
READY COUNT: 18 100%

Step 5:

Now, all that remains is to replace the formulas with their values. First, select the whole column. Excel doesn't let us perform the next step with multiple ranges selected, so, we need to select a single column range.

Now, we just copy the range using any method you prefer (Ribbon, right-click, keyboard shortcut). Then, we do a Paste Special. In the Paste Special dialog box that pops up, we select Values, as shown below:

When we click OK, we are done. We repeat these steps on the Account column, and bam…..flat data, as shown below:



	B	C	D	E
38	Name	Account	Date	Amount
39	Bayshore Water	Fuel	4/28/2012	24.00
40	Bayshore Water	Fuel	5/5/2012	24.50
41	Bayshore Water	Utilities	5/12/2012	25.00
42	Bayshore Water	Utilities	5/12/2012	38.75
43	Cal Gas & Electric	Office expenses	1/21/2012	156.22
44	Cal Gas & Electric	Office expenses	2/25/2012	122.51
45	Cal Gas & Electric	Office expenses	3/24/2012	113.89
46	Cal Gas & Electric	Office expenses	4/21/2012	118.50
47	CalOil Company	Rent of other business	2/10/2012	66.56
48	CalOil Company	Rent of other business	3/17/2012	52.48
49	CalOil Company	Rent of other business	4/7/2012	72.74
50	State Board of Equalization	Taxes and licenses	1/1/2012	699.00
51	State Board of Equalization	Taxes and licenses	2/1/2012	699.00
52	State Board of Equalization	Taxes and licenses	3/1/2012	699.12
53	State Board of Equalization	Taxes and licenses	4/1/2012	699.12
54	State Board of Equalization	Taxes and licenses	5/1/2012	699.12
55	Tingey, Erika	Accounts Receivable	1/24/2012	107.50
56	Tingey, Erika	Undeposited Funds	1/31/2012	107.50
57	Tingey, Erika	Accounts Receivable	5/2/2012	502.50
58	Tingey, Erika	Accounts Receivable	5/4/2012	340.00
59	Tingey, Erika	Accounts Receivable	5/5/2012	175.00
60	White Nursery	Taxes and licenses	1/19/2012	1,000.00
61	White Nursery	Other Expenses	1/19/2012	1,380.00
62	White Nursery	Supplies	4/15/2012	117.00

Notes

You can typically perform this task on multiple columns at the same time, but, it only works if the first row has values for all selected columns, so, just be sure to review and double-check your work.

Conclusion

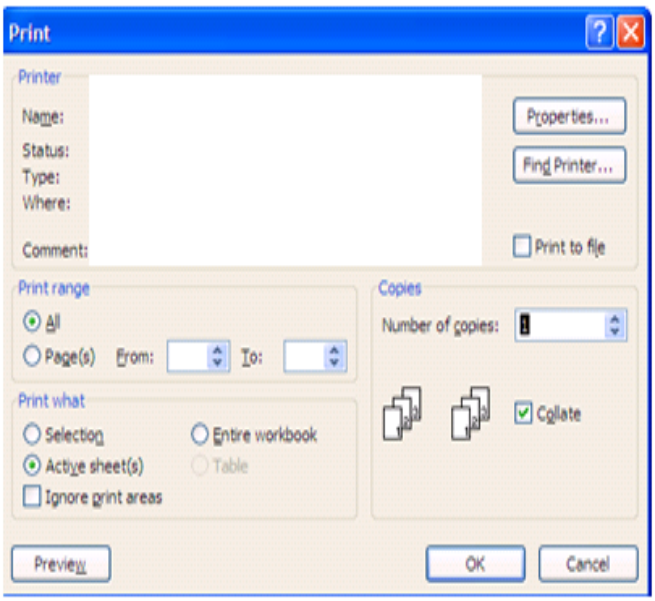
As with just about everything in Excel, there are many different ways to accomplish any given task. I would use the approach above if I needed to flatten data occasionally. However, if I needed to flatten data files often, then I would probably handle this task with a macro. But, that is a post for another day.

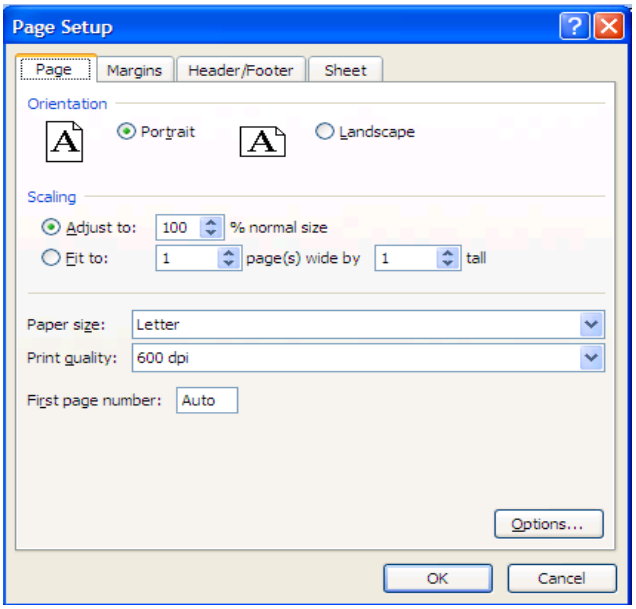
Hope this approach helps you flatten data files quickly!

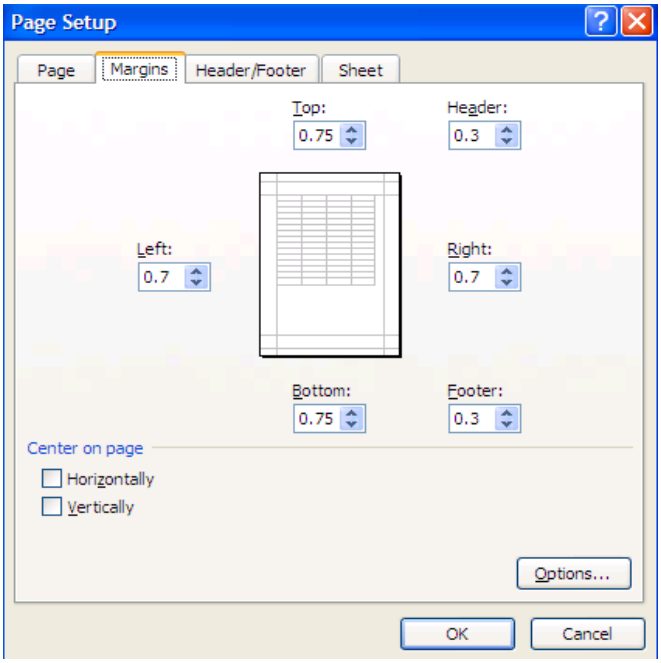
Chapter 18: Print settings

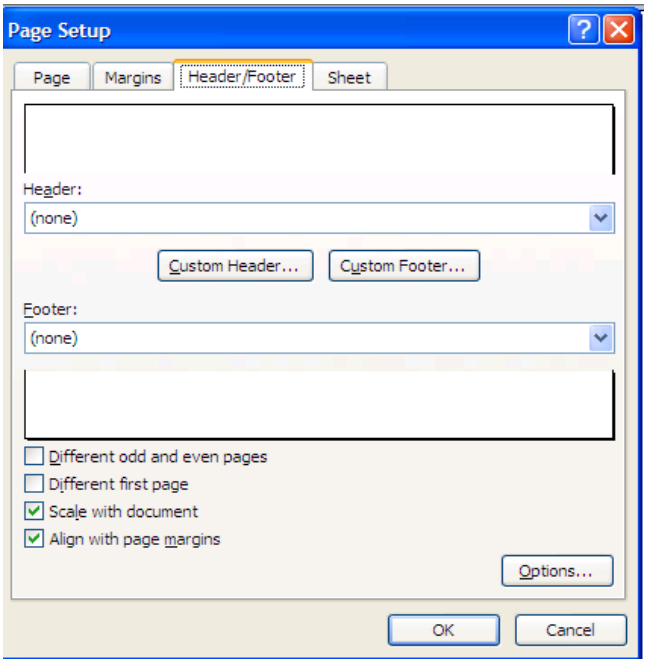
You can take print of enormous data with the way you want.

- Click on File Button and then print.
- Click on preview then click on Page setup









Chapter 19: Shortcut Keys of MS Excel

Navigating in Worksheets and Selecting Cells	
Ctrl+Shift+[+]	Insert a new row or column (after the current row is selected with shift+ space, or column is selected with ctrl+ space
arrow left, arrow right, arrow up,arrow down	Move one cell up, down, left, or right in a worksheet.
Ctrl+Arrow Keys	Moves to the edge of the current data region
Shift+Arrow Keys	Extends the selection of cells by one cell.
Ctrl+Shift+Arrow Keys	Extends the selection of cells to the last nonblank cell in the same column or row as the active cell, or if the next cell is blank, extends the selection to the next nonblank cell
Backspace	Deletes one character to the left in the Formula Bar. Also clears the content of the active cell. In cell editing mode, it deletes the character to the left of the insertion point
Delete	Removes the cell contents (data and formulas) from selected cells without affecting cell formats or comments. In cell editing mode, it deletes the character to the right of the insertion point.
End	Moves to the cell in the lower-right corner of the window when SCROLL LOCK is turned on. Also selects the last command on the menu when a menu or submenu is visible.
Ctrl+End	Moves to the last cell on a worksheet, in the lowest used row of the rightmost used column. If the cursor is in the formula bar, CTRL+END moves the cursor to the end of the text
Ctrl+Shift+end in worksheet	Extends the selection of cells to the last used cell on the worksheet (lower-right corner).
Ctrl+Shift+end in formula bar	Selects all text in the formula bar from the cursor position to the end—this does not affect the height of the formula bar.
Enter	Completes a cell entry and selects the cell below
Shift+Enter	Completes a cell entry and selects the cell above.
Ctrl+Enter	Completes a cell entry and stays in the same cell
Alt+Enter	Starts a new line in the same cell
Esc	Cancels an entry in the cell or Formula Bar. Closes an open menu or submenu, dialog box, or message window. It also closes full screen mode when this mode has been applied, and returns to normal screen mode to display the Ribbon and status bar again.
Home	Moves to the beginning of a row in a worksheet. Moves to the cell in the upper-left corner of the window when scroll lock is turned on. Selects the first command on the menu when a menu or submenu is visible.
Ctrl+Home	Moves to the beginning of a worksheet.
Ctrl+Shift+Home	Extends the selection of cells to the beginning of the worksheet

Page Down	Moves one screen down in a worksheet.
Alt+Page Down	Moves one screen to the right in a worksheet.
Ctrl+Page Down	Moves to the next sheet in a workbook.
Ctrl+Shift+Page Down	Selects the current and next sheet in a workbook
Page Up	Moves one screen up in a worksheet.
Alt+Page Up	Moves one screen to the left in a worksheet.
Ctrl+Page Up	Moves to the previous sheet in a workbook.
Ctrl+Shift+Page Up	Selects the current and previous sheet in a workbook
Space	In a dialog box, performs the action for the selected button, or selects or clears a check box.
Ctrl+Space	Selects an entire column in a worksheet.
Shift+Space	Selects an entire row in a worksheet.
Ctrl+Shift+Space	Selects the entire worksheet.
Tab	Moves one cell to the right in a worksheet. Moves between unlocked cells in a protected worksheet. Moves to the next option or option group in a dialog box.
Shift+Tab	Moves to the previous cell in a worksheet or the previous option in a dialog box.
Ctrl+Tab	Switches to the next tab in dialog box
Ctrl+Shift+Tab	Switches to the previous tab in a dialog box.

Format Cells	
Ctrl+1	Format cells dialog.
Ctrl+b (or ctrl+2)	Apply or remove bold formatting.
Ctrl+i (or ctrl+3)	Apply or remove italic formatting.
Ctrl+u (or ctrl+4)	Apply or remove an underline.
Ctrl+5	Apply or remove strikethrough formatting.
Ctrl+Shift+&	Apply the outline border.
Ctrl+Shift+_ (underscore)	Remove outline borders.
Ctrl+Shift+F	Display the Format Cells with Fonts Tab active. Press tab 3x to get to font-size. Used to bectrl+shift+p, but that seems just get to the Font Tab in 2010.

Alt+' (apostrophe / single quote)	Display the Style dialog box.
F4	Repeat previous formatting on current cell

Function keys in Excel	
F1	Displays the Microsoft Office Excel Help task pane.
Ctrl+F1	Displays or hides the Ribbon, a component of the Microsoft Office Fluent user interface.
Alt+F1	Creates a chart of the data in the current range.
Alt+Shift+F1	Inserts a new worksheet.
F2	Edits the active cell and positions the insertion point at the end of the cell contents. It also moves the insertion point into the Formula Bar when editing in a cell is turned off.
Shift+F2	Adds or edits a cell comment.
Ctrl+F2	Displays the Print Preview window.
F3	Displays the Paste Name dialog box.
Ctrl+F3	Display the Name Manager, create new names.
Shift+F3	Displays the Insert Function dialog box.
F4	Repeats the last command or action, if possible.
Ctrl+F4	Closes the selected workbook window.
F5	Displays the Go To dialog box.
Ctrl+F5	Restores the window size of the selected workbook window.
F6	Switches between the worksheet, Ribbon, task pane, and Zoom controls. In a worksheet that has been split (View menu, Manage This Window, Freeze Panes, Split Window command), F6 includes the split panes when switching between panes and the Ribbon area.
Shift+F6	Switches between the worksheet, Zoom controls, task pane, and Ribbon.
Ctrl+F6	Switches to the next workbook window when more than one workbook window is open.
F7	Displays the Spelling dialog box to check spelling in the active worksheet or selected range.
Ctrl+F7	Performs the Move command on the workbook window when it is not maximized. Use the arrow keys to move the window, and when finished press ENTER, or ESC to cancel.
F8	Turns extend mode on or off. In extend mode, Extended Selection appears in the status line, and the arrow keys extend the selection.
Shift+F8	Enables you to add a nonadjacent cell or range to a selection of cells by using the arrow keys.

Ctrl+F8	Performs the Size command (on the Control menu for the workbook window) when a workbook is not maximized.
Alt+F8	Displays the Macro dialog box to create, run, edit, or delete a macro.
F9	Calculates all worksheets in all open workbooks.
Shift+F9	Calculates the active worksheet.
Ctrl+Alt+F9	Calculates all worksheets in all open workbooks, regardless of whether they have changed since the last calculation.
Ctrl+Alt+Shift+F9	Rechecks dependent formulas, and then calculates all cells in all open workbooks, including cells not marked as needing to be calculated.
Ctrl+F9	Minimizes a workbook window to an icon.
F10	Turns key tips on or off.
Shift+F10	Displays the shortcut menu for a selected item.
Alt+Shift+F10	Displays the menu or message for a smart tag. If more than one smart tag is present, it switches to the next smart tag and displays its menu or message.
Ctrl+F10	Maximizes or restores the selected workbook window.
F11	Creates a chart of the data in the current range.
Shift+F11	Inserts a new worksheet.
Alt+F11	Opens the Microsoft Visual Basic Editor, in which you can create a macro by using Visual Basic for Applications (VBA).
F12	Displays the Save As dialog box.

CTRL Combinations in Excel

Ctrl+Shift+(	Unhides any hidden rows within the selection.
Ctrl+Shift+)	Unhides any hidden columns within the selection.
Ctrl+Shift+&	Applies the outline border to the selected cells.
Ctrl+Shift+_	Removes the outline border from the selected cells.
Ctrl+Shift+~	Applies the General number format.
Ctrl+Shift+$	Applies the Currency format with two decimal places (negative numbers in parentheses).
Ctrl+Shift+%	Applies the Percentage format with no decimal places.
Ctrl+Shift+^	Applies the Exponential number format with two decimal places.
Ctrl+Shift+#	Applies the Date format with the day, month, and year.

Ctrl+Shift+@	Applies the Time format with the hour and minute, and AM or PM.
Ctrl+Shift+!	Applies the Number format with two decimal places, thousands separator, and minus sign (-) for negative values.
Ctrl+Shift+*	Selects the current region around the active cell (the data area enclosed by blank rows and blank columns). In a PivotTable, it selects the entire PivotTable report.
Ctrl+Shift+:	Enters the current time.
Ctrl+Shift+"	Copies the value from the cell above the active cell into the cell or the Formula Bar.
Ctrl+Shift+[+]	Displays the Insert dialog box to insert blank cells.
Ctrl+-	Displays the Delete dialog box to delete the selected cells.
Ctrl+;	Enters the current date.
Ctrl+`	Alternates between displaying cell values and displaying formulas in the worksheet.
Ctrl+'	Copies a formula from the cell above the active cell into the cell or the Formula Bar.
Ctrl+1	Displays the Format Cells dialog box.
Ctrl+2	Applies or removes bold formatting.
Ctrl+3	Applies or removes italic formatting.
Ctrl+4	Applies or removes underlining.
Ctrl+5	Applies or removes strikethrough.
Ctrl+6	Alternates between hiding objects, displaying objects, and displaying placeholders for objects.
Ctrl+8	Displays or hides the outline symbols.
Ctrl+9	Hides the selected rows.
Ctrl+0 (zero)	Hides the selected columns.
Ctrl+A	Selects the entire worksheet. If the worksheet contains data, CTRL+A selects the current region. Pressing CTRL+A a second time selects the current region and its summary rows. Pressing CTRL+A a third time selects the entire worksheet.
Ctrl+Shift+A	Inserts the argument names and parentheses when the insertion point is to the right of a function name in a formula.
Ctrl+B	Applies or removes bold formatting.
Ctrl+C	Copies the selected cells.
Ctrl+C	Followed by another CTRL+C displays the Clipboard.
Ctrl+D	Uses the Fill Down command to copy the contents and format of the topmost cell of a selected range into the cells below.

Ctrl+F	Displays the Find and Replace dialog box, with the Find tab selected.
Ctrl+Shift+F	Opens the Format Cells dialog box with the Font tab selected.
Ctrl+G	Displays the Go To dialog box.
Ctrl+H	Displays the Find and Replace dialog box, with the Replace tab selected.
Ctrl+I	Applies or removes italic formatting.
Ctrl+K	Displays the Insert Hyperlink dialog box for new hyperlinks or the Edit Hyperlink dialog box for selected existing hyperlinks.
Ctrl+N	Creates a new, blank workbook.
Ctrl+O	Displays the Open dialog box to open or find a file.
Ctrl+Shift+O	Selects all cells that contain comments.
Ctrl+P	Displays the Print dialog box.
Ctrl+Shift+P	Opens the Format Cells dialog box with the Font tab selected.
Ctrl+R	Uses the Fill Right command to copy the contents and format of the leftmost cell of a selected range into the cells to the right.
Ctrl+S	Saves the active file with its current file name, location, and file format.
Ctrl+T	Displays the Create Table dialog box.
Ctrl+U	Applies or removes underlining.
Ctrl+Shift+U	Switches between expanding and collapsing of the formula bar.
Ctrl+V	Inserts the contents of the Clipboard at the insertion point and replaces any selection. Available only after you have cut or copied an object, text, or cell contents.
Ctrl+Alt+V	Displays the Paste Special dialog box. Available only after you have cut or copied an object, text, or cell contents on a worksheet or in another program.
Ctrl+W	Closes the selected workbook window.
Ctrl+X	Cuts the selected cells.
Ctrl+Y	Repeats the last command or action, if possible.
Ctrl+Z	Uses the Undo command to reverse the last command or to delete the last entry that you typed.
Ctrl+Shift+Z	Uses the Undo or Redo command to reverse or restore the last automatic correction when AutoCorrect Smart Tags are displayed.

Microsoft Clip Organizer main

Ctrl+Arrow Left/Ctrl+Arrow Right	Move forward or backward one word in the Search text box.

Alt+C	Displays the Collection List task pane.
Alt+S	Displays the Search task pane.
Alt+H	Open Help.
Arrow Keys	Move left and right, up and down, among collections or clips.
Shift+Arrow Keys	Select additional clips after one clip has been selected.
Ctrl+A	Select all clips on the current page.
Ctrl+C	Copy (select a clip and move it to the clipboard).
Ctrl+V	Paste (paste from the clipboard to Clip Organizer).
Delete	Delete selected clip or category.
Home	Move to the beginning of a row and select the first item.
End	Move to the end of a row and select the last item.
Shift+F10	Display a shortcut menu for a collection, clip, or link (same as right click).
Esc	Exit a dialog box.
tab and shift+Tab	Shift focus forward and backward between different areas of a dialog box.
Alt+Space	Open the shortcut menu of a dialog box.

Work with the Excel Ribbon

Alt/F10	Select the active tab of the Ribbon and activate the access keys. . Press either of these keys again to move back to the document and cancel the access keys.
Alt/ f10 to select the active tab, and thenarrow left /Arrow Right	Move to another tab of the Ribbon.
Ctrl+F1	Minimize or restore the Ribbon.
Shift+F10	Display the shortcut menu for the selected command.
F6	Move the focus to select either Active tab of the Ribbon, View Status bar at bottom of the window or document
Alt/ f10, and then tab /Shift+Tab	Move the focus to each command in the Ribbon, forward or backward.
arrow down, arrow up, arrow left, /Arrow Right	Move down, up, left, or right among the items in the Ribbon.
Space/Enter	Activate the selected command or control in the Ribbon.
Space/Enter	Open the selected menu or gallery in the Ribbon.

Enter	Activate a command or control in the Ribbon so you can modify a value.
Enter	Finish modifying a value in a control in the Ribbon, and move focus back to the document.
F1	Get help on the selected command or control in the Ribbon. (If no Help topic is associated with the selected command, the Help table of contents for that program is shown instead.)

Chapter 20: Dashboard

Excel dashboards and executive reports are powerful, fairly easy to design and a great way to improve your Excel and data visualization skills. Dashboard is a collection or all the controls line combo box, List Box, Check Box, and radio Button. A dashboard is is nothing but a visual interface.

Excel offers a set of controls called Form controls, designed specifically for adding UI (User Interface) elements directly onto a worksheet. After you place a Form control on a worksheet, you can then configure it to perform a specific task. Later in the chapter, we demonstrate how to apply the most useful controls to a presentation.

We can find Excel's Form controls on the Developer tab, which is initially hidden in Excel 2013.

To enable the Developer tab, follow these steps:

1. Go to the Ribbon and select the File tab.
2. To open the Excel Options dialog box, click the Options button.
3. Click the Customize Ribbon button.
4. Select the check box next to the Developer tab
5. Click OK.

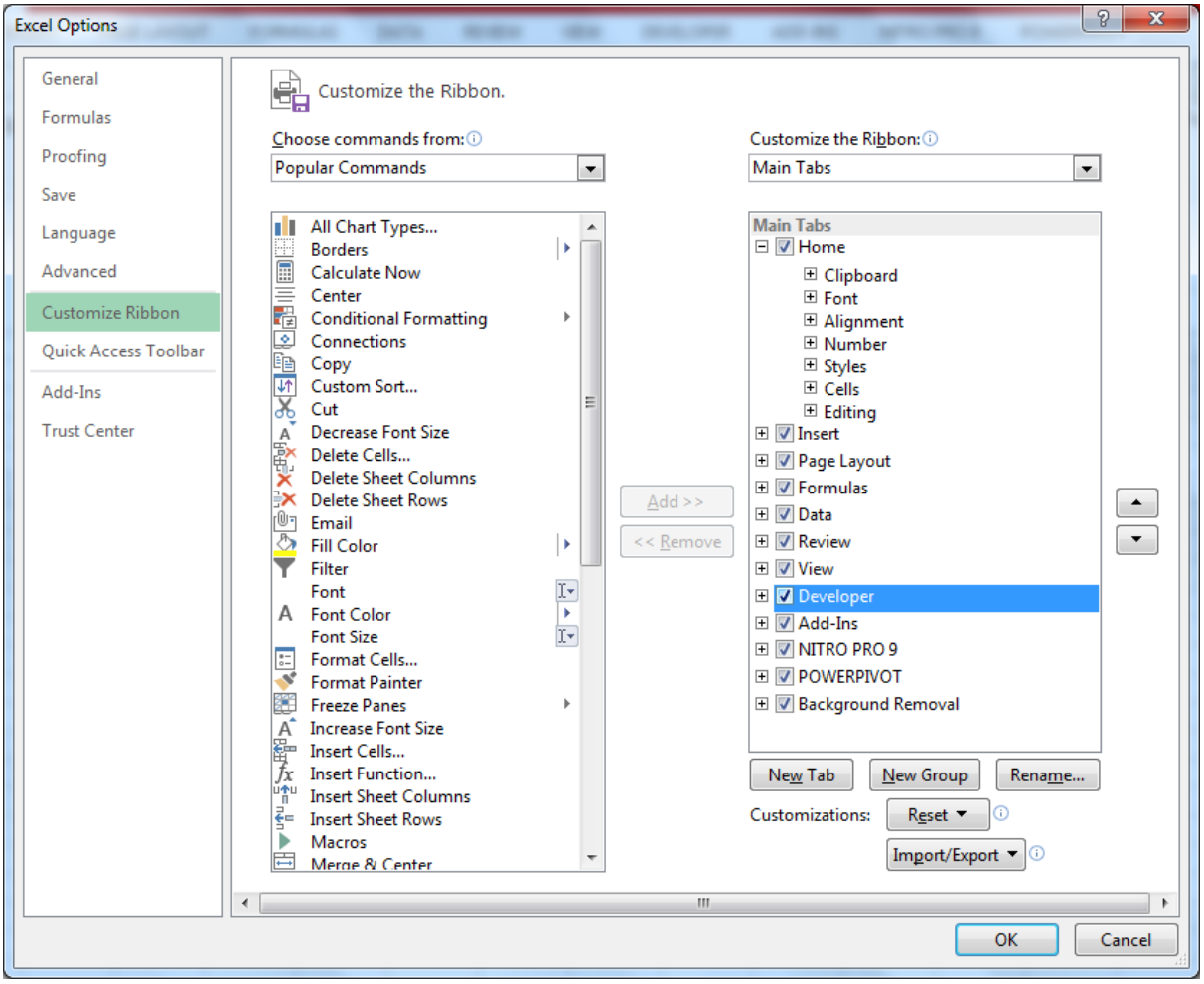


Figure 1.1 Enabling Developer Tab.

Now, Select the developer tab and choose the Insert command, as shown in Figure

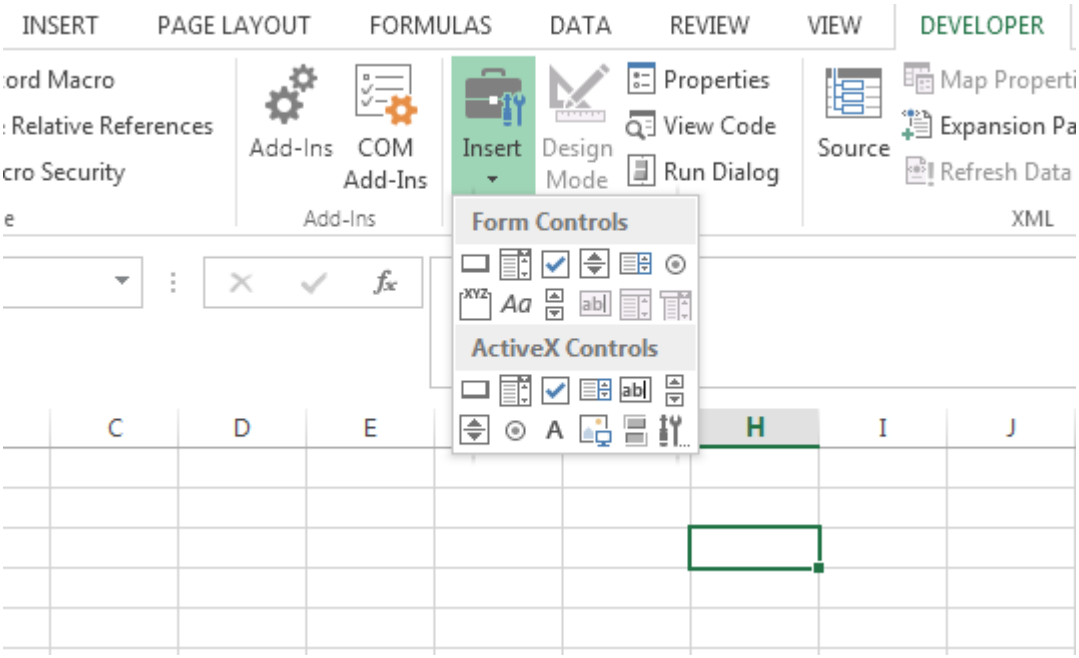


Figure : 1.2 Form controls and ActiveX controls.

Form controls

Here are the nine Form controls that we can add directly to a worksheet (see Figure 1.2). They are as follows:

Button: Executes an assigned macro when a user clicks the button.

Combo Box: Gives a user an expandable list of options from which to choose.

Check Box: Provides a mechanism for a select/deselect scenario. When selected, it returns a value of True. Otherwise, it returns False.

Spin Button: Enables a user to easily increment or decrement a value by clicking the up and down arrows.

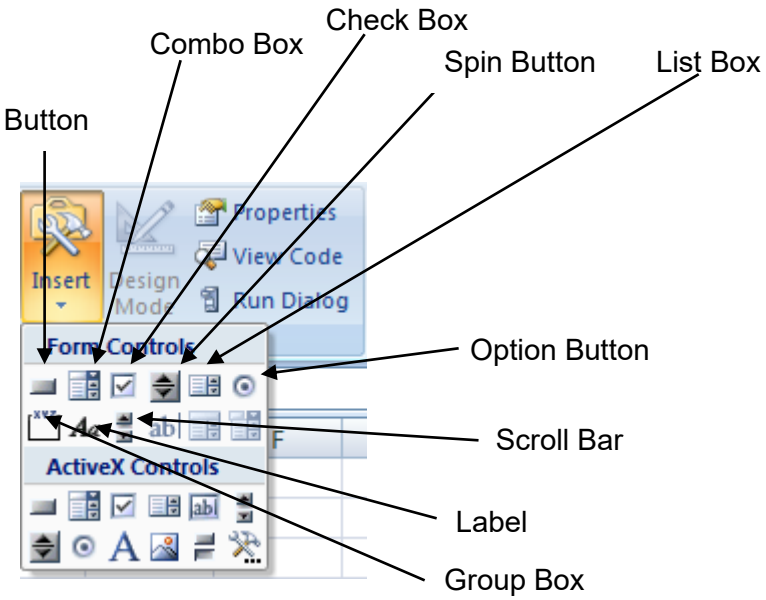
List Box: Gives a user a list of options from which to choose.

Option Button: Enables a user to toggle through two or more options one at a time. Selecting one option automatically deselects the others.

Scroll Bar: Enables a user to scroll to a value or position using a sliding scale that can be moved by clicking and dragging the mouse.

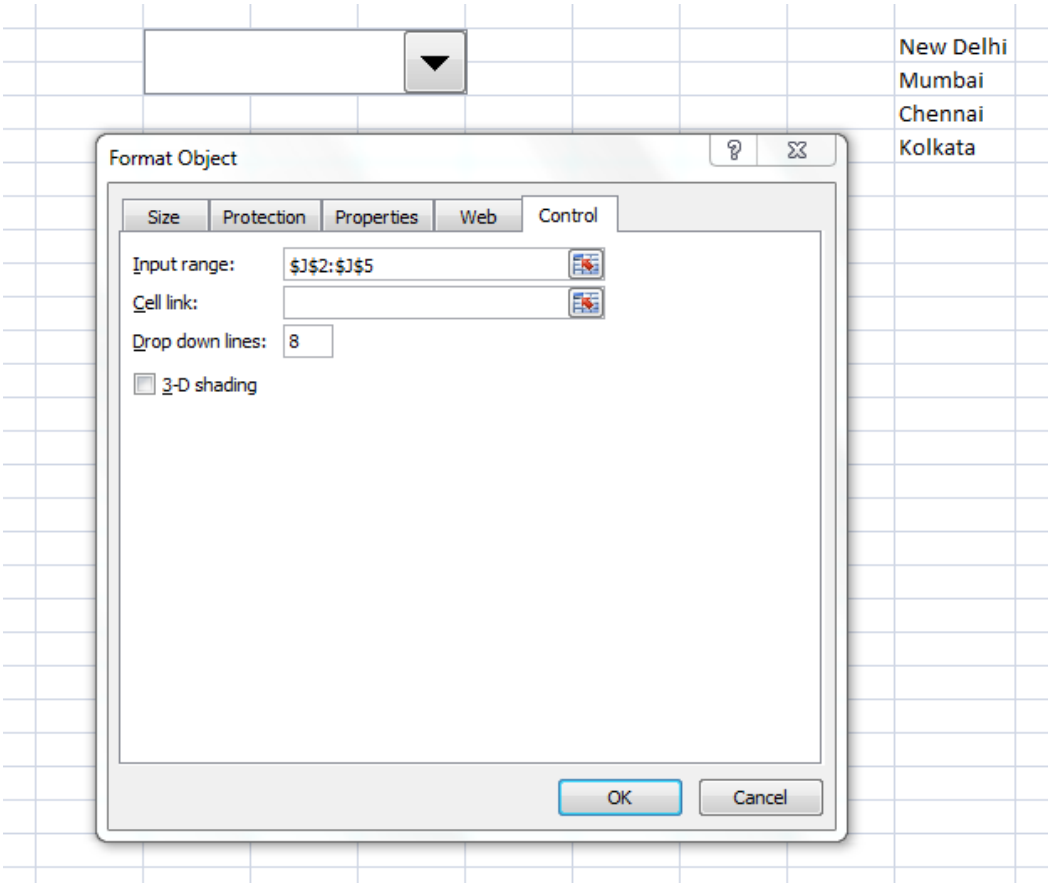
Label: Allows you to add text labels to your worksheet. You can also assign a macro to the label, effectively using it as a button of sorts.

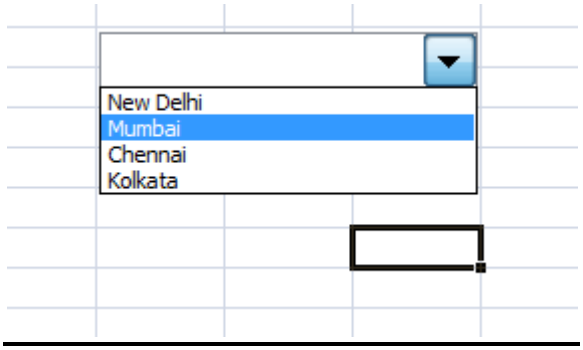
Group Box: Typically used for cosmetic purposes, this control serves as a container for groups of other controls.



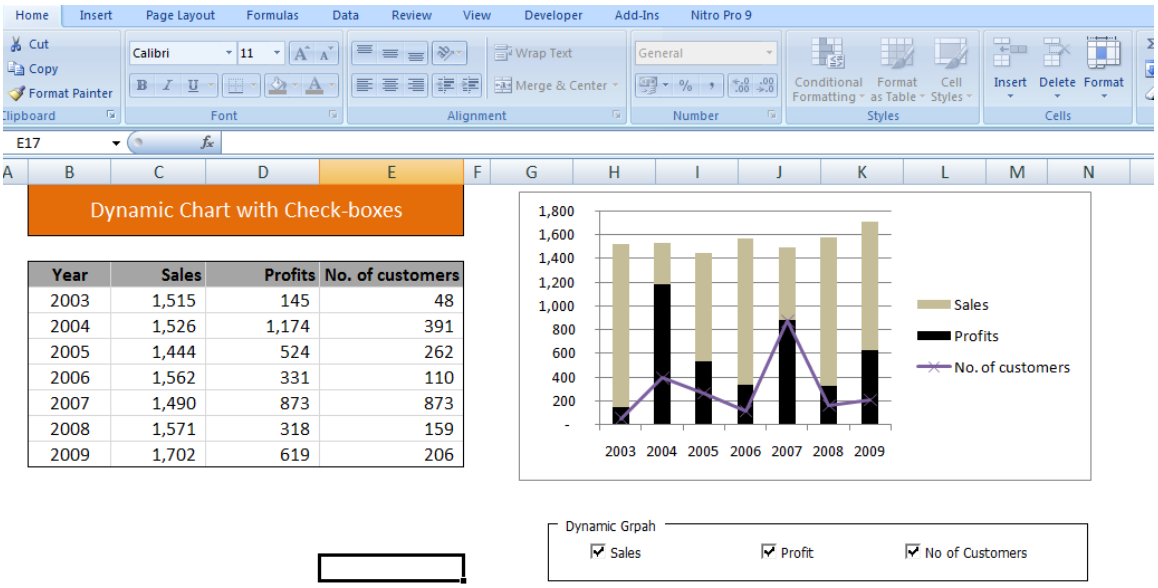
Adding a control to a worksheet

- Click on combo box on the form control.
- Draw on worksheet using drag and drop technique.

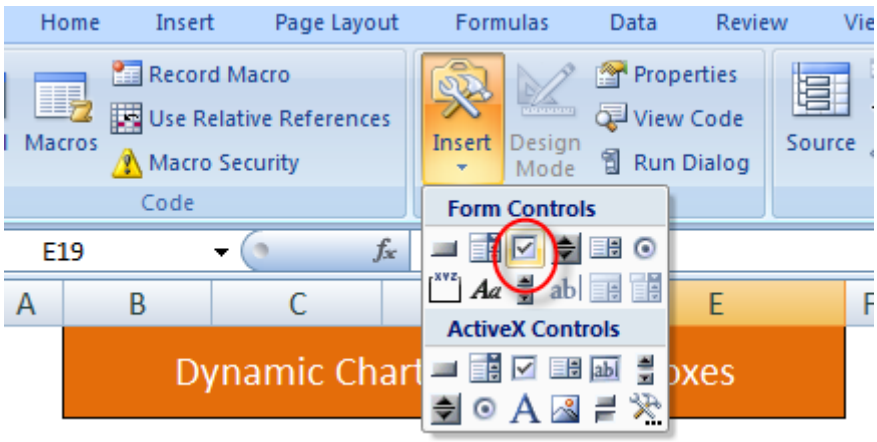

New Delhi
Mumbai
Chennai
Kolkata
Format Object
Size
Protection
Properties
Web
Control
Input range:
$J$2:$J$5
Cell link:
Drop down lines:
8
3-D shading
OK
Cancel


New Delhi
Mumbai
Chennai
Kolkata

Demonstration of Dynamic Graph using Check Box Control.

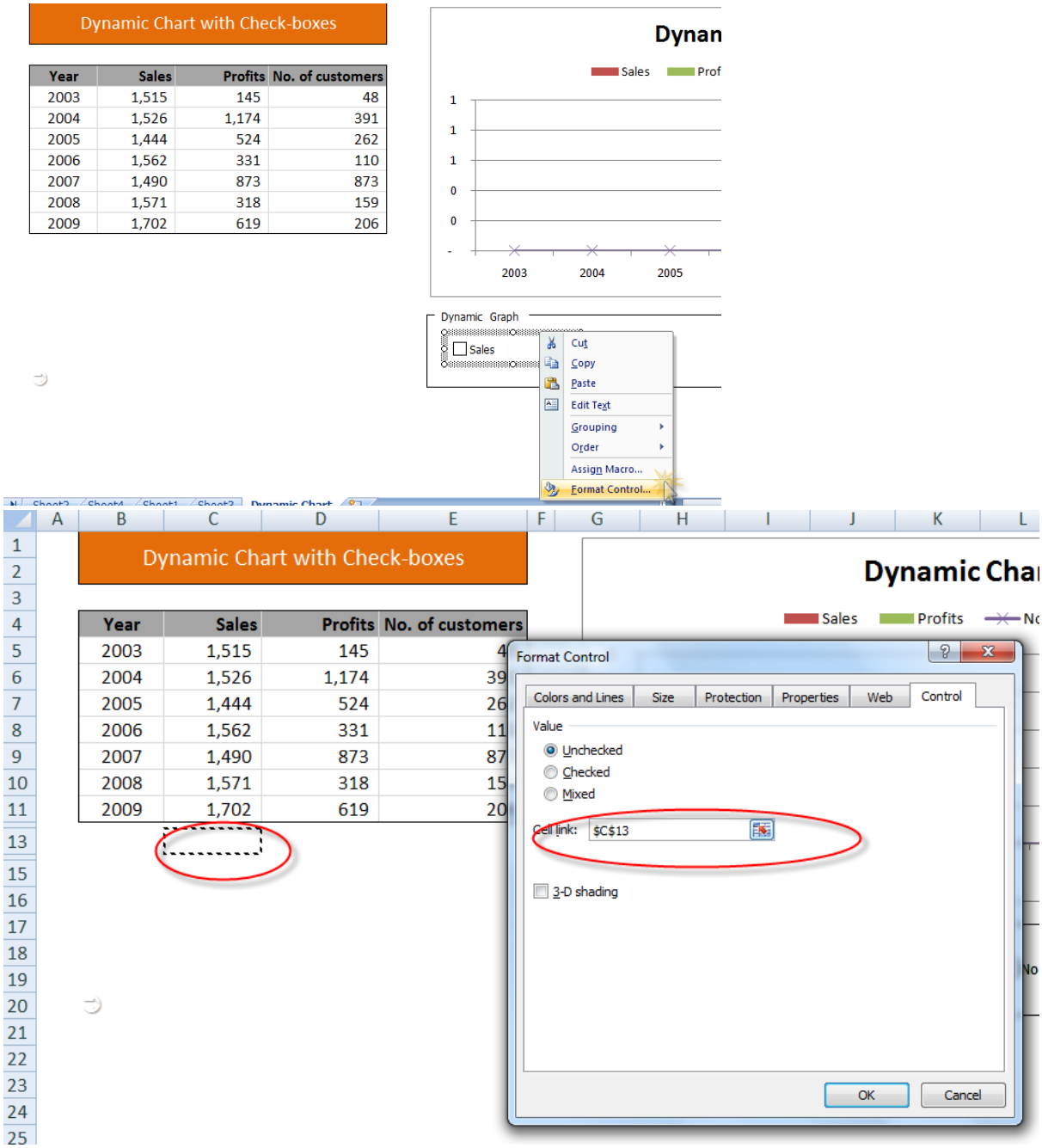


1) Click on the developer Tab.
2) Click on the Insert and Add Form Control.



Draw the check box.

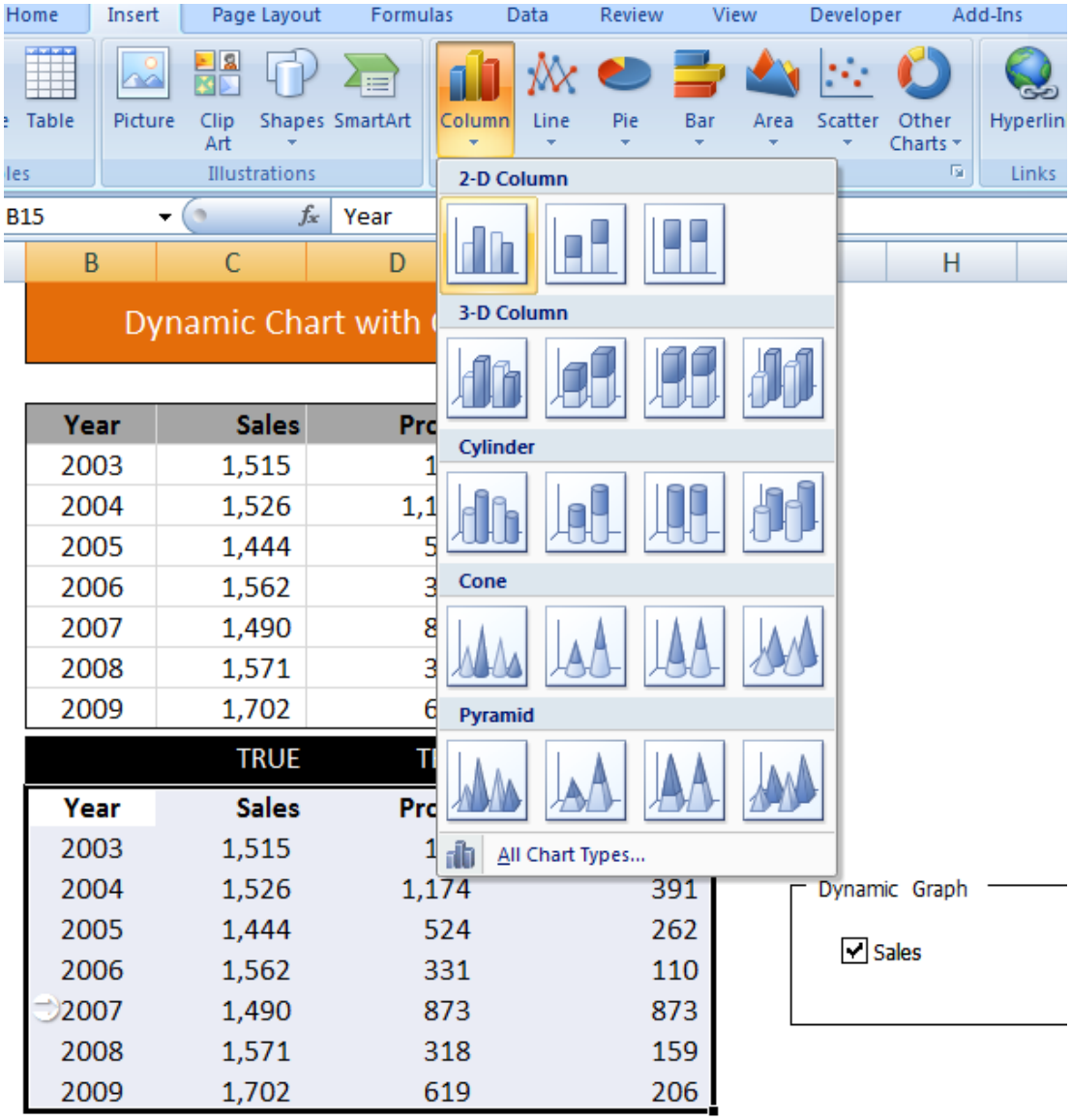
3) Right Click on the Check Box -> Select Format Control.



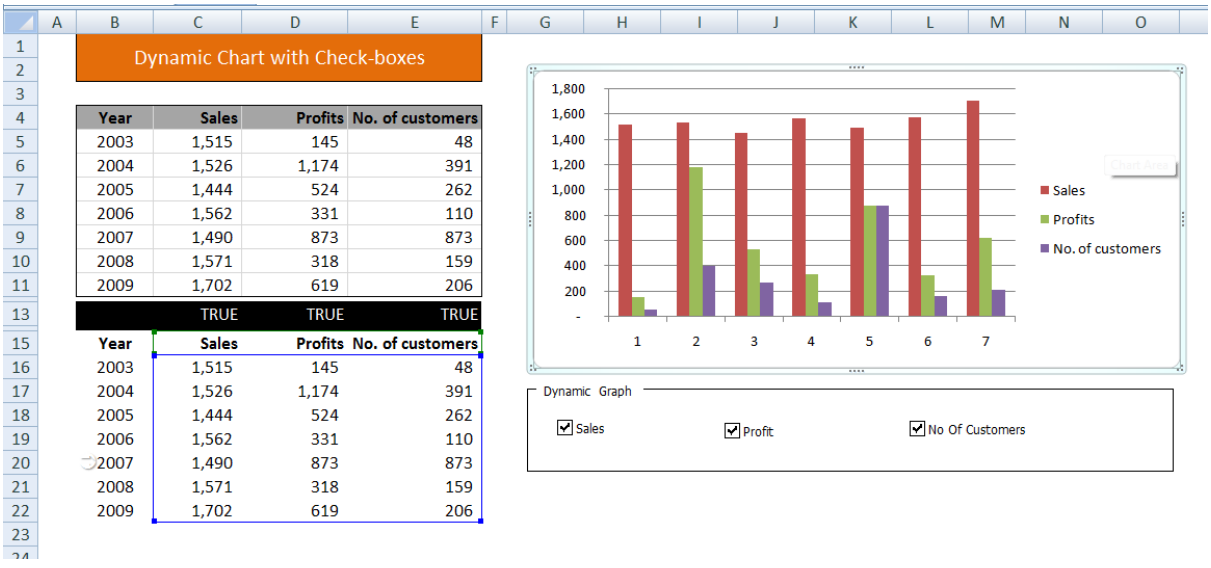
4) Link all the check box to relevant cells. -> Click on the Ok Button.

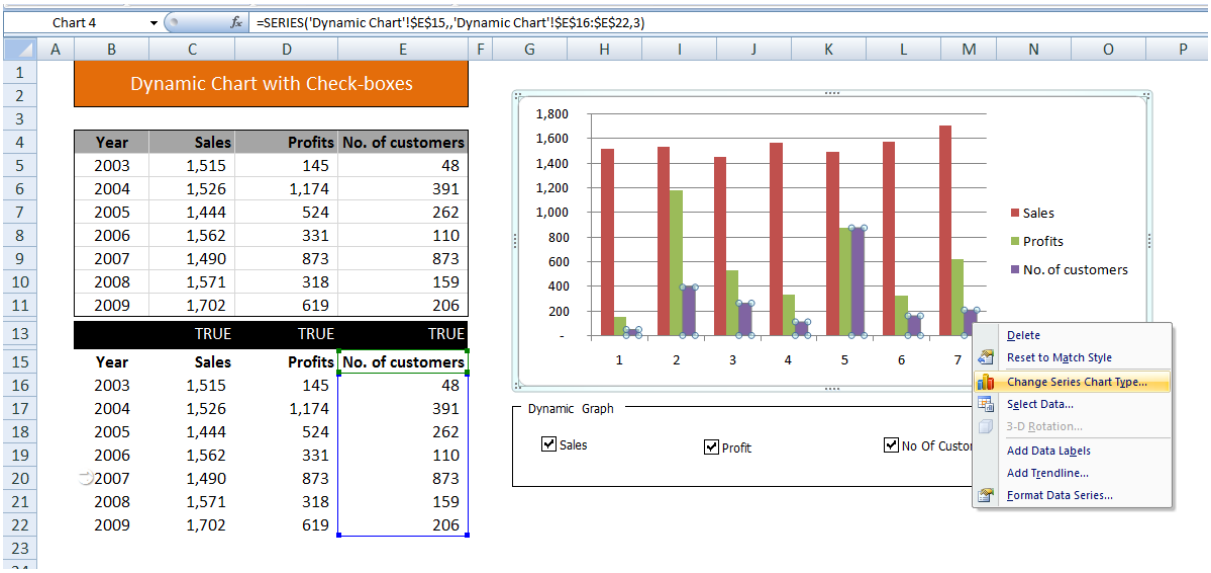
	TRUE	TRUE	TRUE
Year	Sales	Profits	No. of customers
2003	=C$13*C5	145	48
2004	1,526	1,174	391
2005	1,444	524	262
2006	1,562	331	110
2007	1,490	873	873
2008	1,571	318	159
2009	1,702	619	206

5) Generate Dynamic Formula.

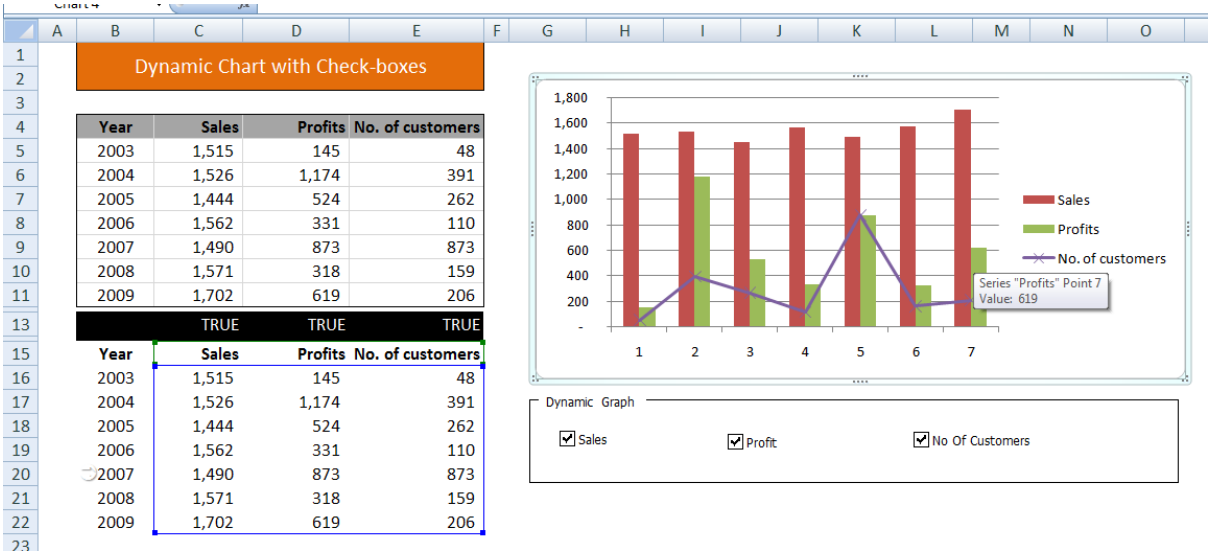


6) Create a graph from Dynamic Formula Generated data.





Change No of customer as line chart.



7) Finally Hide the Dynamic data.

Excel's Camera Tool

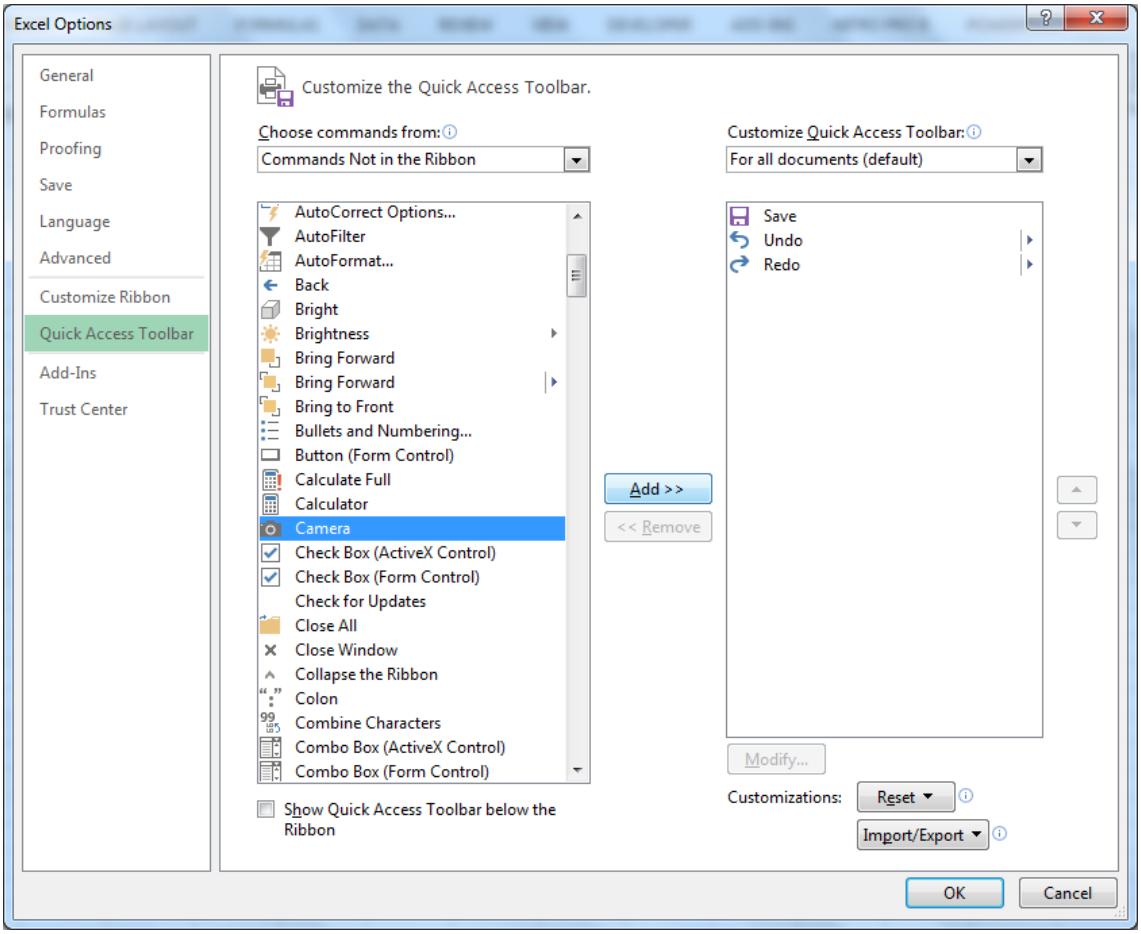
Excel's Camera tool enables you to take a live picture of a range of cells that updates dynamically while the data in that range updates. If you haven't ever heard of it, don't feel too bad. This nifty tool has been hidden away in that last few versions of Excel. Although Microsoft has chosen not to include this tool in the mainstream Ribbon, it's actually quite useful for those of us building dashboards and reports.

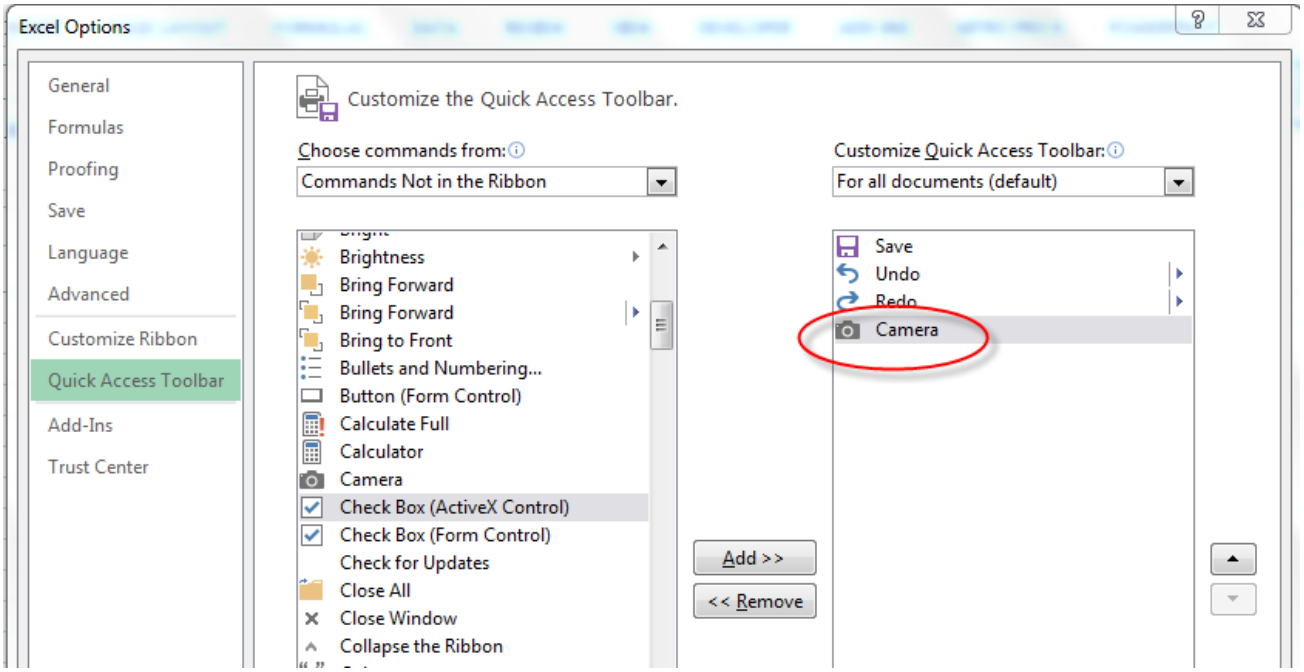
Finding the Camera tool

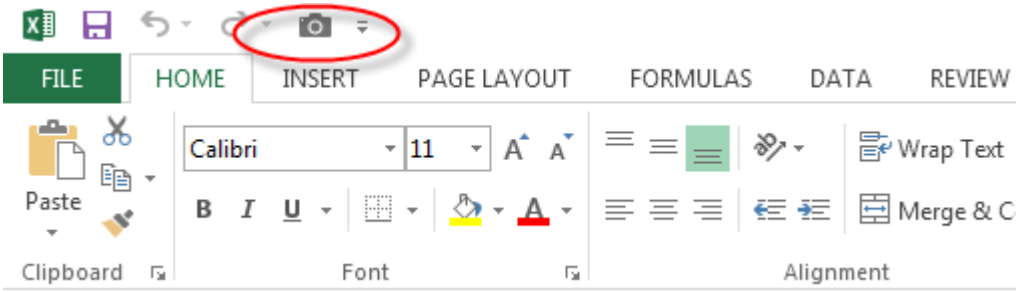
Before you can use the Camera tool, you have to find it and add it to your Quick Access toolbar.

Follow these steps to add the Camera tool to the Quick Access toolbar:

- To go to Excel's Backstage View, on the Ribbon, click the File tab.
- To open the Excel Options dialog box, click the Options button.
- Click the Quick Access Toolbar button.
- In the Choose Commands From drop-down list box, select Commands Not in the Ribbon.
- Scroll down the alphabetical list of commands and find Camera
- Select Camera Option and Click on the add button.
- Double click to add it to Quick Access toolbar.
- Click OK .





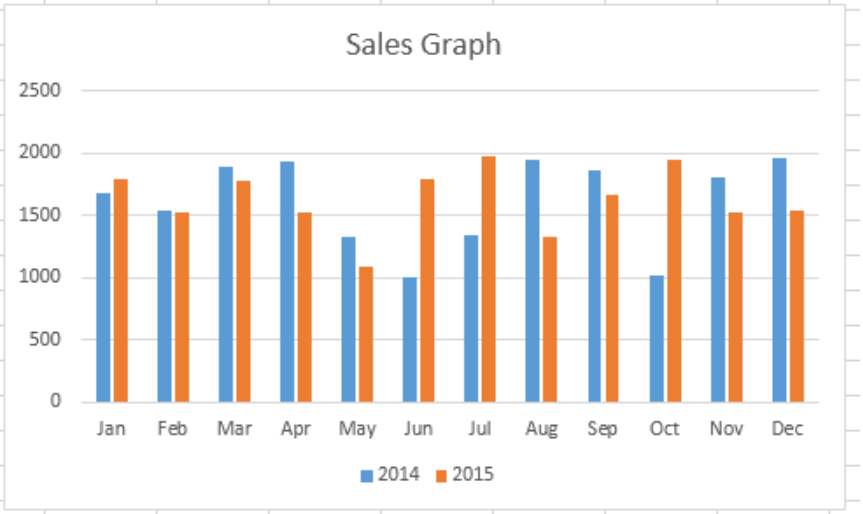


How to use Camera tool

To use the Camera tool, you simply highlight a range of cells to then capture everything in that Range in a live picture. The cool thing about the Camera tool is that you're not limited to showing a single cell's value like you are with a linked text box. And because the picture is live, any updates made to the source range automatically changes the picture.

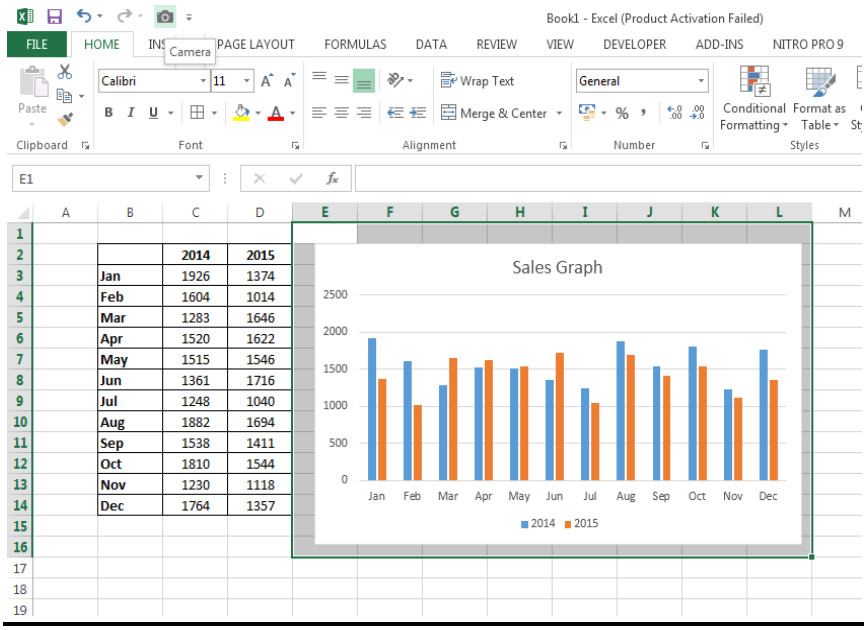
Take a moment to walk through this basic demonstration of the Camera tool. you'll see some simple numbers and a chart based on those numbers. The goal here is to create a live picture of the range that holds both the numbers and the chart.

	2014	2015
Jan	1677	1798
Feb	1543	1527
Mar	1891	1777
Apr	1929	1527
May	1327	1087
Jun	1002	1789
Jul	1335	1971
Aug	1953	1321
Sep	1866	1673
Oct	1024	1948
Nov	1808	1522
Dec	1961	1539

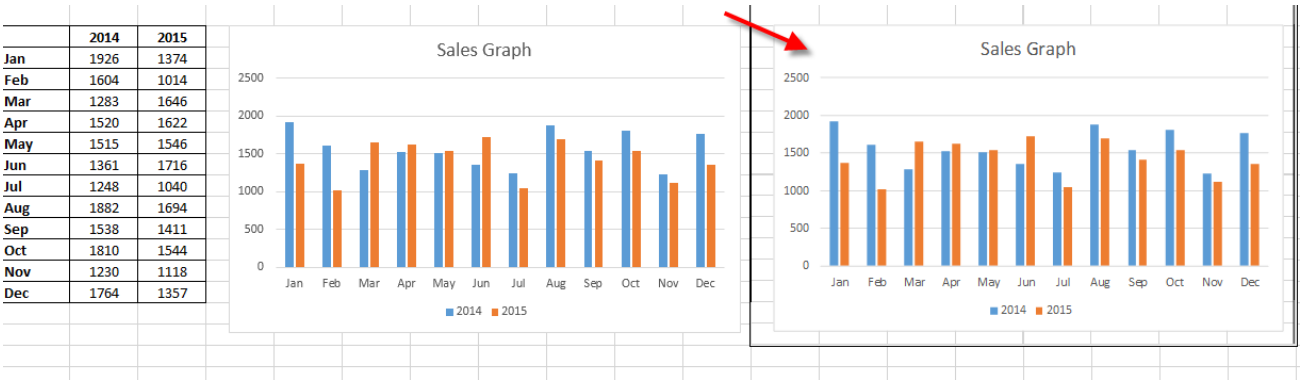


Select the Graph Range

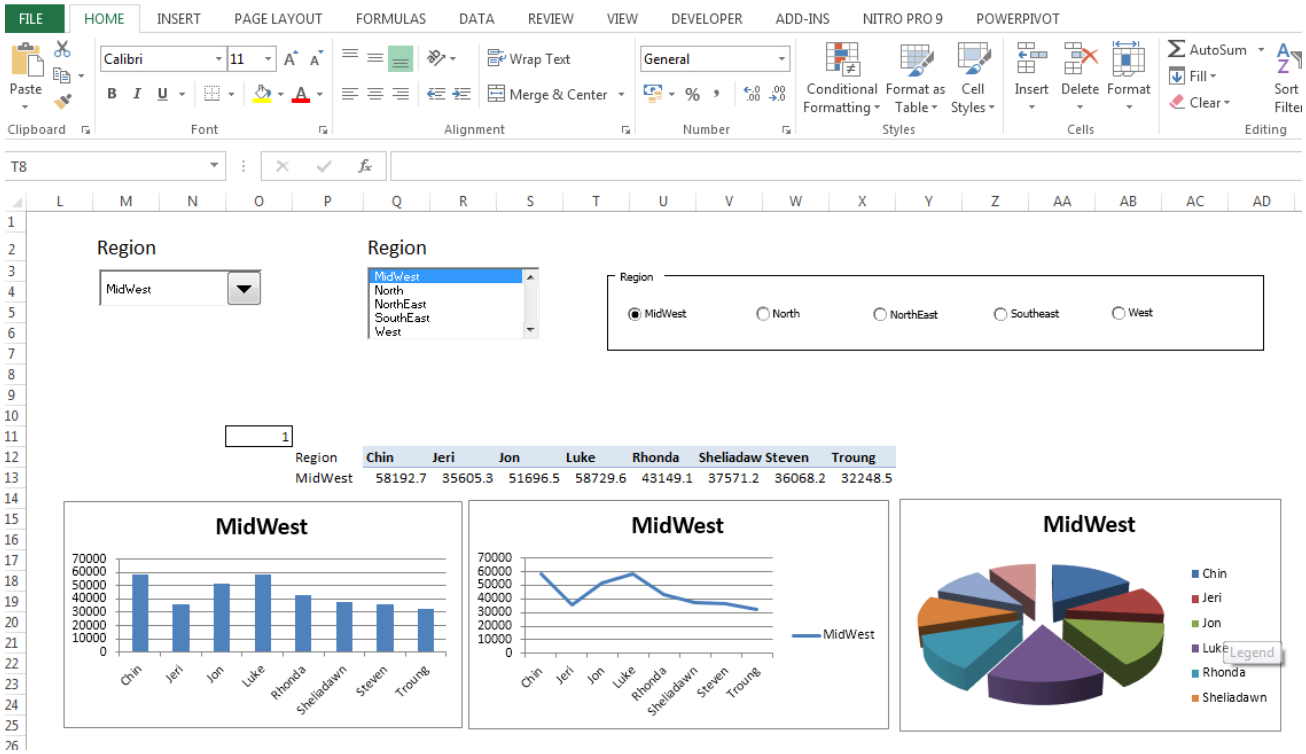
On Quick Access Tool Bar Click on the camera tools.



Select the Graph



A live picture is created using camera tools.



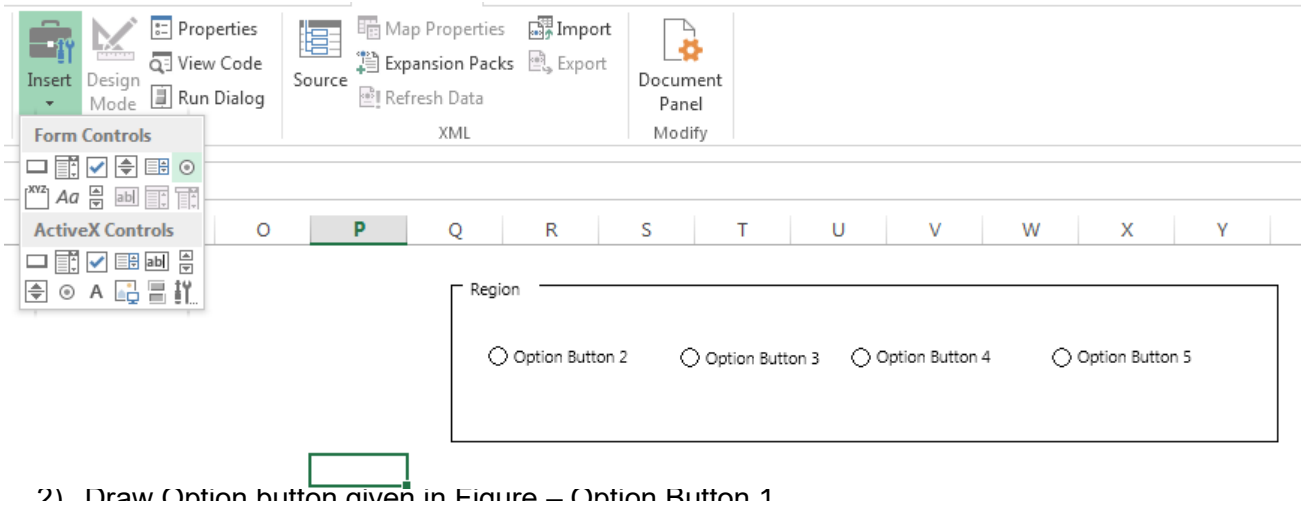
Demonstration of List Box, radio Button and Combo Box.

This is sample Pivot Table Report

Sum of Sa Columr									
Row La	Chin	Jeri	Jon	Luke	Rhonda	Sheliadaw	Steven	Troung	Grand Total
MidWest	58192.67	35605.33	51696.47	58729.62	43149.12	37571.22	36068.18	32248.46	353261.07
North	38053.72	37542.13	13034.34	44468.16	16691.72	30949.57	35518.16	38223.84	254481.64
NorthEast	55476.68	89104.69	48207.34	42020.32	95729.31	95156.19	104464.5	84594.51	614753.58
SouthEast	19356.28	18441.16	41857.23	16522.65	22247.53	18691.24	47173.41	47113.27	231402.77
West	38644.33	52050.37	33261.24	18319.78	66269.47	26318.18	21185.19	26426.75	282475.31
Grand Tot	209723.7	232743.7	188056.6	180060.5	244087.2	208686.4	244409.5	228606.8	1736374.37

Steps to Create Mini dashboard using Option button, Combo Box and List box

1) Click on the developer tab.



2) Draw Option button given in Figure – Option Button 1

Figure - Option Button 1

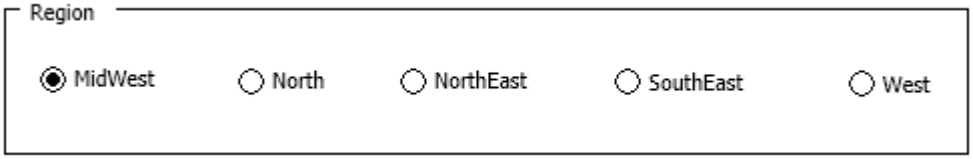


Figure Option Button 2

4) Link the option button
5) Right click on the action button and Select Control table
6) Click on the Cell Link and select any cell address. , Click ok button. Now option button link with cell address, it return (1,2,3,4) if you will select first option it will return 1, if you select 2nd option button it will return two and so on….

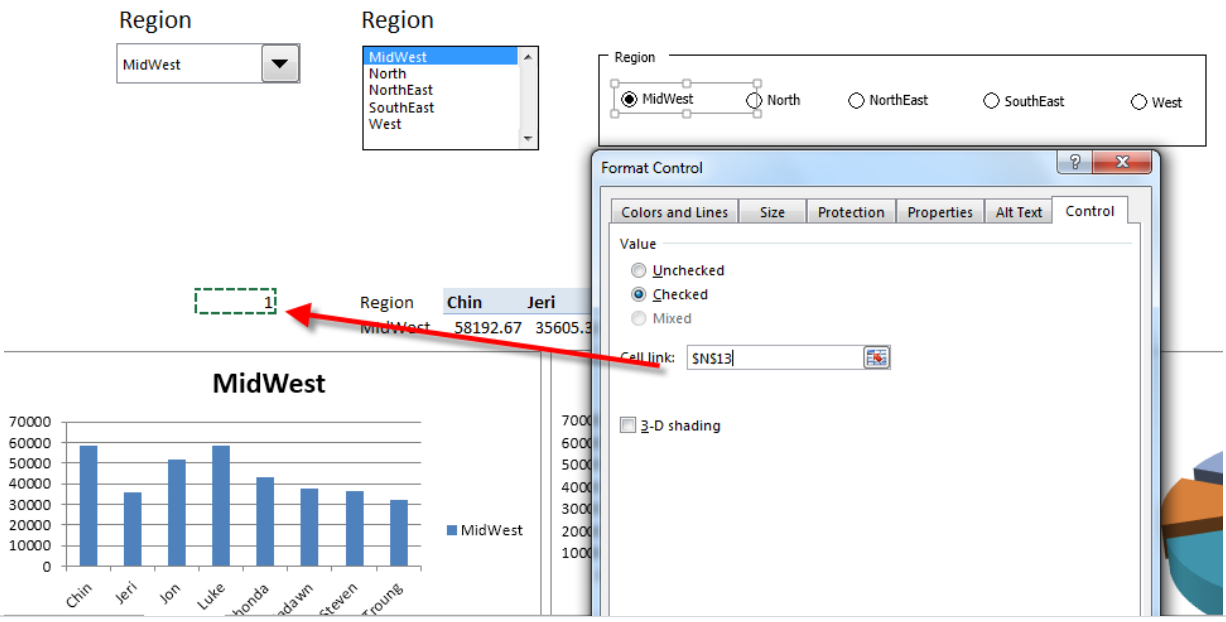


Figure Option Button 3

7) Copy the header.

1	Region	Chin	Jeri	Jon	Luke	Rhonda	Sheliadaw	Steven	Troung
	MidWest	58192.67	35605.33	51696.47	58729.62	43149.12	37571.22	36068.18	32248.46

8) Use this index formula to populate data from left side datatable.

1	Region	Chin	Jeri	Jon	Luke	Rhonda	Sheliadaw	Steven	Troung
		=INDEX($A$5:$I$9,$N$13,1)		51696.5	58729.6	43149.1	37571.2	36068.2	32248.5

INDEX(**array**, row_num, [column_num])
INDEX(**reference**, row_num, [column_num], [area_num])

1	Region	Chin	Jeri	Jon	Luke	Rhonda	Sheliadaw	Steven	Troung
	MidWest	=INDEX($A$5:$I$9,$N$13,2)			58729.6	43149.1	37571.2	36068.2	32248.5

INDEX(array, row_num, [column_num])
INDEX(reference, row_num, [column_num], [area_num])

9) Apply index formula for all the representative.

10) Create a column or line graph on above table.

5	Region	Chin	Jeri	Jon	Luke	Rhonda	Sheliadaw	Steven	Troung
	West	38644.33	52050.37	33261.24	18319.78	66269.47	26318.18	21185.19	26426.75

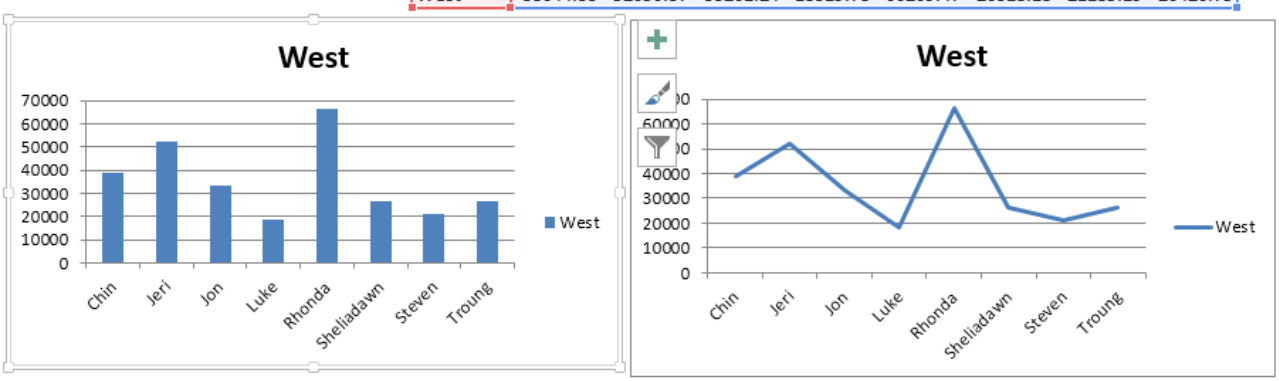


Figure Option Button 4

11) Finally it will look like .

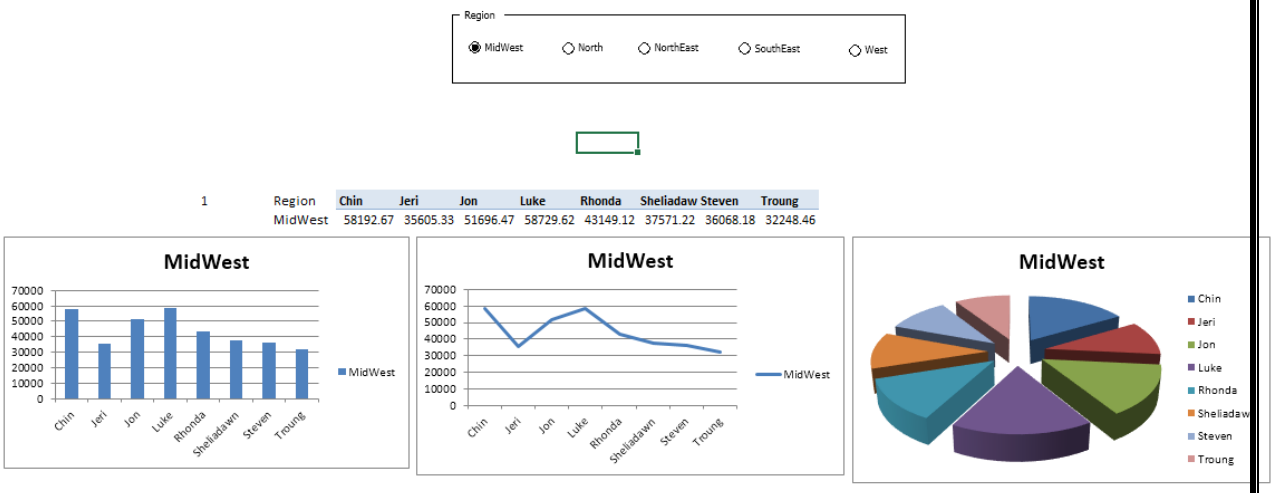


Figure Option Button 5

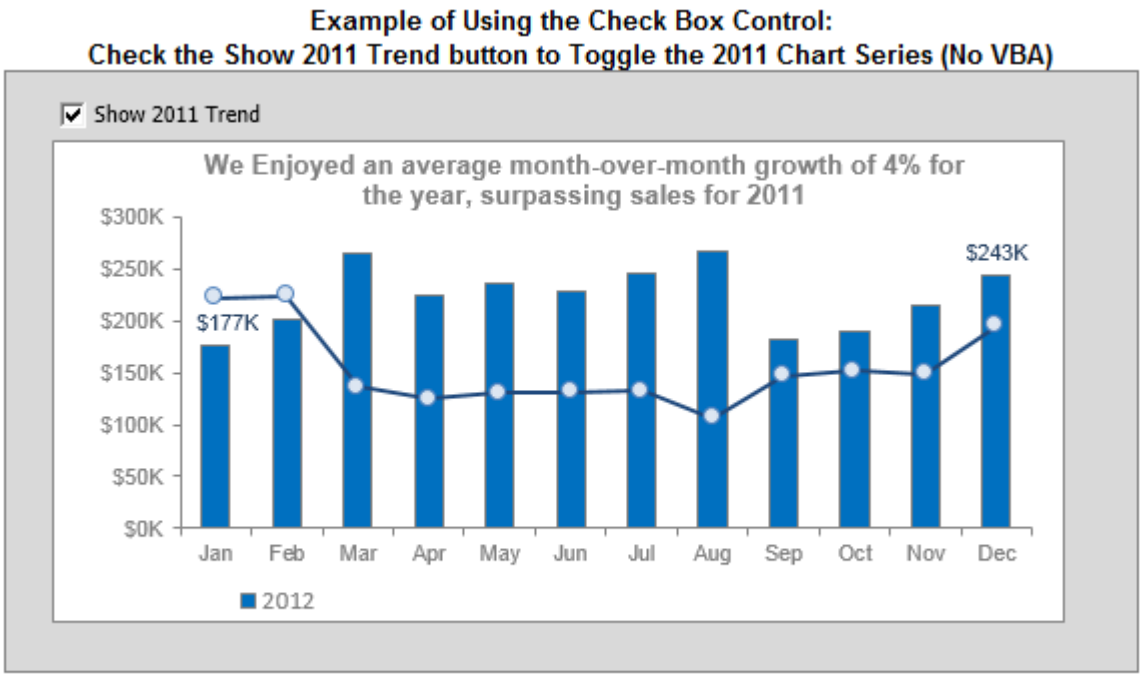
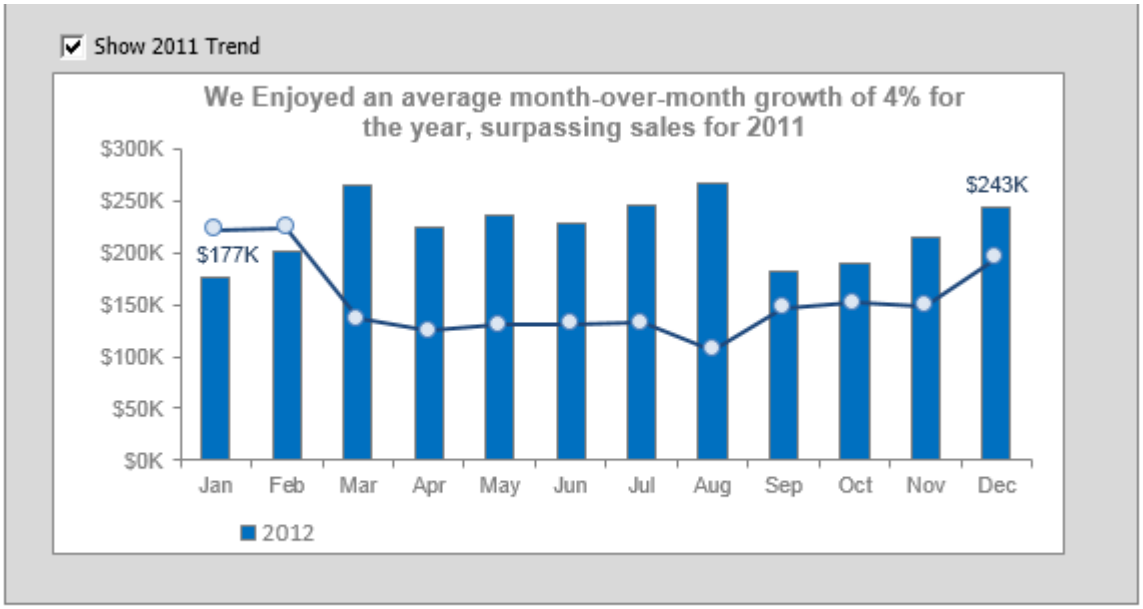


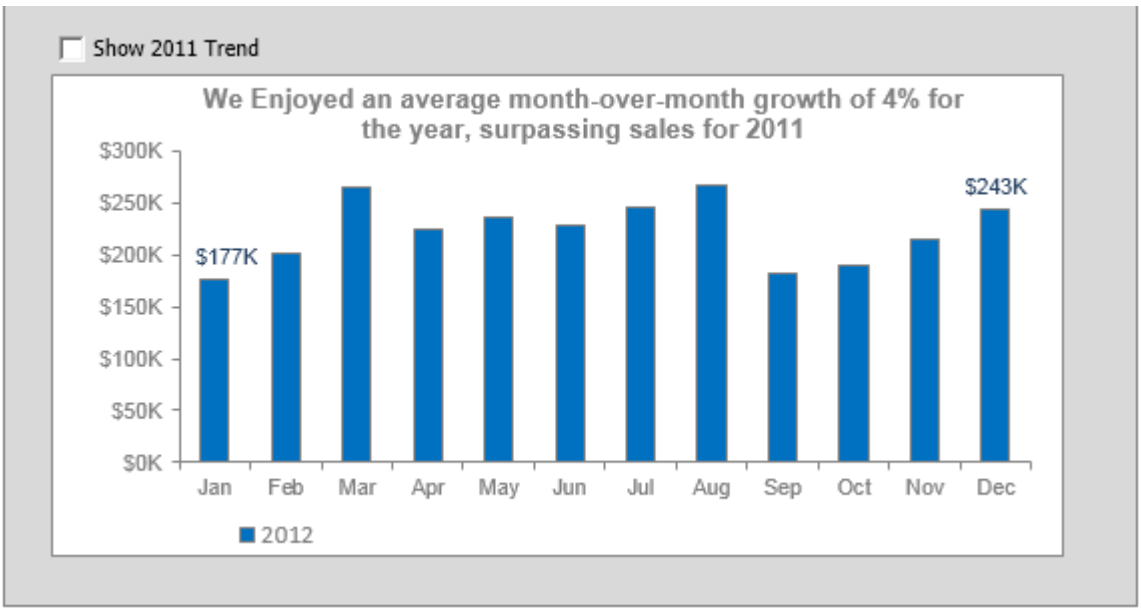
Figure Check Box 1

Toggling a chart series on and off using Check box control

Figure Check Box 1 shows the same chart twice. Notice that the top chart contains only one series, with a check box offering to Show 2009 Trend data. The bottom chart shows the same chart with the check box selected. The on/off nature of the check box control is ideal for interactivity that calls for a visible/not visible state

Automating Your Dashboards and Reports





We start with the raw data (Samples 12- Form Controls.xlsx) that contains both 2009 and 2010 data (see Figure Formula Sheet) In the first column is a cell where the check box control will output its value (cell A12 in this example). This cell will either contain True or False.

C6 =IF($A12=TRUE,C12,NA())

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
3			Chart Feed											
5			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
6		2011	$2,22,389	$2,24,524	$1,36,104	$1,25,260	$1,30,791	$1,31,538	$1,32,262	$1,06,361	$1,47,000	$1,51,699	$1,48,790	$1,95,791
7		2012	$1,76,648	$2,01,000	$2,65,720	$2,25,461	$2,35,494	$2,29,473	$2,45,881	$2,68,010	$1,82,064	$1,89,828	$2,15,198	$2,43,455
10			Raw Data											
11	Toggle for 2011 Data		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
12	TRUE	2011	$2,22,389	$2,24,524	$1,36,104	$1,25,260	$1,30,791	$1,31,538	$1,32,262	$1,06,361	$1,47,000	$1,51,699	$1,48,790	$1,95,791
13		2012	$1,76,648	$2,01,000	$2,65,720	$2,25,461	$2,35,494	$2,29,473	$2,45,881	$2,68,010	$1,82,064	$1,89,828	$2,15,198	$2,43,455

Figure Formula Sheet

List Box Control

The list box control allows users to select from a list of predefined choices. The idea is that when an item from the list box control is selected, some action is taken with that selection. To add a list box to your worksheet, follow these steps:

1. Select the Insert drop-down list under the Developer tab.
2. Select the list box Form control.
3. Click the location in your spreadsheet where you want to place your list box.
4. After you drop the control onto your worksheet, right-click the control and select Format Control.
5. Click the Control tab to see the configuration options, as shown in Figure List Box 1.
6. In the Input Range setting, identify the range that holds the predefined items you want to present as choices in the combo box.
As you can see in Figure List Box 1, this list box is filled with region selections.
7. In the Cell Link box, enter the cell where you want the list box to output its value.
By default, a list box control outputs the index number of the selected item. This means if the second item on the list was selected, the number 2 would be output. If the fifth item on the list was selected, the number 5 would be output. Notice in Figure list Box 1 that this particular control outputs to cell P2. The Selection Type setting allows users to choose more than one selection in the list box. The choices here are Single, Multi, and Extended. Always leave this setting on Single, as Multi and Extended work only in the VBA environment.
8. (Optional) You can check the 3D property if you want the control to have a 3-D Appearance.

9. Click OK to apply your changes.

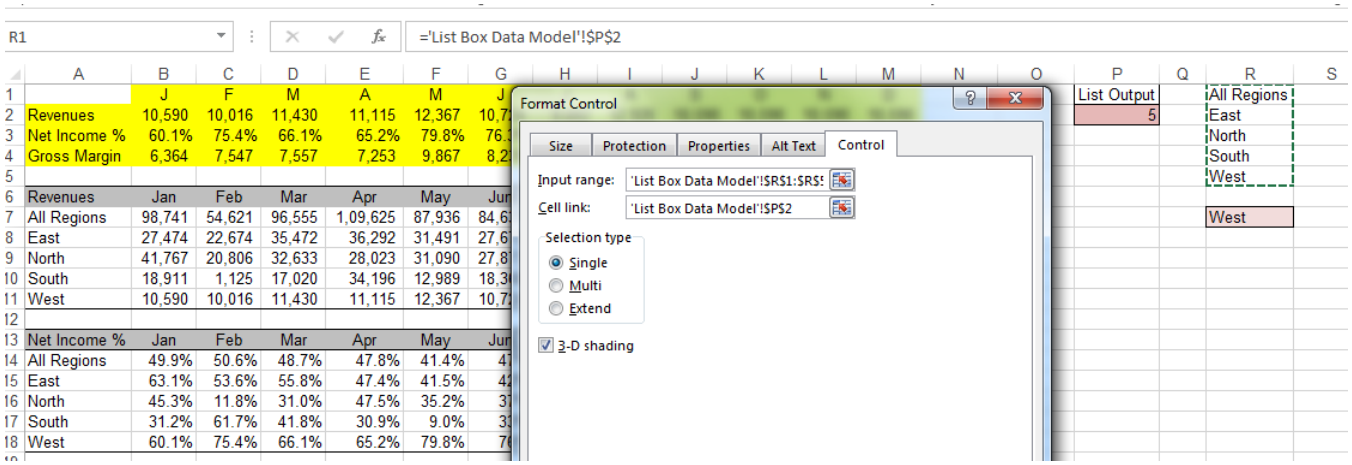
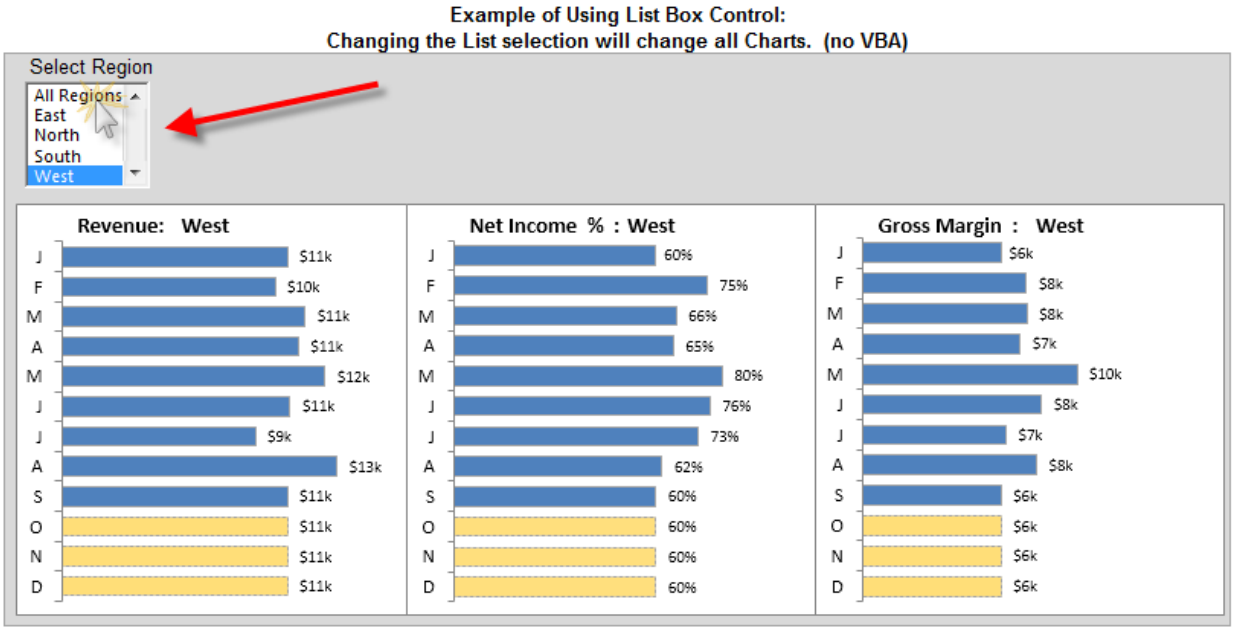


Figure List Box 1

Controlling multiple charts with one selector

One of the more useful ways to use a list box is to control multiple charts with one selector. Figure 15-25 illustrates an example of this. As a region selection is made in the list box, all three charts are fed the data for that region, adjusting the charts to correspond with the selection made. Happily, all this is done without VBA code, just a handful of formulas and a list box.



To create this example, we start with three raw datasets (as shown in Figure List Box 2) that contain Three categories of data; Revenues, Net Income %, and Gross Margin. Each dataset contains a Separate line for each region.

B2 =CHOOSE($P$2,B7,B8,B9,B10,B11)

	A	B	C	D	E	F	G	H	I	J	K	L	M
1		J	F	M	A	M	J	J	A	S	O	N	D
2	Revenues	41,767	20,806	32,633	28,023	31,090	27,873	24,656	36,984	41,767	41,767	41,767	41,767
3	Net Income %	45.3%	11.8%	31.0%	47.5%	35.2%	37.1%	39.1%	29.8%	45.3%	45.3%	45.3%	45.3%
4	Gross Margin	18,914	2,455	10,115	13,299	10,938	10,290	9,641	11,019	18,914	18,914	18,914	18,914
5													
6	Revenues	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
7	All Regions	98,741	54,621	96,555	1,09,625	87,936	84,637	81,339	97,281	98,741	98,741	98,741	98,741
8	East	27,474	22,674	35,472	36,292	31,491	27,672	23,853	25,284	27,474	27,474	27,474	27,474
9	North	41,767	20,806	32,633	28,023	31,090	27,873	24,656	36,984	41,767	41,767	41,767	41,767
10	South	18,911	1,125	17,020	34,196	12,989	18,368	23,747	22,087	18,911	18,911	18,911	18,911
11	West	10,590	10,016	11,430	11,115	12,367	10,724	9,082	12,926	10,590	10,590	10,590	10,590
12													
13	Net Income %	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
14	All Regions	49.9%	50.6%	48.7%	47.8%	41.4%	47%	52.8%	48.7%	49.9%	49.9%	49.9%	49.9%
15	East	63.1%	53.6%	55.8%	47.4%	41.5%	42%	42.5%	31.7%	63.1%	63.1%	63.1%	63.1%
16	North	45.3%	11.8%	31.0%	47.5%	35.2%	37%	39.1%	29.8%	45.3%	45.3%	45.3%	45.3%
17	South	31.2%	61.7%	41.8%	30.9%	9.0%	33%	56.9%	71.5%	31.2%	31.2%	31.2%	31.2%
18	West	60.1%	75.4%	66.1%	65.2%	79.8%	76%	72.7%	61.9%	60.1%	60.1%	60.1%	60.1%
19													
20	Gross Margin	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
21	All Regions	48,508	22,850	44,586	48,340	35,056	37,469	39,881	42,849	48,508	48,508	48,508	48,508
22	East	17,326	12,154	19,799	17,206	13,079	11,605	10,131	8,020	17,326	17,326	17,326	17,326
23	North	18,914	2,455	10,115	13,299	10,938	10,290	9,641	11,019	18,914	18,914	18,914	18,914
24	South	5,904	694	7,115	10,582	1,171	7,339	13,506	15,803	5,904	5,904	5,904	5,904
25	West	6,364	7,547	7,557	7,253	9,867	8,235	6,604	8,005	6,364	6,364	6,364	6,364
26													

Figure List Box 2

We then add a list box that outputs the index number of the selected item to cell P2

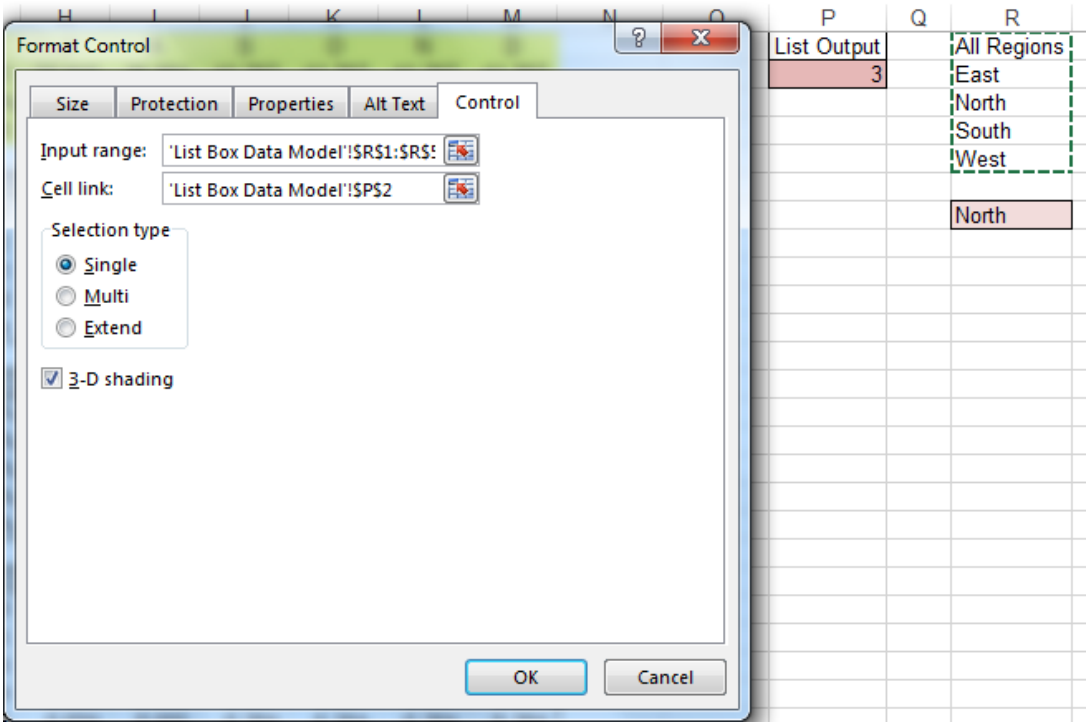
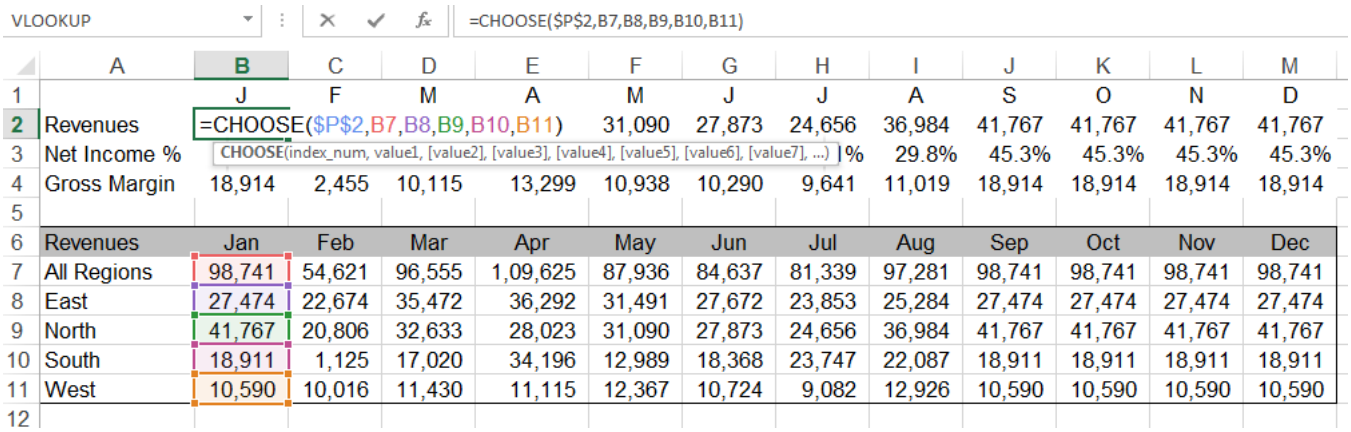


Figure List Box 3

As you can see in Figure List Box 3 , the CHOOSE formula retrieves the target position number from Cell P2 (the cell where the list box outputs the index number of the selected item) and then matches that position number to the list of cell references given. The cell references come directly from the raw data table.

In the example shown in Figure List box 4, the data that would be returned with this CHOOSE formula would be 98741. Why? Because cell P2 contains the number 1, and the first cell reference within the CHOOSE formula is cell B7.



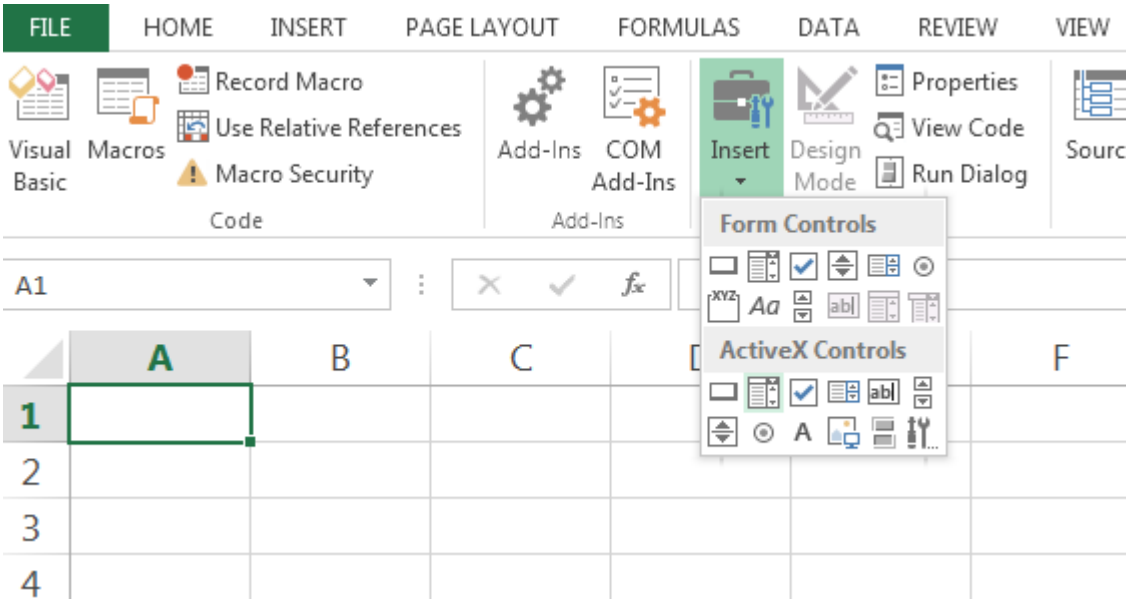
	A	B	C	D	E	F	G	H	I	J	K	L	M
1		J	F	M	A	M	J	J	A	S	O	N	D
2	Revenues	=CHOOSE($P$2,B7,B8,B9,B10,B11)				31,090	27,873	24,656	36,984	41,767	41,767	41,767	41,767
3	Net Income %							%	29.8%	45.3%	45.3%	45.3%	45.3%
4	Gross Margin	18,914	2,455	10,115	13,299	10,938	10,290	9,641	11,019	18,914	18,914	18,914	18,914
5													
6	Revenues	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
7	All Regions	98,741	54,621	96,555	1,09,625	87,936	84,637	81,339	97,281	98,741	98,741	98,741	98,741
8	East	27,474	22,674	35,472	36,292	31,491	27,672	23,853	25,284	27,474	27,474	27,474	27,474
9	North	41,767	20,806	32,633	28,023	31,090	27,873	24,656	36,984	41,767	41,767	41,767	41,767
10	South	18,911	1,125	17,020	34,196	12,989	18,368	23,747	22,087	18,911	18,911	18,911	18,911
11	West	10,590	10,016	11,430	11,115	12,367	10,724	9,082	12,926	10,590	10,590	10,590	10,590
12													

Figure List Box 4 : Use the CHOOSE function to capture the correct data corresponding to the selected region.

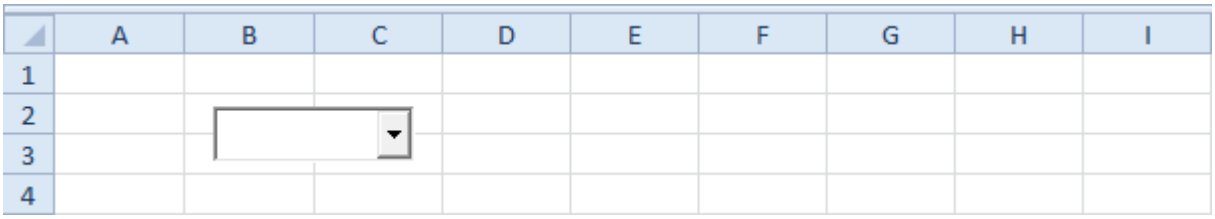
Combo Box with Macro

A combo box is a drop-down list from where a user can select an item or fill in his/her own choice. To create a **combo box** in **Excel VBA**, execute the following steps.

1. On the Developer tab, click Insert.
2. In the ActiveX Controls group, click Combo Box.



3. Drag a combo box on your worksheet.

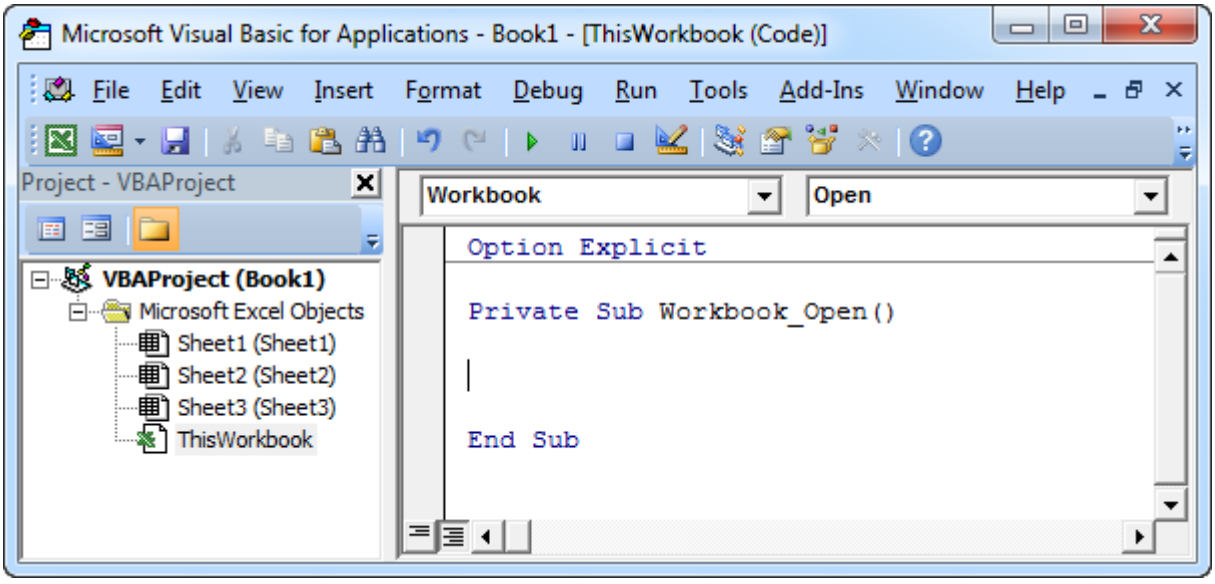


Note: you can change the name of a control by right clicking on the control (make sure Design Mode is selected) and then clicking on Properties. For now, we will leave ComboBox1 as the name of the combo box.

Create a Workbook Open Event. Code added to the Workbook Open Event will be executed by Excel VBA when you open the workbook.

4. Open the Visual Basic Editor.
5. Double click on This Workbook in the Project Explorer.

6. Choose Workbook from the left drop-down list and choose Open from the right drop-down list.



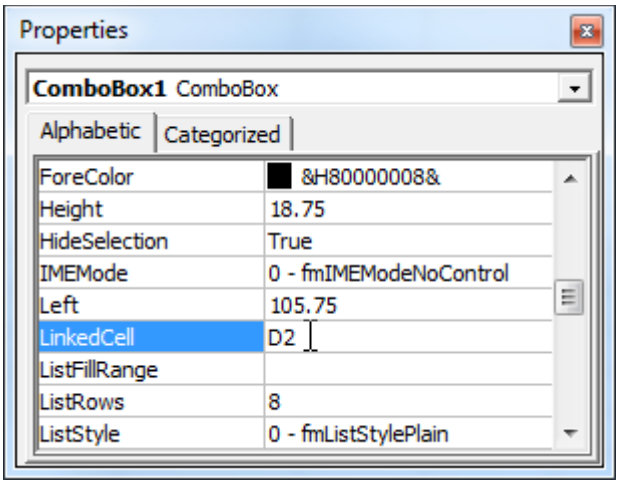
7. To add items to the combo box, add the following code lines to the Workbook Open Event:

```
With Sheet1.ComboBox1
    .AddItem "Paris"
   .AddItem "New York"
   .AddItem "London"
End With
```

Note: use Sheet2 if your combo box is located on the second worksheet, Sheet3 if your combo box is located on the third worksheet, etc. If you use these code lines outside the Workbook Open event, you might want to add the code lines below before these code lines. The first code line clears the combo box. This way your items won't be added multiple times if you execute your code more than once. The second code line clears your own choice.

```
ComboBox1.Clear
ComboBox1.Value = ""
```

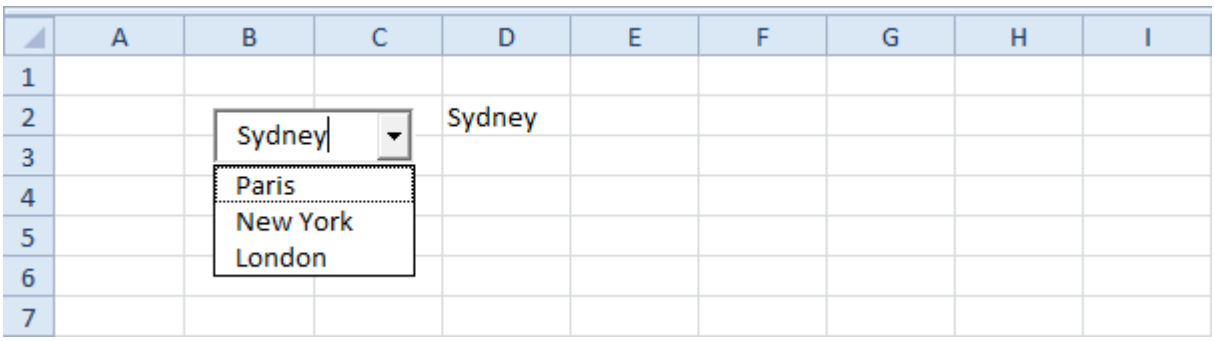
8. To link this combo box to a cell, right click on the combo box (make sure design mode is selected) and click on Properties. Fill in D2 for Linked Cell.



Note: also see the ListFill Range property to fill a combo box with a range of cells.

9. Save, close and reopen the Excel file.

Result:



Although in some situations it can be useful to directly place a combo box on your worksheet, a combo box is particularly useful when placed on a User form.

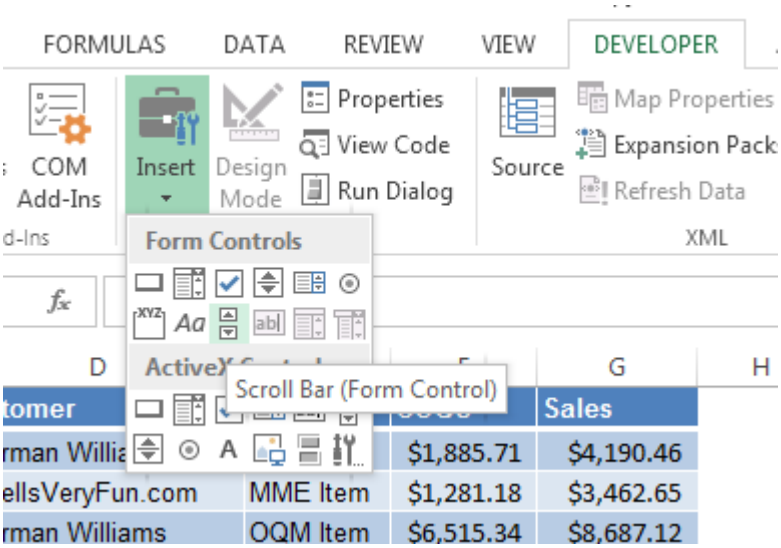
Create a Scroll Bar

A Scroll Bar is what you need when you have a huge data set and you don't want it to display your entire screen's How to link a data set to this dynamic scroll bar, such that when a user changes the scroll bar, the data accordingly changes. It comes in handy when you are creating a dashboard, or when you simply want to fit a huge list in limited space.

Create a Scroll Bar Form Control

The first step is to get your data in place.

Go to Developer Tab –> Insert –> Scroll Bar (Form Control).



1. Click on Scroll Bar (Form Control) button and click anywhere on your worksheet. This will insert a Scroll Bar in the excel worksheet.
2. Right click on the Scroll Bar and click on 'Format Control'. This will open a Format Control dialogue box.
3. In Format Control dialogue box go to 'Control' tab, and make the following changes:
    - Current Value: 1
    - Minimum Value: 1
    - Maximum Value: 19 *(it is 19 here as we display 10 rows at a time. So when the user makes the scroll bar value 19, it displays rows 19-28)*
    - Incremental Change: 1
    - Page Change: 5
    - Cell Link: $L$3

4. Now enter the following formula in the first cell (H4) and then copy it to fill all the other cells:
   =OFFSET(C3,$L$3,0)
   Note that this OFFSET formula is dependent on cell L3, which is linked to the scroll bar.

5. The OFFSET formula uses cell C3 as the reference cell, and offsets it by the values specified by cell L3. Since L3 is linked to scroll bar value, when the scroll bar value becomes 1, the formula refers to the first state name. When it becomes 2, it refers to the seconds state.
6. Also, since C3 cell has not been locked, in the second row, the formula becomes=OFFSET (C4,$L$3,0) and works the same way.