

# CHAPTER 4: SPREADSHEET

## Introduction to Spreadsheets

A spreadsheet is used to carry out everything from simple addition to complex financial and statistical analyses. Spreadsheet programs can also help you create charts and graphs based on the data you've entered.

A *spreadsheet* is a computer program (or a document produced by such a program) that we can use for arithmetic computations. A spreadsheet offers major advantages over the use of a hand calculator (just as a word processing program offers many advantages over typewriting). Among the advantages of a spreadsheet over a hand calculator:

- A spreadsheet produces a document that can be read, printed, and stored and retrieved.
- A spreadsheet can have its calculations done in a fashion by which they may be redone automatically if any of the data values upon which they depend, are changed.
- The numbers that appear in a spreadsheet are easily used as the foundation of “charts” or “graphs” that may be used to illustrate the relationships among these numbers. We can build bar charts, pie charts, line charts, etc.
- Etc.

## The Main Spreadsheets

Numerous spreadsheets have been produced by the main software companies. The main spreadsheets are:

- Microsoft Excel, in the *Microsoft Office* office suite
- Sun *StarOffice Calc*, in the *StarOffice* suite
- *OpenCalc*, in the *OpenOffice* suite
- *IBM/Lotus 1-2-3* in the *SmartSuite* suite
- *Corel Quattro Pro* in the *WordPerfect* suite
- *KSpread* in the *KOffice* free suite from Linux

Examples and the notes in this document bases on the *Microsoft Excel* spreadsheet, but the other spreadsheets contain the same functionalities.

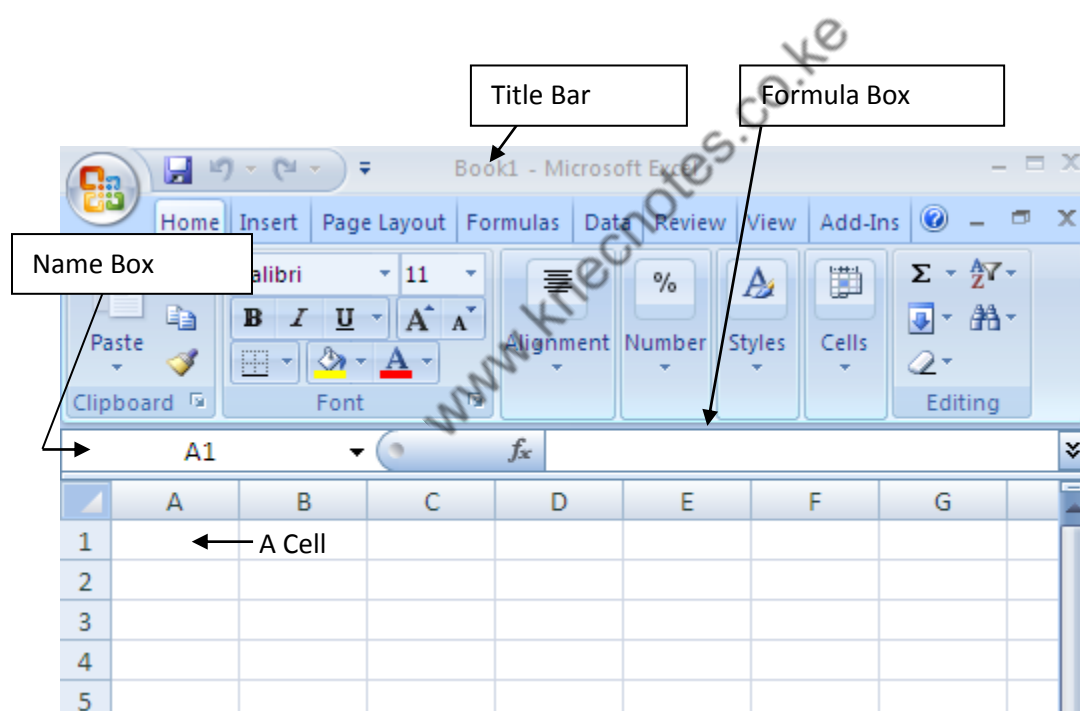
# Basic MS Excel Skills

## Starting Up Microsoft Excel

1. Click on START, choose PROGRAMS and click on Microsoft Excel
2. You will see a white grid in front of you with rows of menus and icons at the top of the screen.

## The Key Components of a Spreadsheet

1. *Title Bar*: The bar that displays the name of the spreadsheet you currently have open.
2. *Name Box*: The box that displays the address of the cell that you are presently on.
3. *Formula Box*: The bar where the contents of the cell are displayed.
4. *Worksheet Tabs*: These tabs allow you to switch from one worksheet to another. The standard spreadsheet contains three worksheets.



**Note: Terms**

**Cell** – a single worksheet division

**Header** – identities/addresses to column, rows and cells

- Column[A,B,...], Rows[1,2,...] and Cell [A1]
- Cells – headers are in terms of cell position within a column and a row [A1 is a cell within column A and row 1 and A5 is a cell within column A and row 5]

**Reference** – the act of accessing/using cell addresses especially in formulas and functions

Types of references

- a) Single cell – addressing a single cell [i.e. A1]
- b) Range of cell – addressing a group of cells [i.e. A1:A5- vertical,A1:F1 - horizontal]

Ways of referencing

- a) Relative – in a formulae, reference to cells(s) are based on their position relative to the cell that contain the formulae
- b) Absolute - the cell referred to is the same no matter which cell refers to it

**Functions and formulas**

Function – readymade/ predefined mathematical procedures, built into the program library to perform a series of operations on a specified range of values (i.e. average, sum, if etc. – Average(A1:A5))

Formulae – user defined formulae (i.e. =A1+A2+A3)

## Entering Data into a Spreadsheet

1. To enter data into a cell, simply click into the cell and type.
2. **ACTIVITY:**
  - a. Start in cell A1, and type "Day of the Week". Press Enter, or click your mouse into cell A2 and type "Monday". Continue down Column A until you've typed Monday through Sunday.
  - b. Click on cell B1 and type "Customers". Proceed to cells B2-B8 begin typing in the numbers: 20, 10, 30, 50, 60, 100, and 70.

## Excel Formula and Functions

### Entering a Formula into a Spreadsheet

1. *What is a formula?* It is a command that instructs Excel to carry out a calculation. Addition, subtraction and averaging are all examples.

3. **ACTIVITY:**
  - a. In cell A9, type "Total", then,
  - b. Move to cell B9 and type "=SUM(B2:B8)" and then press ENTER. You should see a total appear in cell B9.

	A	B	C	D	E	F
1		customer				
2		20				
3		10				
4		30				
5		50				
6		60				
7		100				
8		70				
9	total	340				
10						

## Calculating Four Basic Math Operations

### *Addition:*

1. Use the SUM command, which is =SUM(beginning cell address: ending cell address) and press ENTER. OR,
2. If the numbers are not adjacent to each other, you can use the “+” operator as follows: = first cell to be added + second cell to be added + third cell to be added, and so on. Then press ENTER.

### **Subtraction**

1. Use the – operator = first cell – second cell and then press ENTER

### **Multiplication**

1. Use the \* operator = first cell \* second cell and then press ENTER

### **Division**

1. Use the / operator = first cell / second cell and then press ENTER.

### **Functions**

Excel can perform a very large number of functions, which are formulas that perform a specific calculation beyond standard arithmetic. If you go to INSERT and choose FUNCTIONS, you will see a large menu of functions.

1. If you want to use a certain function, first click in the cell on your spreadsheet you want that function performed in. Then go to INSERT and choose FUNCTION and select the function you want to perform.
2. Specify the cell or block of cells that you want the function to consider.
3. Click OK.
4. To insert functions in Excel 2007, you would choose the FORMULAS tab, then select the function you would like to perform from the function library and follow steps 2 and 3.

**ACTIVITY:** The AVERAGE function is useful.

1. Click into cell A10 and type, “Daily Average”
2. Click into cell B10 and click on INSERT and then FUNCTION
3. Click on ALL, click on the AVERAGE function, and then click OK.
4. In the “Number1” field, type in the cells you would like to average

\*NOTE\* If the dialog box is blocking your view of the spreadsheet and you can't remember the location of the cells you'd like to average, click on the symbol at the end of the "Number1" field. Your spreadsheet will pop up and you'll get a chance to highlight the block of cells you'd like to average. Then press ENTER.

5. Click on OK.

**ACTIVITY:** To practice functions, try to apply the MAX function to have Excel determine the highest daily Customer total

### Making Changes to the Contents of a Spreadsheet Cell

**ACTIVITY:** We made a mistake calculating Tuesday's customers. There were actually 16 customers, not 10!

1. Click on the cell whose contents you would like to change
2. See the present contents of the cell appear in the FORMULA Bar and change the data.
3. Notice that the TOTAL was automatically recalculated (It now reads 346 instead of 340!)

The image shows two side-by-side screenshots of an Excel spreadsheet. The left screenshot shows a spreadsheet with a table of customer counts per day. The 'total' cell (B9) contains the value 340. The right screenshot shows the same spreadsheet after a correction: the 'Tue' cell (B3) has been changed from 10 to 16, and the 'total' cell (B9) has automatically updated to 346. A black arrow points from the original value of 10 in the left screenshot to the new value of 16 in the right screenshot. The formula bar at the top of both screenshots shows the formula =SUM(B2:B8).

	A	B	C	D	E
1		customer			
2	Mon	20			
3	Tue	10			
4	Wed	30			
5	Thus	50			
6	Fri	60			
7	Sat	100			
8	Sun	70			
9	total	340			
10					

	A	B	C	D	E
1		customer			
2	Mon	20			
3	Tue	16			
4	Wed	30			
5	Thus	50			
6	Fri	60			
7	Sat	100			
8	Sun	70			
9	total	346			
10					

### Saving Your Spreadsheet

1. Click on FILE and choose SAVE AS if you are saving the spreadsheet for the first time, otherwise, choose SAVE.
2. Choose what location you would like to save your spreadsheet in and click ok.

### Printing a Spreadsheet

1. Click on File and choose PRINT.
2. If you'd like to only print certain pages then use the "Print Range" section of the Print dialog box and choose which pages you would like to print.

## Fitting a Spreadsheet onto One Printed Page

1. If you want your spreadsheet printed on one page instead of spanning two pages, follow these steps:
2. Highlight all the cells of your spreadsheet then click on FILE and choose PRINT AREA. (in Excel 2007, you would select PAGE LAYOUT from the main menu, then select PRINT AREA)
3. Click on SET PRINT AREA and see that a dotted line appears around your spreadsheet cells.
4. Click on FILE and PRINT PREVIEW.
5. Click on SETUP and click on the radio button beside (under the heading SCALING) FIT TO 1 PAGE WIDE BY 1 PAGE TALL. (in Excel 2007, click the small arrow in the bottom right corner of the SCALE TO FIT shortcut box to access this option)
6. Click on OK, Click on PRINT and Click OK.

## **Editing a Spreadsheet**

### Inserting Columns

**ACTIVITY:** The regional manager says we need to start tracking the number of *visitors* to our story each day. She wants us to insert a new “Visitors” column BETWEEN the current “Days of the Week” column and the “Customers” column in order to track this data.

1. Click into any cell within the column that will become the first column to the right of the new column. Which column is that for us??
2. Now click on INSERT and choose COLUMN. You will see a new column appear. (in Excel 2007, in the CELL quick menu, click the word INSERT, select INSERT SHEET COLUMNS)

**ACTIVITY:** Starting in B2, type the following number of visitors for each day: 30, 32, 45, 90, 65, 200, 130.

### Inserting Rows

1. Click into any cell within the row that will become the first row below the new row.
2. Click on INSERT and choose ROW. (in Excel 2007, in the CELL quick menu, click the word INSERT, select INSERT SHEET ROWS)
3. You will see a new row appear.

### Inserting Cells

1. Click into the cell where a new cell needs to be inserted.
2. Click on INSERT and click on CELLS (in Excel 2007, in the CELL quick menu, click the word INSERT, select INSERT CELLS)
3. Choose one of the four choices that appear:
  - a. SHIFT CELLS RIGHT means that when you insert the new cell, the existing cell will be shifted to the right.

- b. SHIFT CELLS DOWN means that when you insert the new cell, the existing cell will be shifted down.
- c. The other two choices, ENTIRE ROW, and ENTIRE column are alternative ways to inserting rows and columns.

### **Copy and Pasting**

In Excel, you use the Copy and Paste feature when you want to duplicate a cell or block of cells in another location within the spreadsheet. The original cell will remain in the original location, but a second copy is found at the new location.

**ACTIVITY:** The regional manager wants a total number of visitors for the week. We can copy the formula from C9 into box B9.

1. Click on C9 (the source cell).
2. Click on EDIT and choose COPY.
3. Click on cell B9 (the destination cell) and click on EDIT and choose PASTE.
4. See the total appear.
5. \*NOTE\* Excel converts the formula's column "C" references into column "B" references. To prevent this automatic adjustment, which is called Relative Cell Referencing, place \$ signs in front of the column and/or row reference that you don't want Excel to adjust when that cell is copied to another location. For example, if C9 contained "=SUM(\$C\$2:\$C\$8)", when it is copied to B9, it will still read "=SUM(\$C\$2:\$C\$8)". When Excel's relative cell referencing is blocked by \$ signs, it is known as Absolute Cell Referencing.
6. With Excel 2007, use the CLIPBOARD quick menu to access copy and paste features. You may access the copy and paste options by clicking the right mouse button to bring up the quick menu.

### **Cutting and Pasting**

Use this function when you want to move a cell or block of cells from one location to another. No trace of the cell(s) will remain in the original location.

1. Click on the cell(s) you would like to cut (the source cell).
2. Click on EDIT and choose CUT.
3. Click on the cell where you want this cell to reappear (the destination cell) and click on EDIT and PASTE.
4. See the cut-cell reappear in the new location.
5. With Excel 2007, use the CLIPBOARD quick menu to access copy and paste features. You may access the copy and paste options by clicking the right mouse button to bring up the quick menu.



## Formatting a Spreadsheet

### Formatting a Cell

1. You must highlight the cell or block of cells you want to format.
2. After you highlight the cells, choose **FORMAT** from the menu and select **CELLS** to see your choices.
  - a. *Number*: Allows you to select the format for the type of data within the cells. For example, choose **CURRENCY** if you are using dollar values, and Excel will add a \$ sign in front of the cells.
  - b. *Alignment*: Allows you to control the positioning of the text or number in your cell. If you have a lot of text in one cell, and you don't want to expand the cell's width, you can choose **WRAP TEXT**.
  - c. *Font*: You can change the style and size of the highlighted text or numbers, including making them bold, underlined or italic. This is the same as the Microsoft Word formatting.
  - d. *Border*: Allows you to add vertical or horizontal lines to different parts of the worksheet. You can choose where you'd like the grid lines to print out, the line style, and even the line color.
  - e. *Patterns*: Allows you to control the background color of the highlighted cells and to add patterns. Use this to visually isolate data.
  - f. *Protection*: Allows you to lock cells and hide formulae from careless or unauthorized users. Remember, if you password protect your spreadsheet, make sure you remember the password!
  - g. In Excel 2007, you can access most of these features from the quick menus under the **HOME** tab. To access the features for border, pattern, and protection, click the small arrow from the **FONT**, **ALIGNMENT**, or **NUMBER** quick menus to access these and other formatting features.

**ACTIVITY:** Give row A the following characteristics: bold, underlined and 16 font.

### Format the Height of a Row

1. Click on any cell in that row and click on **FORMAT** and choose **ROW**.
2. Click on **HEIGHT** and type in a new number for the Row Height.
3. In Excel 2007, select a row and right click to access the quick menu where you will find the row height feature or under the **CELLS** quick menu click the word **FORMAT**

Note: The standard setting is 12.75.

### Format the Width of a Column

1. Click on any cell in that column and click on **FORMAT** and choose **COLUMN**.
2. Click on **WIDTH** and type a new number for the Column Width.
3. In Excel 2007, select a row and right click to access the quick menu where you will find the column width feature or under the **CELLS** quick menu click the word **FORMAT**

Note: The standard setting is 8.43.

**ACTIVITY:** Adjust the column width so that cell A1's "Days of the Week" label is entirely viewable. If you don't want to guess at the appropriate Column Width, then select **AUTOFIT SELECTION** instead and Excel will decide for you.

## **Format A Sheet**

Formatting a sheet lets you do two things:

1. Change the name of the sheet:
  - a. Click on the tab you would like to rename.
  - b. Click FORMAT select SHEET (in and click on RENAME.
  - c. You will see the name of the sheet darken. Type in a new name and press Enter.
  - d. In Excel 2007, click FORMAT under the CELLS quick menu, then select RENAME SHEET
2. Change the Background Image
  - a. Click on the tab whose background you would like to change.
  - b. Click FORMAT, select SHEET and click on BACKGROUND.
  - c. Locate the image file and click INSERT.
  - d. In Excel 2007, select the PAGE LAYOUT tab, then click on the BACKGROUND option to access this feature

## **Adding and Deleting Comments to the Spreadsheet**

1. Click on the cell that you would like to add a comment to. Click on INSERT and then COMMENT
2. In Excel 2007, click on the cell where you want to add the comment and right click for the quick menu, then select INSERT COMMENT.
3. Type your comment in the box that appears and then click in a cell outside the comment.
4. A small red tag appears at the top right corner of the cell that contains the comment.

**ACTIVITY:** Add a comment to cell B7 that says, "This was the Saturday before Christmas so sales were particularly strong that day"

5. To delete a comment, click EDIT, then select CLEAR, and then select COMMENT.
6. In Excel 2007, to perform these functions right click the cell again for the quick menu and access the option this way.

## **Sorting Filtering and Data Validation**

### **Sorting Data**

**ACTIVITY:** The regional manager would like us to sort our data in a way that ranks the "Days of the Week" from the busiest day to the least busy day based on the number of "Visitors".

1. Highlight the data, including the titles, but *excluding* the "Total" and "Daily Averages" rows.
2. Click on DATA and then SORT.
3. Click on the drop-down arrow below the "Sort By" header and select the criteria by which you want to re-sort your data.
4. Click either "Ascending" or "Descending".
5. Click OK.
6. For Excel 2007, click the DATA tab, and use the SORT quick menu options to perform various sort types

**\*NOTE\*** re-sorting the data by “Days of the Week” in ascending order will not return the data to a Monday – Friday order. It will re-sort the data based on the *alphabetical order*!! To get it back to Monday-Sunday, click on EDIT and UNDO SORT.

### **To Keep Row and Column Labels Visible As You Scroll**

1. To freeze the top horizontal pane, select the row below where you want the split to appear.
2. To freeze the left vertical pane, select the column to the right of where you want the split to appear.
3. Click on WINDOWS menu and choose FREEZE PANES.
4. To UNDO, return to the WINDOWS menu and choose UNFREEZE PANES.
5. For Excel 2007, to freeze panes you would choose the VIEW tab, and then click on word FREEZE PANES.

### **Filtering Out Data**

**ACTIVITY:** The regional manager wants just the data for Saturdays.

1. Click anywhere within your data.
2. Click on DATA FILTER and then AUTOFILTER
3. Click on one of the drop-down arrows and select the criteria you would like to filter the data through.
4. Excel pulls out just the data you requested.
5. To get rid of the filter,
  - a. Click on DATA, click on FILTER and choose AUTOFILTER.
6. With Excel 2007, the easiest way to perform filtering is by selecting the data to be filtered, clicking on the DATA tab, then click FILTER under the SORT and FILTER option

### **Charts**

**ACTIVITY:** We want to impress our regional manager with graphically displayed data.

1. Highlight your spreadsheet, including the column headers. (Days of the Week, Visitors, etc.)
2. Click on INSERT and choose CHART. (In Excel 2007, click on the INSERT tab, and then select the type of chart you would like to create from the options provided – the rest of the instructions below are ONLY for Excel 2000 and 2003) – For Excel 2007, to make various chart edits it is easiest to right click on the portion of the chart you would like to change and right click
3. Click on the Type of Chart you would like and click NEXT.
4. You’ll be presented with a draft of what your new chart will look like. Click on Next.
5. The dialog box that appears will allow you to add some text labels to your Chart, such as a Title, and labels for the X and Y axes. Then click NEXT
6. This dialog box asks you where you would like your chart to appear—in a new worksheet, or as an object in your current sheet.
7. Click on FINISH.

## What if analysis

What-If Analysis is the process of changing the values in cells to see how those changes will affect the outcome of formulas on the worksheet. Three kinds of What-If Analysis tools come with Excel: Scenarios, Goal Seek, and Data Tables. Scenarios and Data tables take sets of input values and determine possible results.

**What-If Analysis in Excel** allows you to try out different values (scenarios) for formulas. The following example helps you master what-if analysis quickly and easily.

Assume you own a book store and have 100 books in storage. You sell a certain % for the highest price of \$50 and a certain % for the lower price of \$20.

C8		fx		=B4*(1-C4)	
	A	B	C	D	E
1	<b>Book Store</b>				
2					
3		total number of books	% sold for the highest price		
4		100	60%		
5					
6			number of books	unit profit	
7		highest price	60	\$50	
8		lower price	40	\$20	
9					
10			total profit	\$3,800	
11					
12					

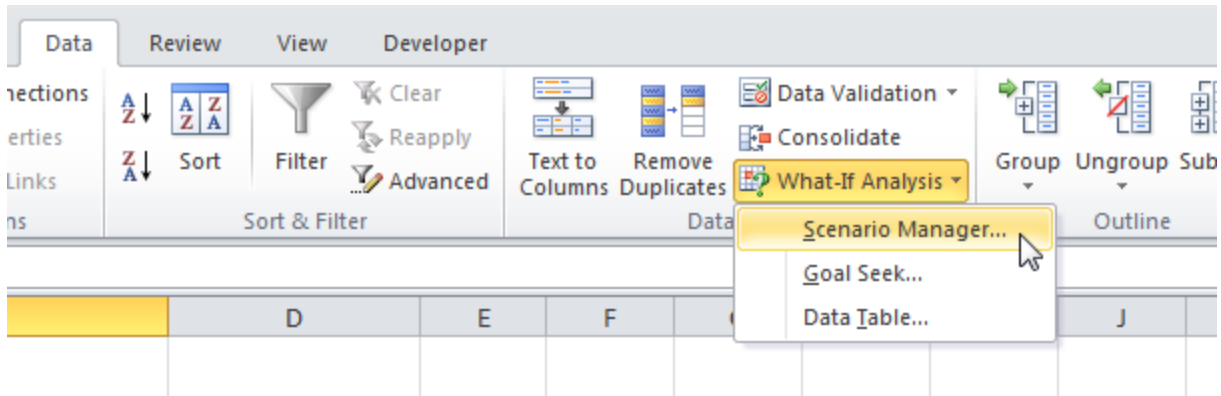
If you sell 60% for the highest price, cell D10 calculates a total profit of  $60 * \$50 + 40 * \$20 = \$3800$ .

### Create Different Scenarios

But what if you sell 70% for the highest price? And what if you sell 80% for the highest price? Or 90%, or even 100%? Each different percentage is a different **scenario**. You can use the Scenario Manager to create these scenarios.

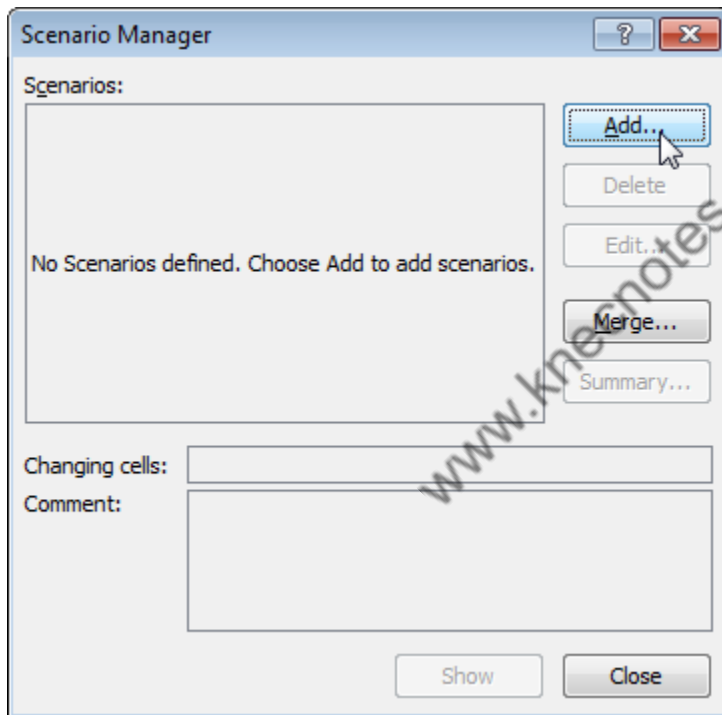
Note: You can simply type in a different percentage into cell C4 to see the corresponding result of a scenario in cell D10. However, what-if analysis enables you to easily compare the results of different scenarios. Read on.

1. On the Data tab, click What-If Analysis and select Scenario Manager from the list.

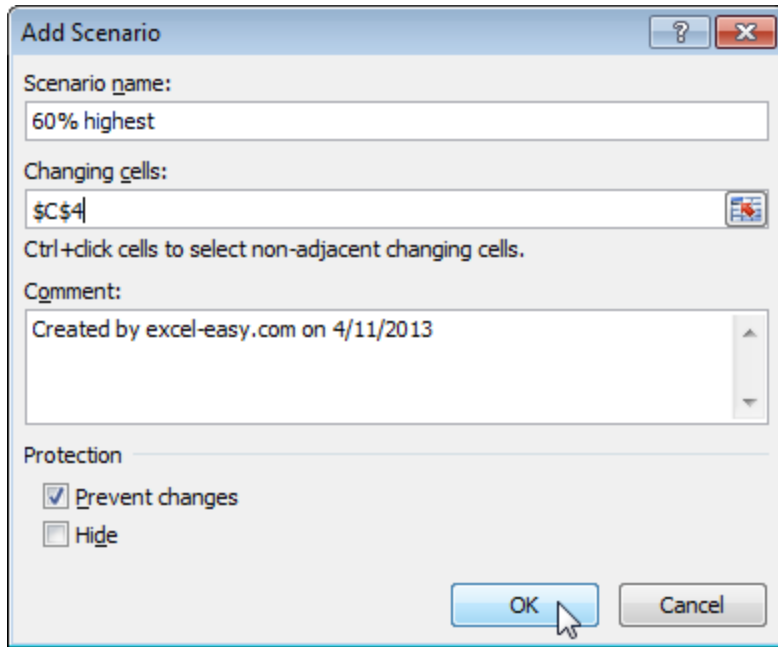


The Scenario Manager dialog box appears.

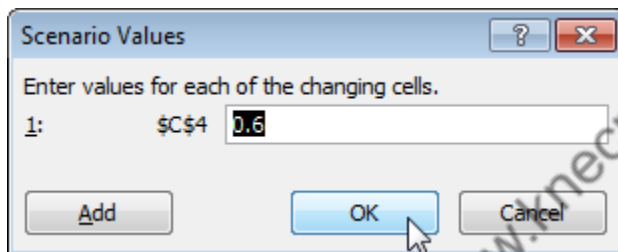
2. Add a scenario by clicking on Add.



3. Type a name (60% highest), select cell C4 (% sold for the highest price) for the Changing cells and click on OK.

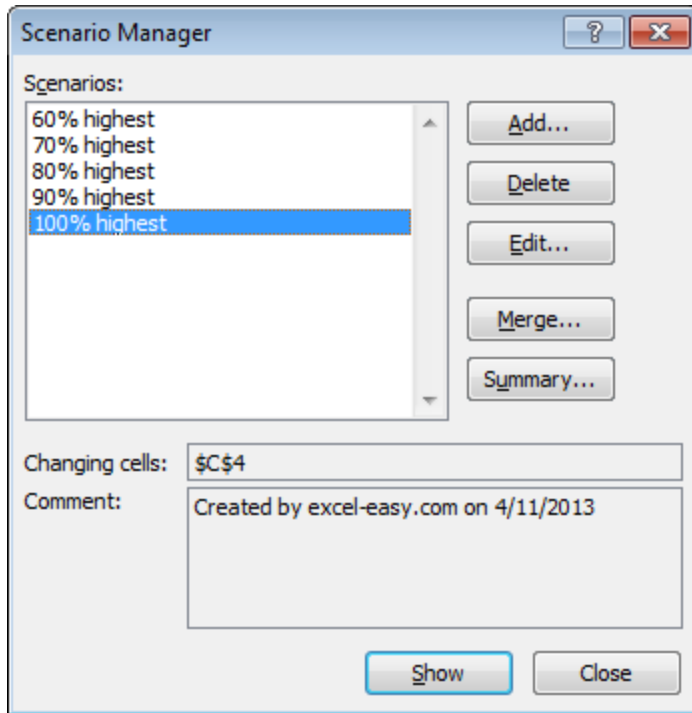


4. Enter the corresponding value 0.6 and click on OK again.



5. Next, add 4 other scenarios (70%, 80%, 90% and 100%).

Finally, your Scenario Manager should be consistent with the picture below:

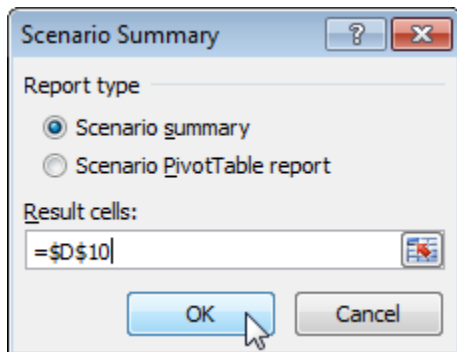


Note: to see the result of a scenario, select the scenario and click on the Show button. Excel will change the value of cell C4 accordingly for you to see the corresponding result on the sheet.

### **Scenario Summary**

To easily compare the results of these scenarios, execute the following steps.

1. Click the Summary button in the Scenario Manager.
2. Next, select cell D10 (total profit) for the result cell and click on OK.



Result:

Scenario Summary						
Current Values: 60% highest 70% highest 80% highest 90% highest 100% highest						
Changing Cells:						
\$C\$4	60%	60%	70%	80%	90%	100%
Result Cells:						
\$D\$10	\$3,800	\$3,800	\$4,100	\$4,400	\$4,700	\$5,000

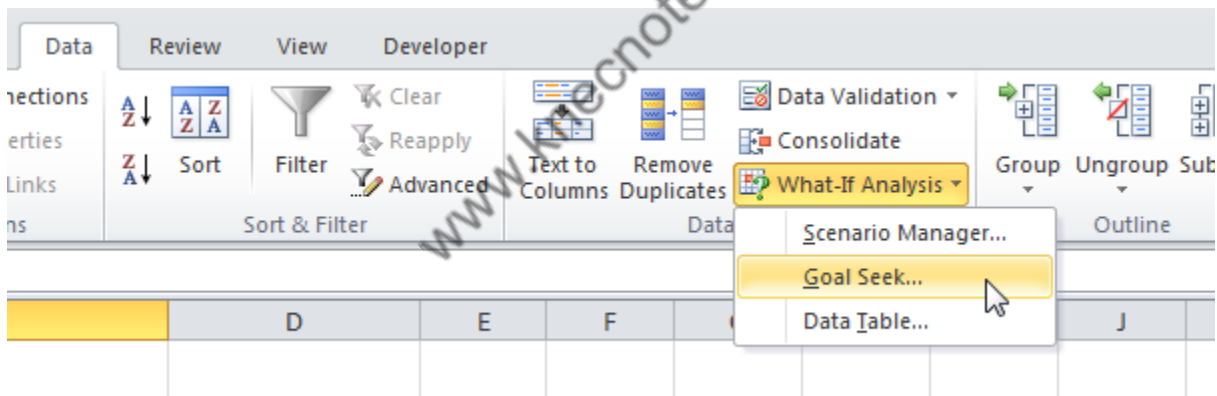
Notes: Current Values column represents values of changing cells at time Scenario Summary Report was created. Changing cells for each scenario are highlighted in gray.

Conclusion: if you sell 70% for the highest price, you obtain a total profit of \$4100, if you sell 80% for the highest price, you obtain a total profit of \$4400, etc. That's how easy what-if analysis in Excel can be.

### Goal Seek

What if you want to know how many books you need to sell for the highest price, to obtain a total profit of exactly \$4700? You can use **Excel's Goal Seek** feature to find the answer.

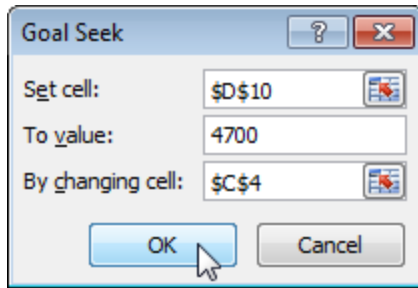
1. On the Data tab, click What-If Analysis, Goal Seek.



The Goal Seek dialog box appears.

2. Select cell D10.
3. Click in the 'To value' box and type 4700.
4. Click in the 'By changing cell' box and select cell C4.
5. Click OK.





Result. You need to sell 90% of the books for the highest price to obtain a total profit of exactly \$4700.

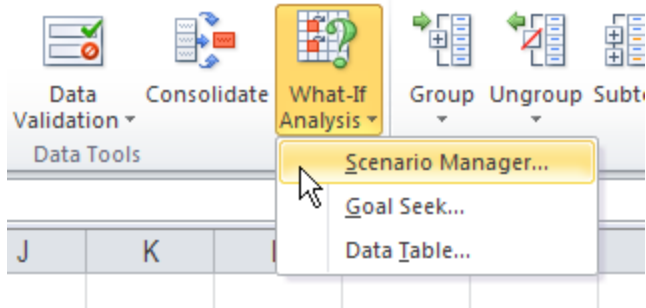
	A	B	C	D	E
1	<b>Book Store</b>				
2					
3		total number of books	% sold for the highest price		
4		100	90%		
5					
6			number of books	unit profit	
7		highest price	90	\$50	
8		lower price	10	\$20	
9					
10			total profit	\$4,700	
11					
12					

## Create a Scenario PivotTable Report

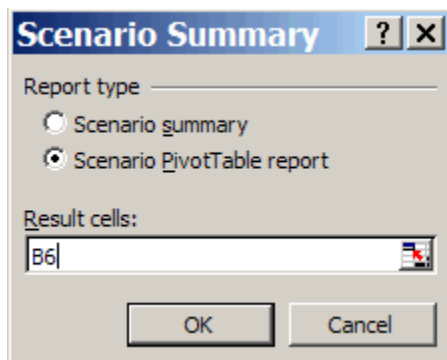
For a different view of the Scenario data, you can create a pivot table report:

**Warning: This is a static report that does not change if the Scenario data changes.** Delete this report after printing it, and create a new Summary when necessary.

1. On the Ribbon's Data tab, click What-If Analysis
2. Click the drop down arrow, and click Scenario Manager



3. Click the Summary button
4. In the Scenario Summary dialog box, for Report type, select **Scenario PivotTable report**
5. Press the Tab key, to move to the Result cells box
6. On the worksheet, click on cell B6. This is the Profit cell, and it changes, based on the sales and expense amounts.

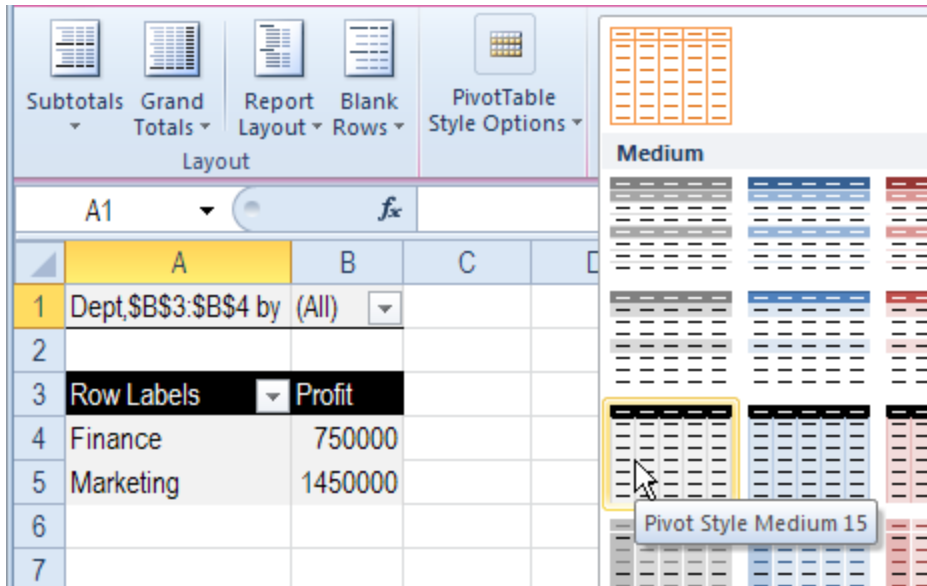


7. Click the *OK* button.
8. A **Scenario PivotTable** sheet is added to the workbook ▲

### **View the Scenario PivotTable Report**

1. Select the **Scenario PivotTable** worksheet
2. To rearrange the data, drag the field buttons to a different area of the Pivot Table. For example, drag the Dept,\$B\$3:\$B\$4 button from cell A4 (row area) to cell B3 (column area)

There is no option for formatting the Scenario PivotTable Report when you create it. You can change the formatting in the completed pivot table, by selecting a different PivotTable Style. ▲



## Data validation

Use **data validation** in Excel to make sure that users enter certain values into a cell.

### Data Validation Example

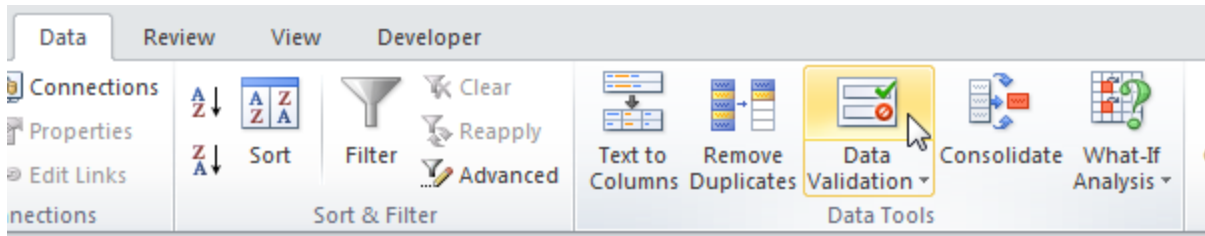
In this example, we restrict users to enter a whole number between 0 and 10.

	A	B	C	D	E
1					
2		How many glasses of alcohol do you drink per day?	<input type="text"/>		
3					
4					

### Create Data Validation Rule

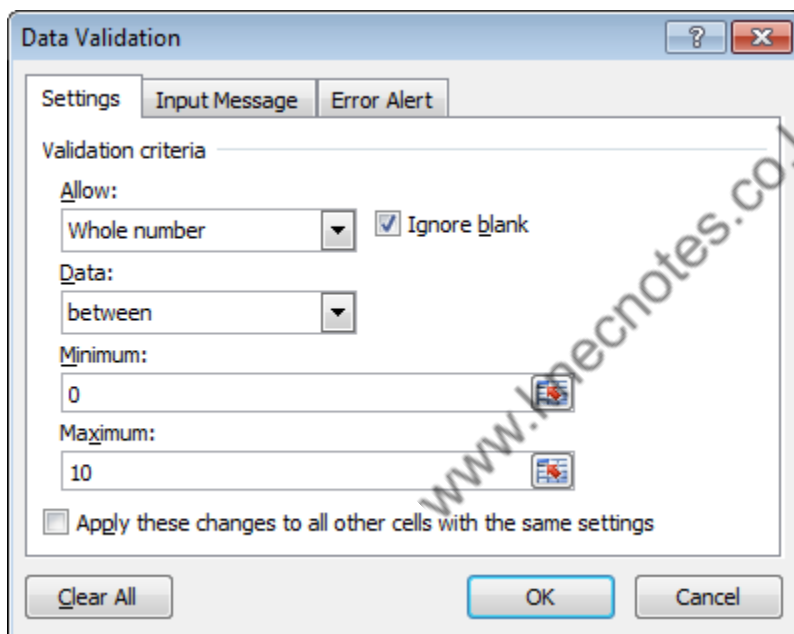
To create the **data validation rule**, execute the following steps.

1. Select cell C2.
2. On the Data tab, click Data Validation.



On the Settings tab:

3. In the Allow list, click Whole number.
4. In the Data list, click between.
5. Enter the Minimum and Maximum values.

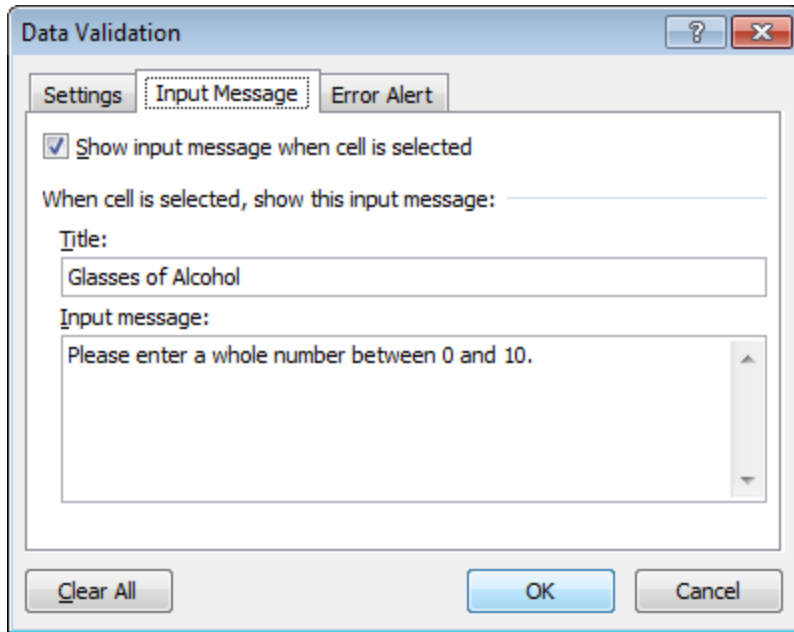


### **Input Message**

Input messages appear when the user selects the cell and tell the user what to enter.

On the Input Message tab:

1. Check 'Show input message when cell is selected'.
2. Enter a title.
3. Enter an input message.

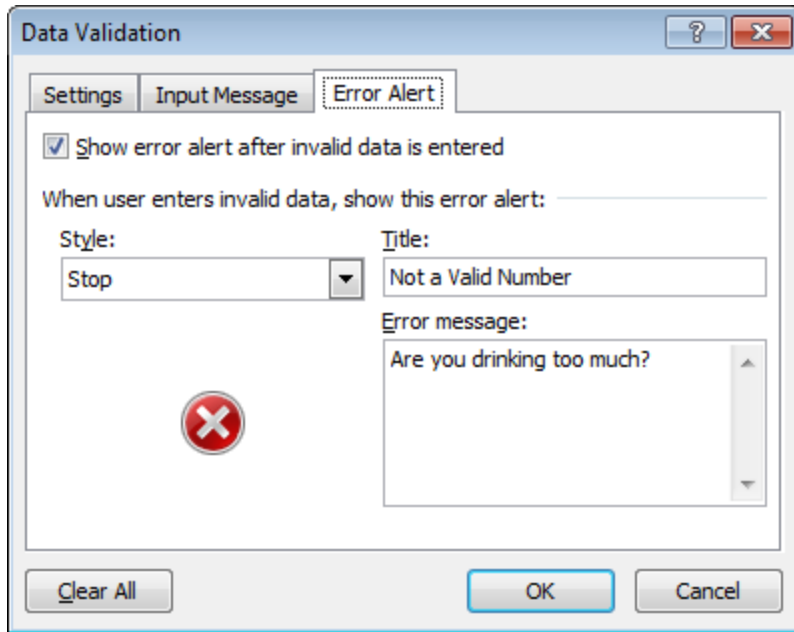


### **Error Alert**

If users ignore the input message and enter a number that is not valid, you can show them an error alert.

On the Error Alert tab:

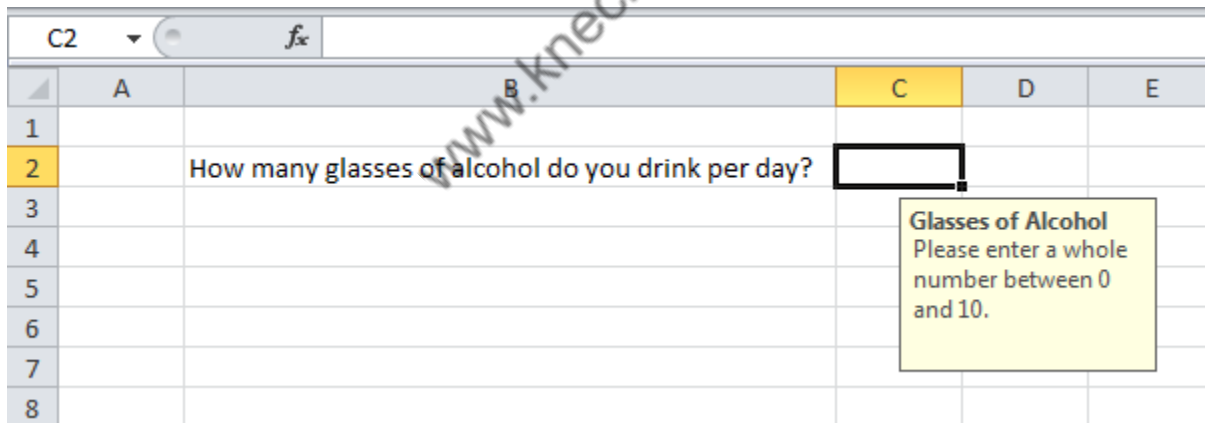
1. Check 'Show error alert after invalid data is entered'.
2. Enter a title.
3. Enter an error message.



4. Click OK.

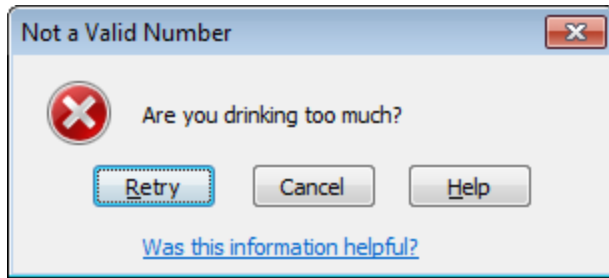
### **Data Validation Result**

1. Select cell C2.



2. Try to enter a number higher than 10.

Result:

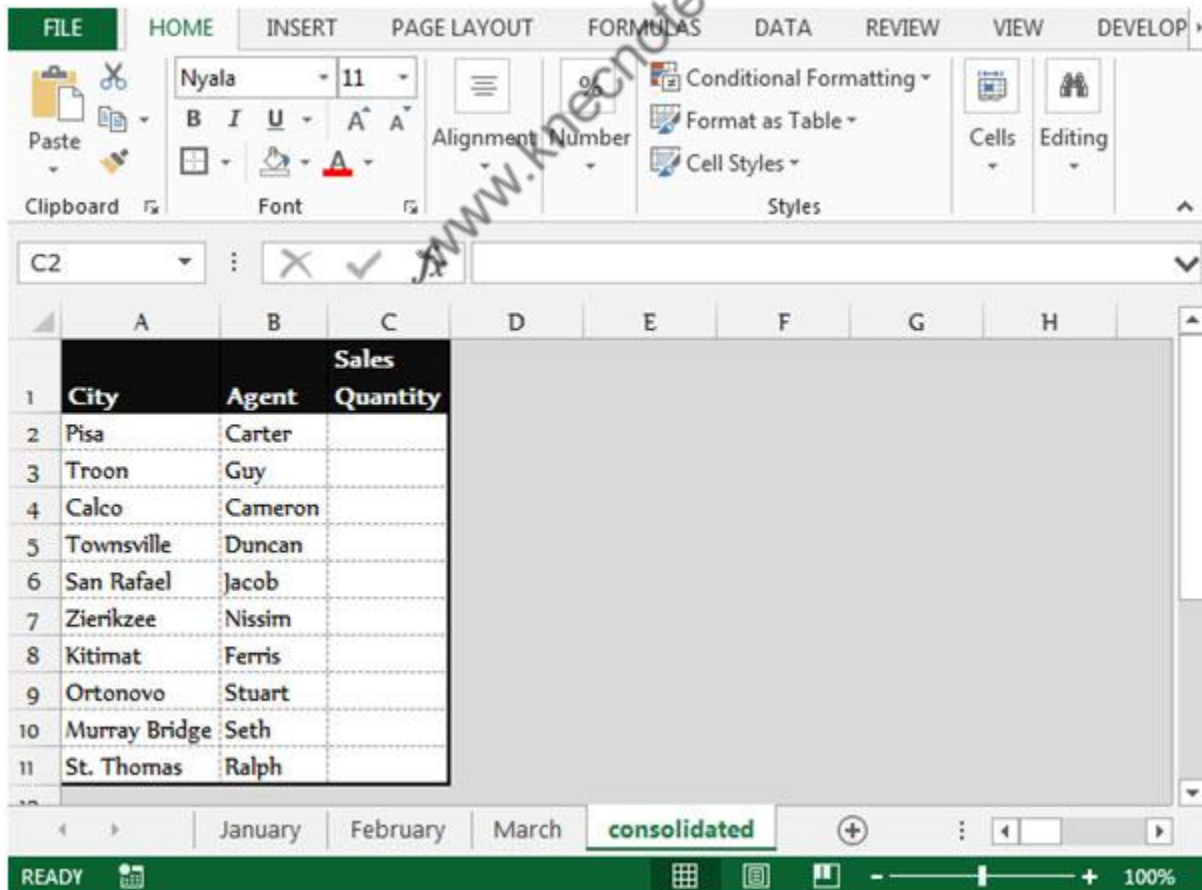


Note: to remove data validation from a cell, select the cell, on the Data tab, click Data Validation, and then click Clear All.

## Summarizing, consolidating and outlining data

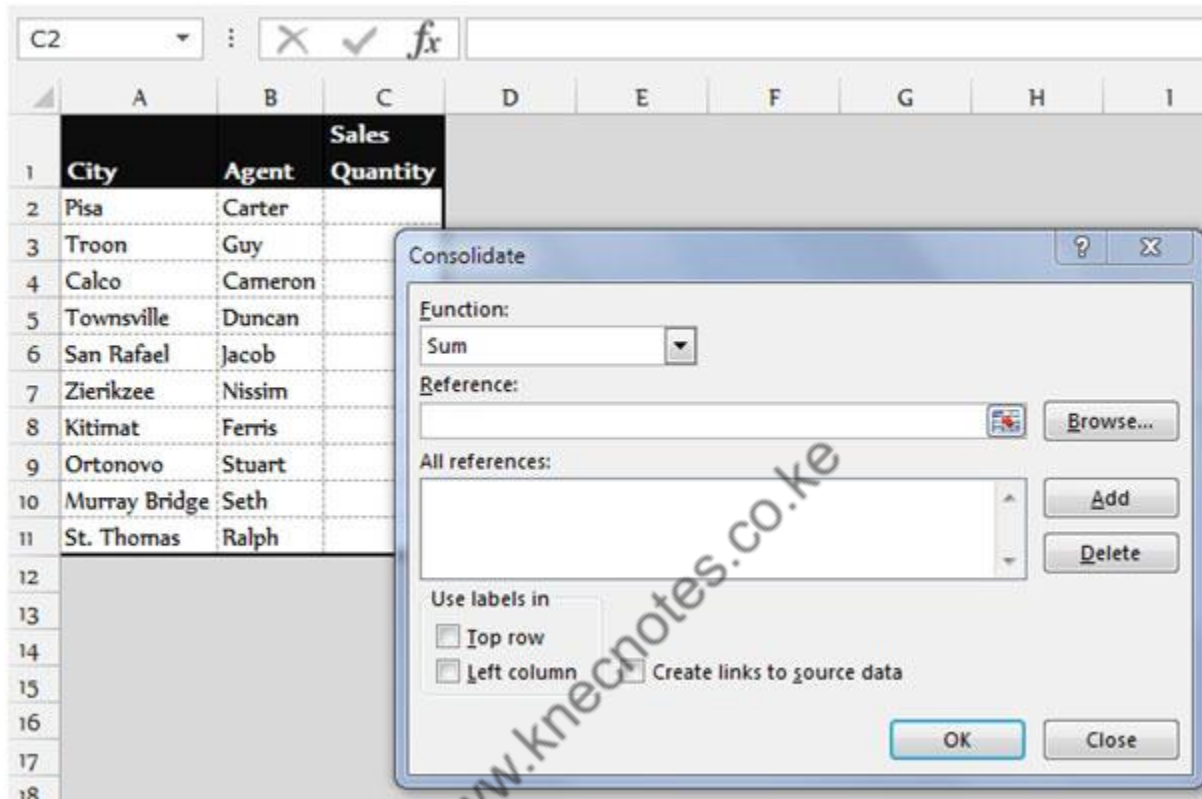
To group and summarize the data, we can create an outline up to eight levels in the data list. To expose the detail for each group, use an outline to quickly display. If you have data in the same cells in multiple sheets which need to be average up together, you can do this using Consolidate option in Microsoft Excel.

Let's take an example. We have 3 months sales data in 3 different sheets in an Excel workbook, and in one sheet, we have to return the average quantity of all month's agent wise.



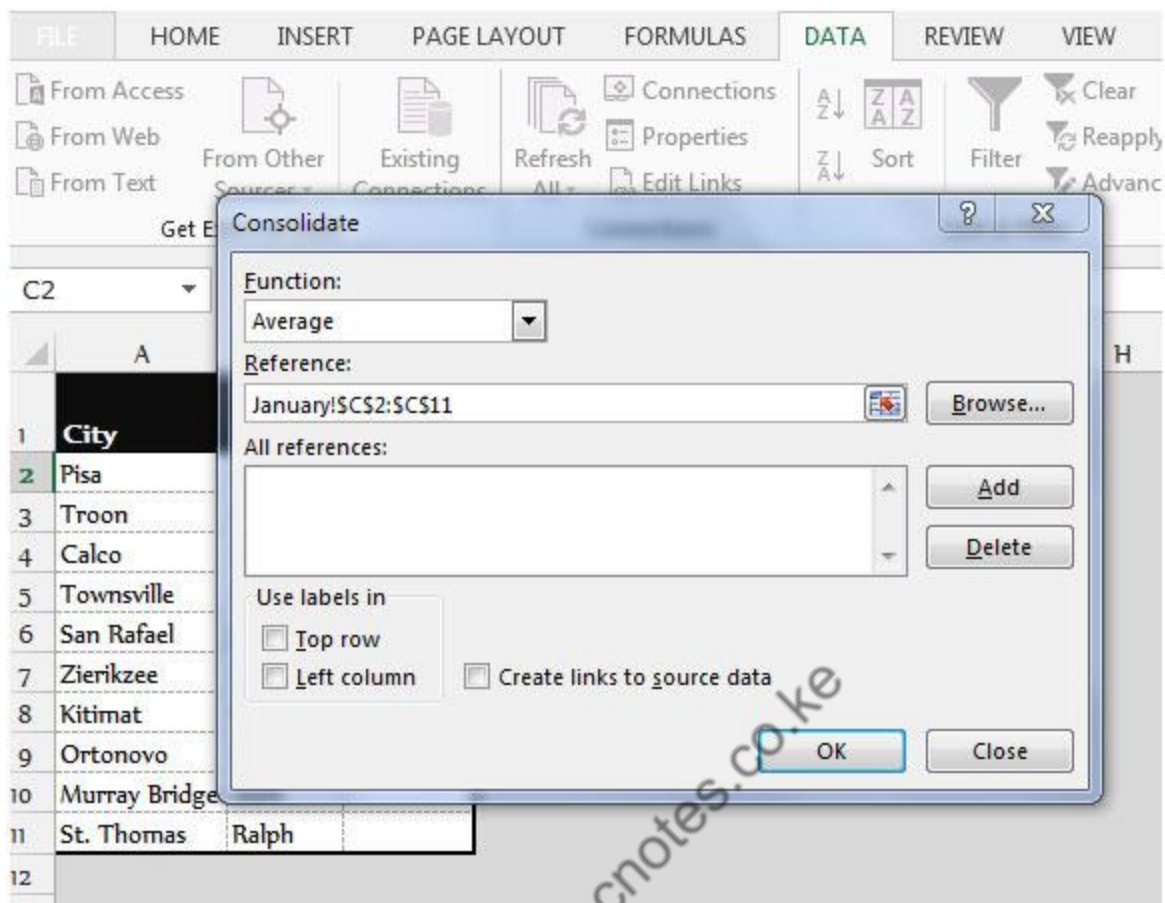
Follow below given steps to Average the values from the cells in different sheets:-

- Select the cell C2 in consolidated sheet.
- Go to Data tab, and select Consolidate from the Data tools group.
- Consolidate dialog box will appear.

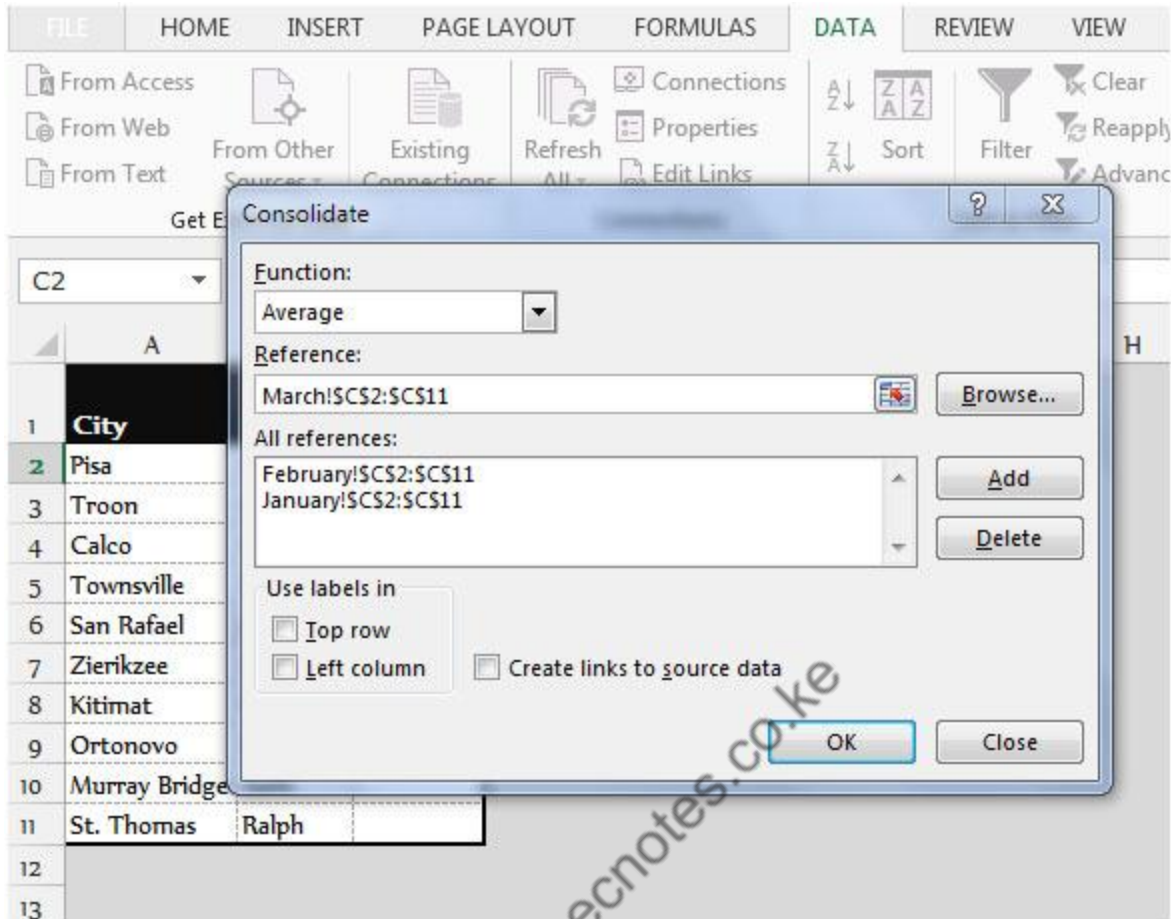


- Select Sum from the function drop down list.
- Click on Reference, and go to January sheet and select the range C2:C11.





- Click on add button and then select the range C2:C11 in February sheet.
- Click on add button and then select the range C2:C11 in March sheet.



- Click on OK.

	A	B	C	D	E	F	G
			<b>Sales</b>				
1	<b>City</b>	<b>Agent</b>	<b>Quantity</b>				
2	Pisa	Carter	189				
3	Troon	Guy	101				
4	Calco	Cameron	176				
5	Townsville	Duncan	195				
6	San Rafael	Jacob	142				
7	Zierikzee	Nissim	148				
8	Kitimat	Ferris	91				
9	Ortonovo	Stuart	106				
10	Murray Bridge	Seth	188				
11	St. Thomas	Ralph	140				
12							
13							
14							

- The Average sales quantity will appear in the range C2:C11 to all the agents.

## Automating simple task

A Microsoft Office Macro (as this functionality applies to several of the MS Office Applications) is simply Visual Basic for Applications (VBA) code saved inside a document. For a comparable analogy, think of a document as HTML and a macro as Javascript. In much of the same way that Javascript can manipulate HTML on a webpage, a macro can manipulate a document.

Macros are incredibly powerful and can do pretty much anything your imagination can conjure. As a (very) short list of functions you can do with a macro:

- Apply style and formatting.
- Manipulate data and text.
- Communicate with data sources (database, text files, etc.).
- Create entirely new documents.
- Any combination, in any order, of any of the above.

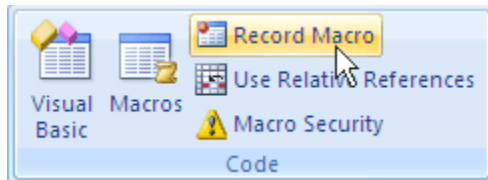
### Create Macros using Record Macro Button

If you have a task that you perform repeatedly, then you can record all the events to achieve that task (keystrokes, mouse clicks ... etc.) in a macro.

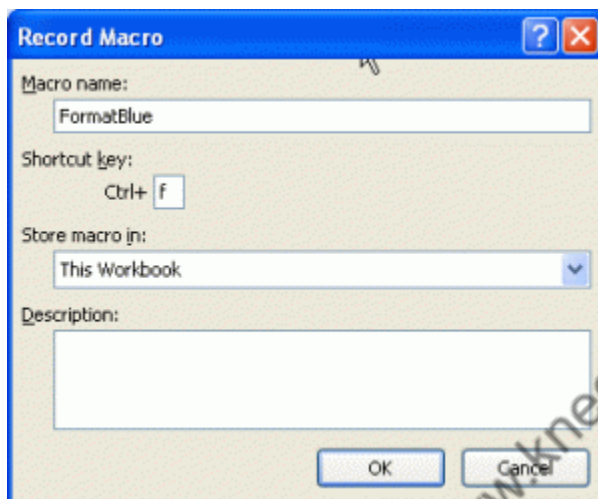
To record a macro in Excel 2007 follow these steps.

1. Click View tab and choose macro from the macro group.

2. In the Code group Click Record Macro.



3. The Record Macro window will open.



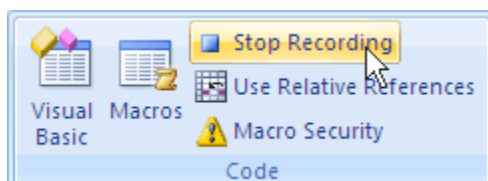
4. Give a name to your macro.

5. Specify a shortcut key(optional).

6. Specify where you want to save the macro.

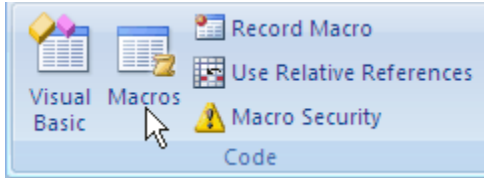
7. Click OK.

8. Now start performing the task which you want to record. When you are done click Stop Recording.

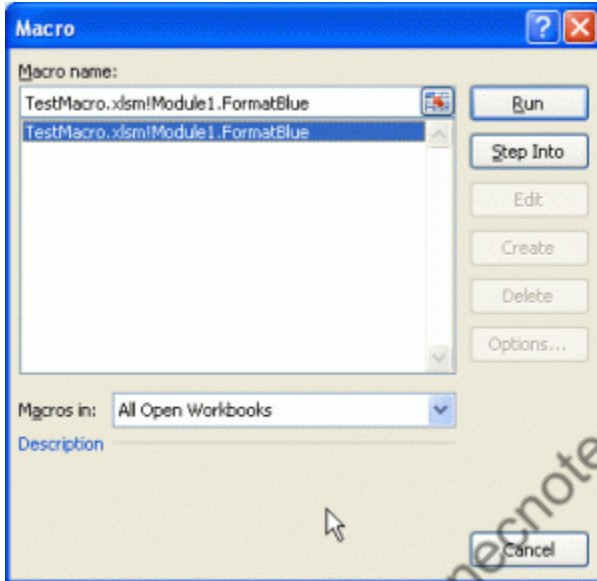


9. Your macro is now created and is ready to be used. To run the macro:

1. Click Macros.



2. The Macros window will open.



3. Select the macro then click run.

10. You can also run the macro by simply clicking the shortcut key combination.

## Print a Worksheet

To print a worksheet in **Excel** 2010, execute the following steps.

1. On the File tab, click Print.
2. To preview the other pages that will be printed, click 'Next Page' or 'Previous Page' at the bottom of the window.