Study Material for Advance Excel

Contents

MS Excel

About Excel

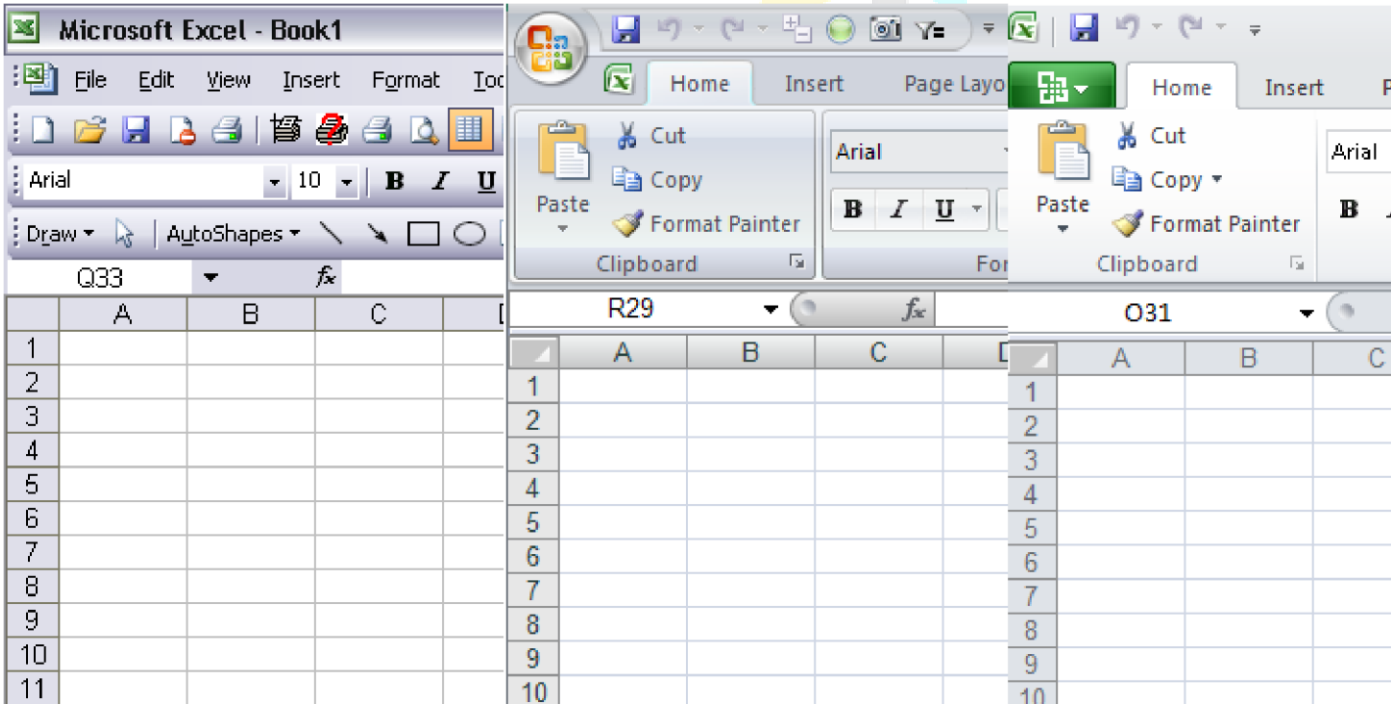
Microsoft Excel is a powerful Worksheet computing tool from Microsoft Corporation. It makes it easy for you to create various kinds of spreadsheets, tables and statements along with the graphical representation of data using graphs. While working in Excel, you can make use of its most important feature of automatic recalculation to save time and effort.

In Excel, you work with worksheets, which consist of rows and columns that intersect to form cells. Cells contain various kinds of data that you can format, sort, and analyze. You can also create charts based on the data contained in cells. An Excel file is called a workbook, which by default contains three worksheets.

The Excel 2010 Ribbon

First impression of the 2010 ribbon was that it was cleaner and maybe a little smaller than in 2007. It is clear that the new ribbon was no smaller than before, still a good row taller than an overloaded toolbar area in 2003. But the 2010 ribbon definitely is cleaner.

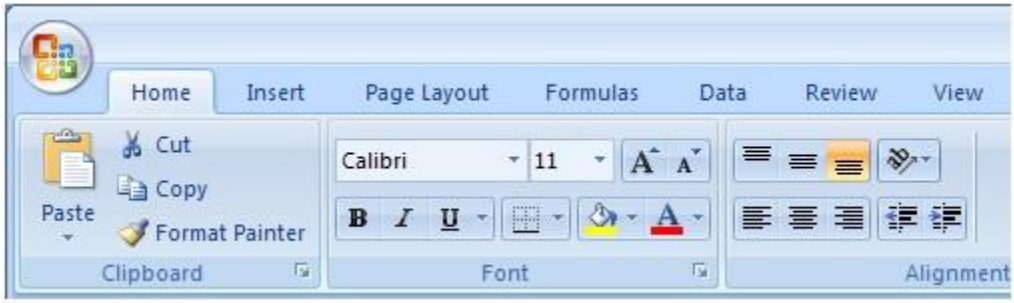
The 2003 interface is pretty cluttered, efficient interface that displays all of my most-used commands at once, without hiding 90% of them. The 2007 ribbon looks nearly as cluttered as the classic toolbar interface, not because it has lots of controls, but because everything is in boxes, and there is no shortage of graded coloring.



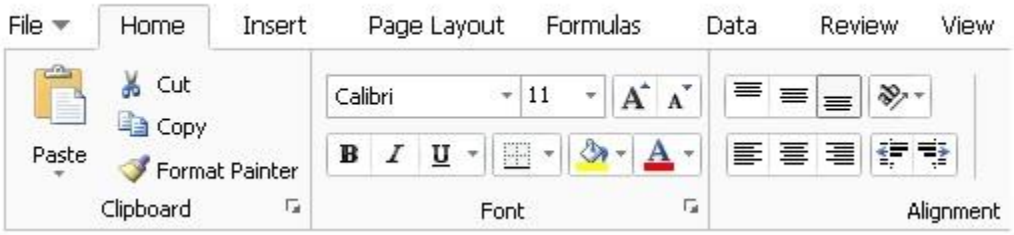
The 2010 ribbon has the same density of controls as in 2007, but it looks cleaner because of its lighter background and the elimination of much of the chart-junk-like features. Instead of boxes around all of the groups of controls, as in 2007, the groups are separated by a single light line, and the shadowing is much less pronounced.

A Designer Cleans up the 2007 Ribbon

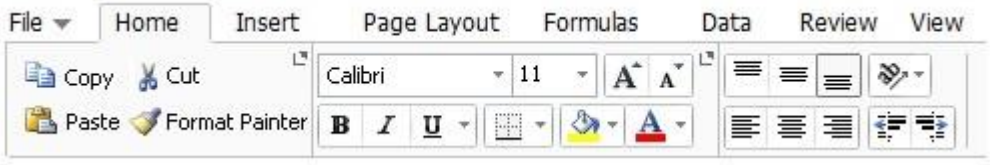
A year ago Andreas Lipphardt of XLCubed wrote Microsoft, Pimp Down My Ribbon, a request to clean up the 2007 ribbon. He even showed how. He started with the ribbon out of the box:



Andreas cleaned up the ribbon by removing all the gradients and glows, and without all of the gratuitous effects, it certainly looked much cleaner.



Microsoft stopped here with the 2010 ribbon, but Andreas took it one step further, removing the large office button and the oversized ribbon buttons (e.g., Paste), and closed up the excess space. This was becoming too much like the classic interface.



Why Can't Users Clean Up Their Own Ribbons?

Now they can, to some extent. Microsoft has added the ability to make changes to the interface through the interface. Even though RibbonX, the ribbon-specific subset of XML, is relatively easy to use to customize the interface, RibbonX is still way beyond a typical user's capabilities. This ribbon customization capability gives back to the user some small measure of control, maybe 10% of what we once had.

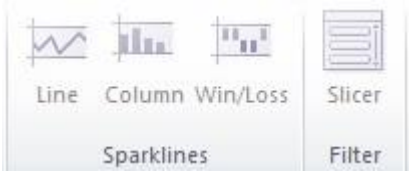
Charting on the Ribbon

I'll show a couple shots to further illustrate the cleaner ribbon appearance in 2010. Here are the Charts groups from the Insert tabs of Excel 2007 and 2010.

Although the 2010 group looks much cleaner, the buttons are all the same as before, and in fact, all the options under the buttons are the same. The gallery of chart types in 2010 is just like that in 2007. The Chart Tools contextual tabs are also cleaner but with essentially no real changes. The one addition is a Draft Mode button on the Design tab. Its purpose is to allow charts to be drawn with only rudimentary formatting, to speed up screen refreshing in Excel 2007.

A Couple New Features – Look But Don't Touch

However, right next to the Charts group on the Excel 2010 Insert tab are two new groups: Sparklines and Filter, which houses the Slicer. These much heralded features are probably the most talked about new tricks in Excel 2010. The advance press for Sparklines on the MSDN Excel blog is very promising.



At first I thought that neither feature is enabled for testing in this early preview version. I didn't notice that I was using Compatibility Mode, which disables advanced features introduced in 2007 and later..

Chart Dialogs

I made a few charts, just to see what if anything has improved in the awkward Excel 2007 dialogs. One thing has changed: after being temporarily retired for one version, the ability has returned to double click on a chart element to open its format dialog! Unfortunately the dialogs that open up are unchanged from those of 2007. Too many tabs, too many options hidden in dropdowns when there is ample space to use list boxes or option buttons, too many clicks required to do otherwise quick tasks. And the F4 (Repeat Last Action) command is still AWOL. It remains to be seen whether any changes will be forthcoming in upcoming releases of the preview.

I've been working on a charting interface add-in for Excel 2007, and I suspect that it will be useful for users of Excel 2010 as well.

Macro Recorder

I recorded a few macros, nothing too complex, to see whether the huge gaps in Excel 2007′s macro recorder coverage have been addressed. In 2007 if you recorded a macro while doing anything with shapes, the macro came out blank. When working with charts, some actions were recorded, but many were missed, particularly those related to formatting of the shapes that make up the chart's elements. Because the recorder didn't record, we were without a tool that was so helpful to decode the intricacies of the object model.

Without examining the details, I was able to see that all actions were represented by commands in the recorded macros. Shapes and chart element formatting were again represented in the code. This is a great (re)addition to a developer's toolbox.

Summary
Excel 2010 looks a bit cleaner and seems to run a bit more smoothly than Excel 2007. In the small part of Excel that I have examined, very little has changed. I will be looking at Spark lines and other neat new stuff in the near future.

Interacting with Excel 2010

You interact with Excel by typing and by using the mouse to choose commands, make selections, and click buttons and options.

Using the Ribbon

The Ribbon is the main location for menus and tools. When you choose a Ribbon tab, the Ribbon displays Ribbon groups that contain tools such as buttons and lists. Some of these tools expand to display simple lists, and some display galleries, as shown in **Error! Reference source not found.**. A list is a collection of related commands or selections. A gallery is an interactive list.

Using galleries

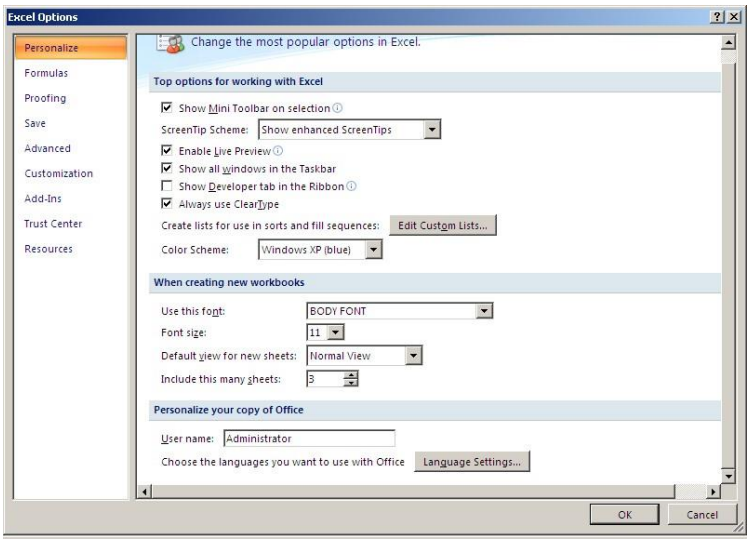
Selections on a gallery display the result of the selections in Excel, rather than just a list of options. Some galleries use live preview. When you move the pointer over options on a gallery, each option is previewed on whatever is selected on the worksheet. For example, if you select text in the worksheet, and display the Font gallery, moving the pointer over each font in the gallery causes the selected text on the screen to display in that font.

Using tools

When you point to a tool, a description called a super tool tip appears. The super tool tip provides less description than Help, but more than an ordinary screen tip

Changing default settings

Excel allows you to change many aspects of its behavior and how you interact with it. You can change default settings such as number of iterations, font, file locations, and the file that opens on starting Excel. To



select the dialog box of Options you need to click on File Tab-> Option and select the required tabs from the dialog box.

Personalize options

You can change workbook settings by using the personalize options such as Type of Font, Size of the font, number of worksheet in workbook and can also activate the Developer tab , which is used for Macro.

Save option

Save option allows you to change the default file location, File Format, and Auto save the file.

Understanding Cell Reference and Range Name

Using relative references

Relative references are the default cell reference in Excel, and they make it easy for you to create formulas once and then copy them. If you copy the formula the cell reference changes from A1 to B1 if you copy column wise and if you copy row wise it will change to A2. There are situations, however, in which you don't want Excel to adjust a reference relative to the location of a copied formula. For these situations, Excel provides for *absolute references* and *mixed references*.

Limitations of relative references

Usually, relative references work very well when you copy a formula. But if the formula refers to a specific cell that should not change, then you need to type or edit the formula again if you are not aware of freezing the cell. This can happen when you refer to commission or discount rates which are typed in one of the cell and need to create a formula and copy.

Absolute references

When you don‘t want a reference to change when you copy it, you can use an absolute reference. To make a reference absolute, you place a dollar sign in front of both the

column letter and the row number for the reference. For example, to create an absolute reference to cell A1, you would enter $A$1. When you copy an absolute reference to another location, Excel will not adjust the reference.

	A	B	C	D
1	100000	10%	11%	12%
2		=$A$1*B1	=$A$1*C1	=$A$1*D1

Mixed references

You can also create mixed references by placing a dollar sign in front of only the column letter or the row number. When copied, the relative part of the reference will adjust relative to the new location, while the absolute part will not. You can cycle through the reference possibilities as soon as you enter a reference by pressing F4, e.g., $A1 or A$1, so if use $A1 means the Column is fixed and if your type A$1 then Row is fixed.
Example

	A	B	C	D
1	100000	10%	11%	12%
2		=$A1*B1	=$A1*C1	=$A1*D1

Working with Range Name

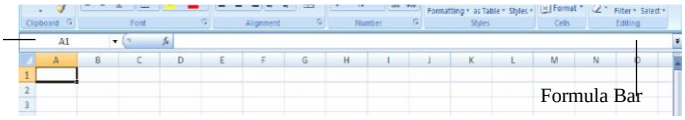
Generally when we create a formula or function we generally refers to the cell reference such as sum(A2:A200).If cells A2:a200 contains the Salary of East Region, wouldn‘t the spreadsheet easier to understand if the formula was sum(EastRegion)? Or if we create a formula from different sheet, generally get the formula with different sheet name and the range name instead of that we can create formula using range name. We will see how to name the individual cell, range of cells

There is different way of creating Range Name

- Entering a range in the Name box
- Choosing the Name, from the Insert Menu
- Choosing the Name, Define command from Insert Menu

Using Name Box and Creating a Range Name

On a Formula bar on the left hand side there is name box, simply select the cell or ranges of the cells that you want to specify name, click on the Name box, type the name you want to use. Press Enter, and you've created the range name. Clicking on the Drop down arrow for the Name box displayed the range names in a workbook by pressing F3 button.



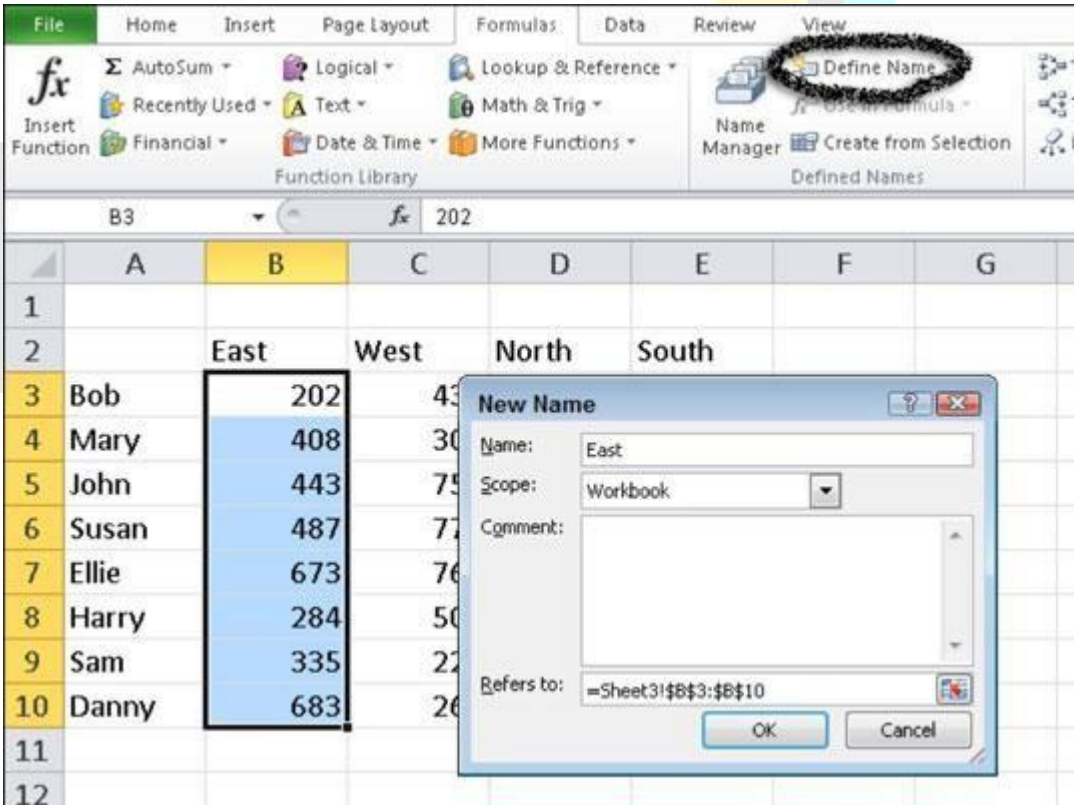
To name a cell or range, follow these steps:

1. **Select the cell or cell range that you want to name.**

   You also can select noncontiguous cells (press Ctrl as you select each cell or range).

2. **On the Formulas tab, click Define Name in the Defined Names group.**

   The New Name dialog box appears.



Use the New Name dialog box to assign a name to the selected range.

3. **In the Name text box, type up to a 255-character name for the range.**

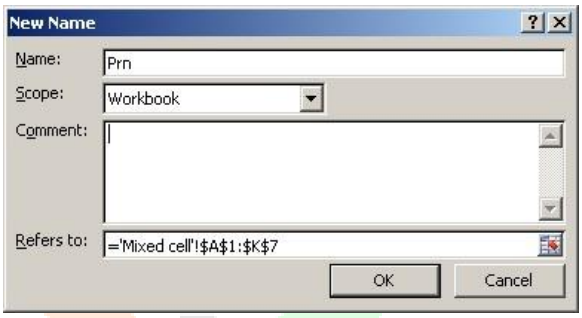
   Range names are not case-sensitive; however, range names must follow these conventions:

   - The first character must be a letter, an underscore, or a backslash.
   - No spaces are allowed in a range name.

- The range name should not be the same as a cell address. For example, you can't name a range U2 or UB40, but BLINK182 and ABBA are just fine.

Click OK.

Creating Range Name by Using the Name Define Command.



Suppose if you want to assign the name Prn to the cell range A1:K7, select the range, click on Formula Tab, in Named Cells Group click on Name Range command in the given dialog box type the name and click OK.

If you click on Name Manager from Name cell group, it allows you to Add, Edit or Delete the Name from the Workbook.

Working with Formulas and Function

Using Formulas in a Worksheet

Formulas are equations that perform calculations on values in your worksheet. A formula starts with an equal sign (=). For example, the following formulas multiply 2 by 3 and then add 5 to the result.
=5+2*3

A formula can also contain any or all of the following: functions, references, operators, and constants.

Using array formulas

An *array formula* enables you to perform many calculations by using a single formula. For example, consider a worksheet containing quantities in one-column and unit prices in another, as shown below.

	A	B
1	**Quantity**	**Unit Price**
2	12	$ 5.95
3	18	$ 17.25
4	12	$ 2.25
5	3	$ 29.50
6	7	$ 11.00
7		
8	**Total sales:**	

In cell B8, you want to calculate the total sales of items without calculating the sales amount of individual items. You can do so by using the array formula shown below. This formula multiplies the quantity by the unit price for each item, and then adds all the results.

In the formula, A2:A6 and B2:B6 are known as array arguments. Each array argument must have the same number of rows and columns. After entering array formula, press Ctrl+Shift+Enter, instead of simply presses the Enter key. When you enter a formula this way, it will appear on the Formula bar enclosed in brackets ({}), indicating that it is an array formula.

Working with Functions

Figuring out formulas for calculations you want to make in Excel can be tedious and complicated. Fortunately, Excel has an entire library of functions or predefined formulas that you can take advantage of. You may be familiar with common functions like sum, average, product or count, but there are hundreds of functions in Excel, even for things like formatting text, referencing cells, calculating financial rates, analyzing statistics, and more.

In this lesson, you will learn the basics of inserting common functions into your worksheet by utilizing the AutoSum and Insert Functions commands. You will also become familiar with how to search and find various functions, including exploring Excel's Functions Library.

Performing calculations on each value in a range of cells can be complicated and timeconsuming. For example, if you have a range consisting of 20 cells, a formula that adds each of these values will be very long. Excel functions simplify complex tasks. A function is a predefined formula that performs a specific calculation or other action on a number or a text string. You specify the values on which the function performs calculations

The syntax of a function begins with the function name, followed by an opening parenthesis, the arguments for the function separated by commas, and a closing parenthesis. If the function starts a formula, type an equal sign (=) before the function name .As you create a formula that contains a function, the Formula Palette will assist you.

=Function_name(argument1,argument2,….)

```
=SUM (A10, B5: B10, 50,37)
```

You don‘t need to memorize all the functions available and the arguments necessary for each function. Instead, you can use the Insert Function dialog box, which lists all the available functions. When you choose a function, Excel prompts you for required and optional arguments.

IF function

Suppose in salary worksheet if you want to calculate HRA according to condition wise, i.e. Manager 1000, Officer 750 and clerk 500, or if you want to calculate Income tax slab wise.

In the above scenario you can use the IF function to evaluate a condition. The IF function returns different values depending on whether the condition is true or false. The syntax for the IF function is:

```
If(Condition ,True, False)
```

The first argument is the condition that you want the function to evaluate; the second argument is the value to be returned if the condition is true, and the third argument is the value to be returned if the condition is false.

Example

Suppose you want to calculate HRA based on designation of the employees, if Designation is Manager then HRA is1000 or else 500. Then the function code will be as follows:

```
=if(D2="Manager",1000,500)
```

Nesting Function using IF

In certain cases, you may need to use a function as one of the arguments of another function, for example if it is manager 1000, officer 750, and clerk 500.

The syntax for the Nested IF function is:

```
If(Condition ,True, if(Condition ,True,False))
```

Example

You can use nested IF functions to evaluate complex conditions. For example, if the Salary <5000 then tax is 5%, if salary between 5000 and 1000 then it is 10% else 15%.

```
=if(salary<5000,salary*.05,if(salary<10000,salary*.10,salary*.15))
```

Note: Replace Salary with Cell Reference.

Suppose you want to assign letter grades to numbers referenced by the name Average Score. See the following table.

If Average Score is	Then return
Greater than 89	A
From 80 to 89	B
From 70 to 79	C
From 60 to 69	D
Less than 60	F

You can use the following nested IF function:

```
IF(AverageScore>89,"A",IF(AverageScore>79,"B",IF(AverageScore>69,"C",IF(Average
Score>59,"D","F"))))
```

Note: Average Score will be the cell address of the cell. Excel allows maximum seven IF functions in a formula.

IF function [Using And/ Or/ Not]

AND

Suppose if you want to calculate HRA based on condition, i.e. if the Employee is Manager and his Grade is A1 if both the condition are satisfied then HRA will be 50% of salary, in such scenario you can use AND function with if condition.

AND is a logical function, which is used when there are multiple conditions in a formula. When all the conditions are satisfied then it will return True value else returns the false value.

Syntax using And with If

```
If(and(Condition1,condition2….),T,F)
```

There can be maximum 30 conditions which can be passed to AND function.

Example:
If the Employee is Manager and his Grade is A1 then calculate HRA as 50% of salary or else 30% of salary.

```
=if(and(d2="manager",e2="A1"),g2*.5,g2*.3)
```

OR

Suppose if you want to calculate HRA based on condition, i.e. if the employee is Manager or his Grade is A1 in such scenario you can use OR function with If condition.

OR is a logical function, which is used when there are multiple conditions in a formula. When any one of the condition is satisfied then it will return True value else returns the False value.

Returns TRUE if any argument is TRUE; returns FALSE if all arguments are FALSE.

Syntax

OR(**logical1**,logical2,...)

Logical1,logical2,... are 1 to 30 conditions you want to test that can be either TRUE or FALSE.

Syntax with If condition

If(or(condition1, condition2,...)
There can be maximum 30 conditions which can be passed to OR function.

Example:
If the employee is in Sales, Mktg or Hrd, then hra is 50% of salary or else 30% of salary

```
Eg.if(or(b2="Mktg",b2="Sales",b2="Hrd"),h2*.5,h2*.3)
```

NOT

Suppose if you want to calculate HRA i.e. except Marketing Dept then you can use NOT Function using If.

Not function can have only one condition.

Example:
If the employee does not work in mktg then hra is 50% of salary or else 30% of salary.

```
Eg.if(not(b2="Mktg"),h2*.5,h2*.3)
```

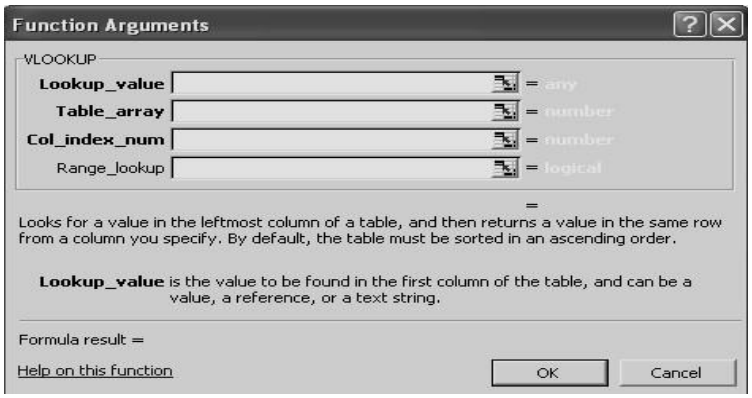
Note: From the XP version while writing the function syntax is displayed

Working with VLOOKUP Function

Given Employee Id, how can I look up the Incentive value from some other sheet or some other file?
Vlookup- stands for Vertical Lookup. If we want to the get the value of one column from some other file or sheet based on common field then you can used function vlookup. It searches for a value in the leftmost column of a table, and then returns a value in the same row from a column you specify in the table.

Syntax
```
VLOOKUP(lookup_value,table_array,col_index_num,range_lookup
```

You can use this function using in Built Function, Select Insert Menu- and Click on Insert Function or click on Fx from formula bar- Select Lookup & Reference category and select Vlookup, you will get a dialog box as shown below,



Lookup_value is the value to be found in the first column of the table. Lookup_ value can be a value, a reference, or a text string.

Table_array is the table of information in which data is looked up. Use a reference to a range or a range name.

Col_index_num is the column number in table_array from which the matching value must be returned.

Range_lookup is a logical value that specifies whether you want VLOOKUP to find an exact match or an approximate match. If FALSE, VLOOKUP will find an exact match. If one is not found, the error value #N/A is returned. If it is true then it finds the, the next largest value that is less than lookup value is returned.

Example of Vlookup with False Statement

Suppose you want to add incentive from another sheet in the Salary Sheet, Incentive worksheet consists of an incentive table whose range is A1:B12

- Select the cell, where you want the result.
- Click on Insert Function –Select the Vlookup () function from Lookup and Reference category.
- **Lookup Value** – Select A2 [The Employee code]
- **Table Array:** Select the Incentive Sheet and Select the Range from $**A$1:$B$12** [i.e. Employee code and incentive Column]
- **Column Index:** Type **2** [Column 2 is the Incentive column in Incentive table]
- **Range Lookup**: Type **False** [we are searching the exact match from the table for the lookup value]

Note: To remove #NA, you can use the function Iserror. The Syntax of iserror is as follows:

=if(iserror(vlookup….),‖,Vlookup)

Example of Vlookup with True Statement

Suppose you want to add incentive Value based on Slab-wise, instead of If condition you can use can use Vlookup with True condition. Suppose if we take example based on salary give the incentive value, so crate a table as given below, and in table array select the table given below and range lookup type true instead of false.

0	2%
5000	5%
10000	10%
15000	15%

Note: the Table slab should be in ascending order.

Database functions

Database functions are used to perform totals or subtotals on the data in the table. The functions have 3 arguments — database, field, and criteria.

- The database argument is the range that contains your list. You must include the row that contains the column labels in the range
- The field argument is the label for the column you want to summarize.
- The criteria argument is the range that contains a condition you specify.

Dsum

It sums up the values in a column of a list or database that match conditions you specify

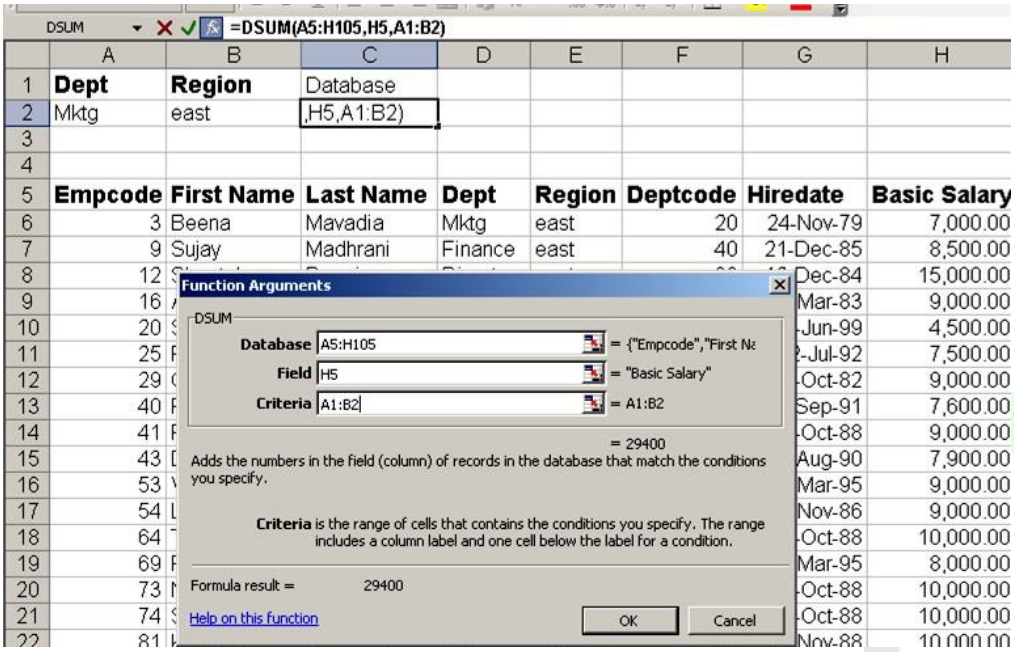
Syntax

```
Dsum (database, field, criteria)
```

Examples

The following illustration shows a database of Employee Information System, if you want to find the Total Salary of employees from Mktg Dept of the East Region, you can use the function Dsum.

Note: The Advantage of using Dsum is if you change the condition from Mktg to Finance criteria then you will get the result of given condition.



	A	B	C	D	E	F	G	H
1	**Dept**	**Region**	Database					
2	Mktg	east	,H5,A1:B2)					
3								
4								
5	**Empcode**	**First Name**	**Last Name**	**Dept**	**Region**	**Deptcode**	**Hiredate**	**Basic Salary**
6	3	Beena	Mavadia	Mktg	east	20	24-Nov-79	7,000.00
7	9	Sujay	Madhrani	Finance	east	40	21-Dec-85	8,500.00
8	12						Dec-84	15,000.00
9	16						Mar-83	9,000.00
10	20						Jun-99	4,500.00
11	25						-Jul-92	7,500.00
12	29						Oct-82	9,000.00
13	40						Sep-91	7,600.00
14	41						Oct-88	9,000.00
15	43						Aug-90	7,900.00
16	53						Mar-95	9,000.00
17	54						Nov-86	9,000.00
18	64						Oct-88	10,000.00
19	69						Mar-95	8,000.00
20	73						Oct-88	10,000.00
21	74						Oct-88	10,000.00
22	81						Nov-88	10,000.00

DSUM (Database,‖salary‖a1:b2). This function calculates the total Salary for Region East and Mktg Dept.

DCOUNT (Database,‖salary‖a1:b2)). This function counts the no of employee those who are in East Region and in Mktg Dept.

DMAX (Database,‖salary‖a1:b2)). This function calculates for the Maximum Salary paid in Region East and in Mktg Dept.

DMIN (Database,‖salary‖a1:b2)). This function calculates for Minimum Salary paid in Region East and in Mktg Dept.

DAVERAGE (Database,‖salary‖a1:b2). This function calculates Average Salary paid in Region East and in Mktg Dept.

Financial Functions

PMT

Calculates the payment for a loan based on constant payments and a constant interest rate.

Syntax

```
PMT(rate,nper,pv,fv,type)
```

- Rate is the interest rate for the loan.
- Nper is the total number of payments for the loan.
- Pv is the present value, or the total amount that a series of future payments is worth now; also known as the principal.

	A	B
1	Loan Amount	100000
2	Interest rate	8.50%
3	Period	36
	EMI	=pmt(b2/12,b3,b1)

Steps to calculate PMT

Click on Insert menu, Click on Function, Select Financial from Select a Category box Select a PMT function in it.
Enter Rate as cell B2/12 or 8.5%/12, Nper as cell B3 or 36 and Pv as cell B1 or 100000 in respective fields. Click on OK button.

FV

Returns the future value of an investment based on periodic, constant payments and a constant interest rate.

Syntax

```
FV(rate,nper,pmt,pv,type)
```

Rate is the interest rate per period.
Nper is the total number of payment periods in an annuity.
Pmt is the payment made each period; it cannot change over the life of the annuity. Typically, pmt contains principal and interest but no other fees or taxes. If pmt is omitted, you must include the pv argument.
Pv is the present value, or the lump-sum amount that a series of future payments is worth right now. If pv is omitted, it is assumed to be 0 (zero), and you must include the pmt argument.
Type is the number 0 or 1 and indicates when payments are due. If type is omitted, it is assumed to be 0.

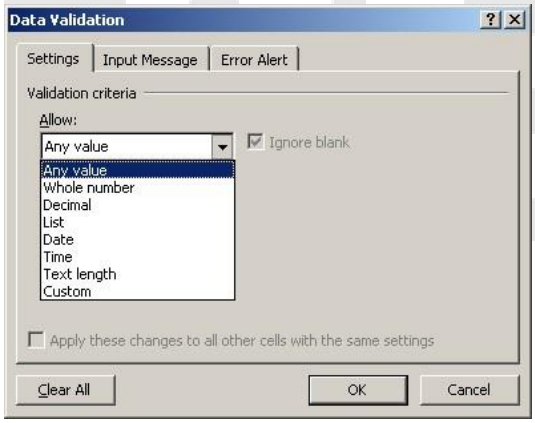
Example of FV:

Suppose a person wants to open a saving account in a bank with an initial deposit of Rs.10000 and Rs.200 as monthly deposit, for a period of 5 years at 5% rate of interest. What will be the amount incurred by the person after 5 years?
Enter the following data in your worksheet and find the future value on an investment.

	C	D
5	Rate Of interest	5%
6	Period in yrs	5
7	Payment /month	-200
8	Initial Deposit	-10000
9	Future Value	=FV(d5/12,d6*12,d7,d8)

Data Validation

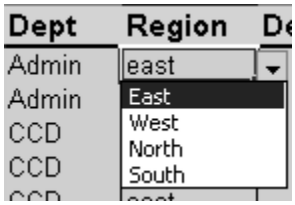
Data Validation is a process which restricts the users from entering invalid data for individual cells or cell ranges; restricts the data entry to a particular type, such as whole numbers, decimal numbers, or text; and sets limit on valid entries.



Designate valid cell entries

Select the cell to validate.
On the **Data** Tab, click **Validation**, from the Data Tool Group and then click the **Settings** tab.
Specify the type of validation you want:

1. Allow values from a list



This Validation allows the user to pickup the data from the dropdown, where the source will be in different cell, or to define the list locally, type the list values separated by commas.

Steps are as follows

1. Select a blank cell
2. Select DataTab
3. Select Data Validation from Data Tool Group
4. Select List
5. In Source, select the cell with value, or type the data with comma.

If the Source is from different sheet, create the name of the values, and use name by typing the equal sign (=) followed by the name of the range.

2. Allow numbers within limits

- In the **Allow** box, click **Whole Number** or **Decimal**.
- In the **Data** box, click the type of restriction you want. For example, to set upper and lower limits, click **between**.
- Enter the minimum, maximum, or specific value to allow.

3. Allow dates or times within a timeframe

- In the Allow box, click Date or Time.
- In the Data box, click the type of restriction you want. For example, to allow dates after a certain day, click greater than.
- Enter the start, end, or specific date or time to allow.

4. Allow text of a specified length

- In the Allow box, click Text Length.
- In the Data box, click the type of restriction you want. For example, to allow up to a certain number of characters, click less than or equal to.
- Enter the minimum, maximum, or specific length for the text.

5. Calculate what's allowed based on the content of another cell

- In the **Allow** box, select the type of data you want.
- In the **Data** box, select the operator(for criteria) you want.
- In the box or boxes below the **Data** box, click the cell that you want to use to specify what's allowed. For example, to allow entries for an account only if the result won't

go over the budget, click **Decimal** for **Allow**, click **less than or equal to** for **Data**, and in the **Maximum** box, click the cell that contains the budget amount.

6. Use a formula to calculate what's allowed

- In the **Allow** box, click **Custom**.
- In the **Formula** box, enter a formula that calculates a logical value (TRUE for valid entries or FALSE for invalid). For example, to allow the value in the cell for the picnic account only if nothing is budgeted for the discretionary account (cell D6) and the total budget (D20) is also less than the $40,000 allocated, you could enter **=AND(D6=0,D20<40000)** for the custom formula.

To display an optional input message when the cell is clicked, click the **Input Message** tab, and make sure the **Show input message when cell is selected** check box is selected, and fill in the title and text for the message.

Specify how you want Microsoft Excel to respond when invalid data is entered: Click the **Error Alert** tab, and make sure the **Show error alert after invalid data is entered** check box is selected.

Select one of the following options for the **Style** box:
To display an information message that does not prevent entry of invalid data, click **Information**.

To display a warning message that does not prevent entry of invalid data, click **Warning**.

To prevent entry of invalid data, click **Stop**.
Fill in the title and text for the message (up to 225 characters).

Note: If you don't enter a title or text, the title defaults to "Microsoft Excel" and the message to: "The value you entered is not valid. A user has restricted values that can be entered into this cell."

Protecting Workbook

By protecting a worksheet, you can prevent unauthorized users from modifying it. You can choose to protect an entire worksheet or to protect a part of it, allowing users to alter some cell in worksheet.

Protecting a worksheet by using passwords

You can protect a worksheet by using the Protect Sheet dialog box.

- Go to Review Tab -> Change Group and select Protect Sheet to open the Protect Sheet dialog box.
- Select the options you want.
- Enter a password and click OK. A Confirm Password dialog box will appear.
- Enter the same password in the Reenter password to precede box and click OK.

Protecting part of a worksheet

When you protect an entire worksheet, all the cells in the worksheet are locked by default. This means that users cannot make changes to any cell in the worksheet. To allow the users to make changes to particular cells only, you must unlock the cells manually before protecting the worksheet. Users can then change data only in the unlocked cells. You can hide the formula, so it will be now visible to the user.

To password protect only a part of a worksheet:

Step 1

- Select the range of cells that you want users wants to modify
- Click on Format, Cells to open the Format Cells dialog box and then activate the Protection tab.
- Clear the Locked check box and click OK
- Select the range of cells where the formula is applied, Click on Format CellProtection, and Select both Locked as well as hidden checkbox.

Step 2

Now go to Review Tab-> Change Group and select Protect Sheet – Protect sheet and give the Password.

Built-in templates

A template is a special type of workbook you can use as a starting point for other workbooks. Templates can contain labels and other data, formatting, styles, and functionality you can use for a particular purpose. Excel provides several built-in templates to help you create forms such as invoices, purchase orders, and expense statements.

You can view Excel‘s built-in templates by clicking on Office Button->Select New-> Templates –Click on My Template

Creating and managing templates

When Excel does not provide a template that suits your needs, you can create your own custom templates. Like built-in templates, custom templates make it easy to create and maintain multiple workbooks with the same formatting, styles, content, and functionality.

Creating and using a template

To create a template:
Open or create the workbook on which you want to base the template.

- Choose File, Save As to open the Save As dialog box.
- From the Save as type list, select Template.
- In the File name box, enter a name for the template.
- Click Save. Close the Workbook

Once you create the template Create a new workbook based on the template. Enter the remaining information. Save the workbook close it.

Modifying templates

Sometimes, you might need to modify custom templates. To modify a template, choose File, Open to display the Open dialog box; specify the location and the name of template file that you want to modify, and click Open. Make the changes you want and update the template.

Note: Templates are saved in
C:\Documents and Settings\User_name\Application Data\Microsoft\Templates.

Guidelines for entering data in a worksheet

Microsoft Excel has a number of features that make it easy to manage and analyze data. To take advantage of these features, enter data in your worksheet according to the following guidelines.

Data organization

Put similar items in one column (For Ex if Emp Code is in Column A then fill data related to Emp Code in Column A) Format the cells so that all rows have similar items in the same column (i.e data related to Employee shall appear in the row) . Keep the range separate. Leave at least one blank column and one blank row between the related data range and other data on the worksheet. Excel can then easily detect and select the range when you sort, filter, or insert automatic subtotals.

Position the critical data above or below the range, avoid placing critical data to the left or right of the range; the data might be hidden when you filter the range. Show rows and columns and make sure any hidden rows or columns are displayed before making changes to the range. When rows and columns in a range are not showing, data can be deleted inadvertently.

Data format

- Use formatted column labels Create column labels in the first row of the range of data. Excel uses the labels to create reports and to find and organize data. Use a font, alignment, format, pattern, border, or capitalization style for column labels that is different from the format you assign to the data in the range.

- Format the cells as text before you type the column labels. Use cell borders when you want to separate labels from data, use cell borders— not blank rows or dashed lines— to insert lines below the labels.

- Avoid blank rows and columns Avoid putting blank rows and columns in the range so that Excel can more easily detect and select the related data range.

- Don't type leading or trailing spaces Extra spaces at the beginning or end of a cell affect sorting and searching. Instead of typing spaces, indent the text within the cell.

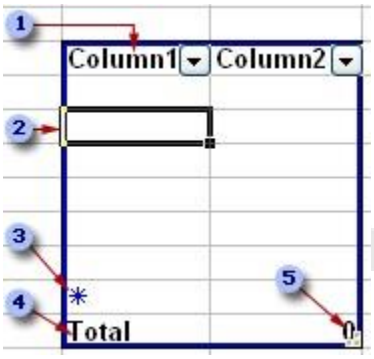
- Extend data formats and a formula when you add new rows of data to the end of a data range; Excel extends consistent formatting and formulas. Three of the five preceding cells must use the same format for a format to be extended. All of the preceding formulas must be consistent for a formula to be extended.

About Data lists

A Microsoft Excel list provides features designed to make it easier to manage and analyze groups of related data in an Excel worksheet. When you designate a range as a list, you can manage and analyze the data in the list independently of data outside the list. For example, using only the data contained within the list, you can filter columns, add a row for totals, and even create a PivotTable report, using only the data contained within the list.

You can have multiple lists on your worksheet, which allows you a great deal of flexibility for separating your data into distinct, manageable sets according to your needs.

Note: You cannot create a list in a shared workbook. You must remove the workbook from shared use first if you want to create a list.



- Every column in the list has AutoFilter enabled by default in the header row. AutoFilter allows you to filter or sort your data quickly.
- The dark blue border around the list clearly distinguishes the range of cells that makes up your list.
- The row that contains an asterisk is called the insert row. Typing information in this row will automatically add data to the list and expand the border of the list.
- A total row can be added to your list. When you click a cell within the total row, a drop-down list of aggregate functions becomes available.
- You can modify the size of your list by dragging the resize handle found on the bottom corner of the list border.

The benefits of lists

Sort and filter lists you can sort lists in ascending or descending order or create custom sort orders. You can also filter lists to show only the data that meets the criteria you specify.

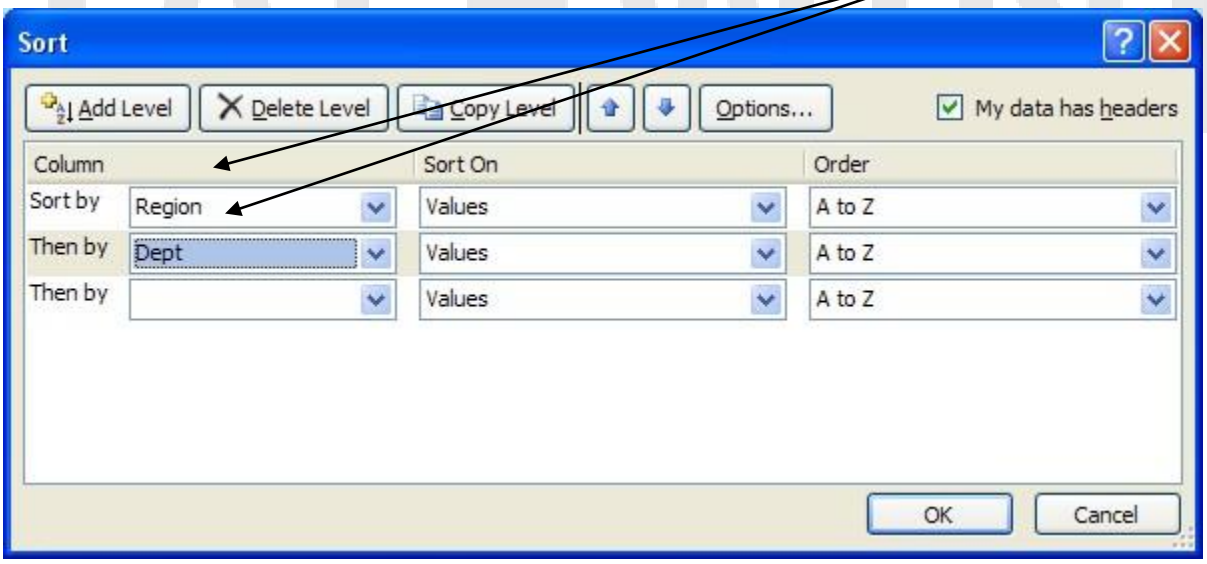
Format list objects You can format cells in a list the same way that you format cells in a worksheet.

Sorting and Filtering Data

Performing a Simple Sort

To sort your entire list, just select a single cell in the list and choose the Sort command from the Data Tab. Microsoft Excel automatically selects the whole list for you. If your list has column labels in the first row, Microsoft Excel excludes them from the sort and uses them to help you choose the Sort by column.

Sort the data Regionwise, Department wise in ascending order.



If Microsoft Excel does not automatically select the data you want to sort, manually select the data and choose the Sort command again.

Rows that contain duplicate items in the Sort by column appear together in the sorted list in their original order. If you want to sort these duplicate rows further, you can specify a

second column to sort by clicking on Add Level button in the upper left most corner windows. If there are duplicate items in this second column, you can specify a third column to sort by in the second Then By box. You can sort by up to 64 columns at a time.

Microsoft Excel saves the sort options you select in the Sort dialog box and Sort Options dialog box - such as the Sort By column, sort order (ascending or descending), and sort orientation (top to bottom or left to right) - and displays them each time you choose the Sort command until you change the options or sort another list.

Customized Sorting

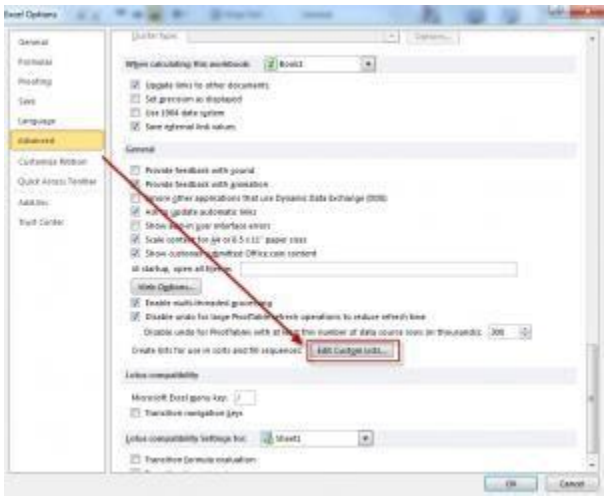
Suppose if we sort the data region wise, it sort either ascending or descending order, if you want to sort your data in a customized order, for Example West, East, North, and South

First we need to create a custom list as we want to sort,

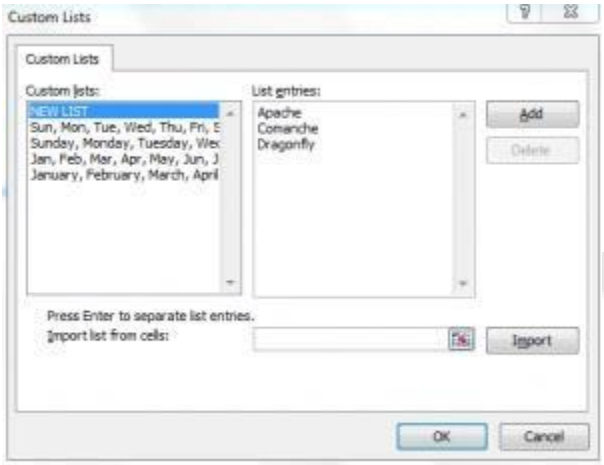
Steps

- In Excel 2010, open File and go to Options.

- Select the Advanced option and on right pane, scroll down till you see Edit Custom Lists button.

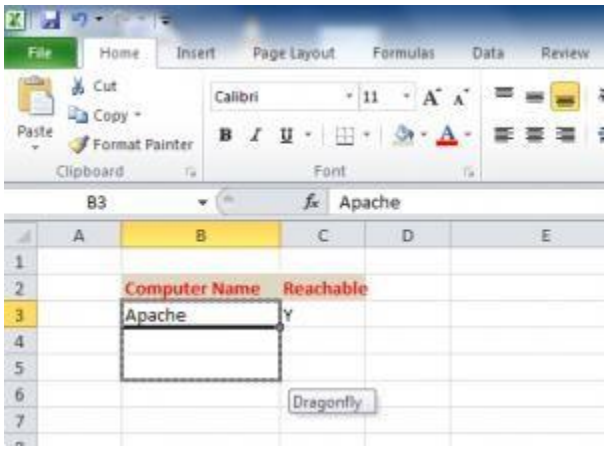


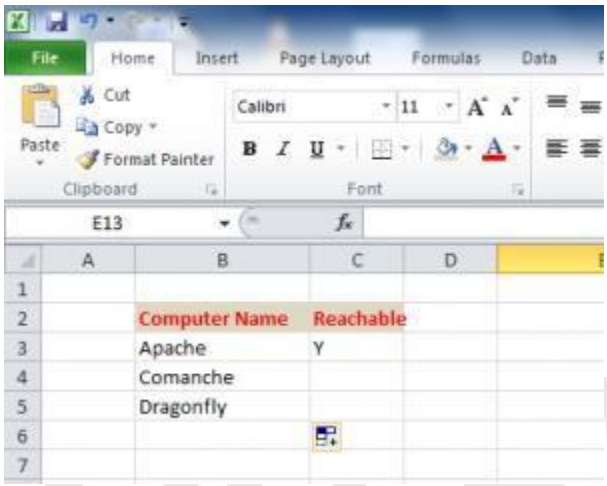
- Hit the Edit Custom Lists button and select NEW LIST.



- Enter a list of items on the right side as shown (in this example, computer names like Apache, Comanche and Dragonfly).
- Hit the Add button, the entered items should show up as comma separated just like the lists above it.

Once this custom list is created, in order to use it anywhere in Excel 2010, simply enter the name of any item from the list and drag the mouse cursor as desired, this will fill the other cells with the remaining items from the custom list.



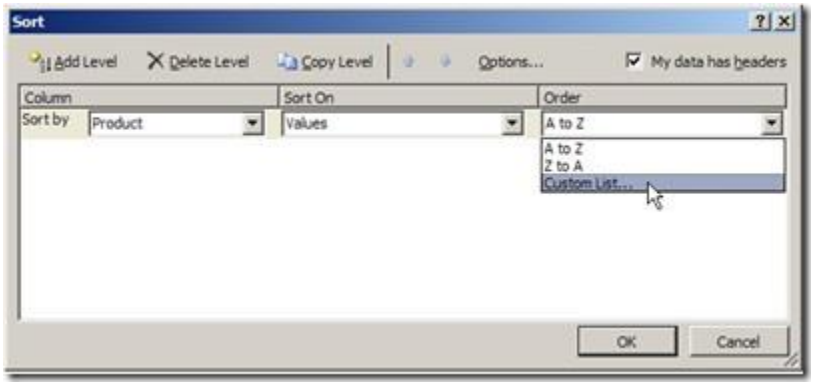


This is quite a convenient feature especially when lots of data crunching is to be done. Defining various Excel custom lists of commonly used items of a list and using them as and when required becomes a time saver.

Sort the Excel List in Custom Order

To sort your list based on your custom list, follow these steps:

1. Select a cell in the table that you want to sort.
2. On the Ribbon's Data tab, click Sort
3. In the Sort dialog box, select a Column from the first drop down, and select Values from the Sort On drop down.



4. In the Order drop down, click Custom List
5. In the Custom List dialog box, select your custom list, and click OK
6. Click OK to close the Sort dialog box

The list is sorted in the order of the items in your custom list.

Filtering a List

In Excel Spreadsheet if you want to track the sales information or salary information in existing data, or often want to extract the salary details base on some condition , in such scenario Excel has given a command known as Filter.

Auto Filter enables you to display a subset of your list with a click of a mouse button. When you choose the Filter icon from the Data Tab, Microsoft Excel places drop-down arrows directly on the column of your list. Clicking an arrow displays a list of all the unique items in the column. By selecting an item from a list for a specific column, you can instantly hide all rows except that row that contain the selected value and its related information (that complete row).

The item you select in a column drop-down list is called the *filter criterion*. For example, selecting East from the Region drop-down list hides all rows except those that contain region east. You can filter your list further by choosing another criterion from another column. For example, selecting Mktg from the Dept drop-down list also hides all rows except those that contain East and Mktg Dept. In some case if you want to select the multiple regions i.e. East and West in such case you have to select the custom from dept drop down.

	A	B	C	D	E	F	G	H
1	Empcod	First Nam	Last Nam	Dept	Region	Deptcod	Hiredate	Salary

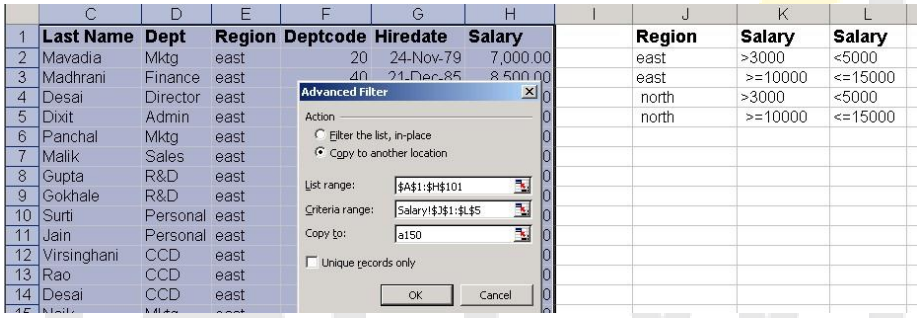
Tip: If the list of items is long, you can quickly move to an item by selecting the arrow, then typing the first letters of the item.

When you hide rows using criteria, you are applying a filter to a list. Microsoft Excel helps you recognize the filter status of a list by providing some visual cues.

Filtering a List using Advanced Filter

To filter a list using more complex criteria i.e. when we have condition like for e.g., display the details of employees who earn between greater than 3000 and less than 5000 or between 10000 to 15000, those who are in East or North Region in such case you can't retrieve the condition using simple filter. In such case you have to use Advance Filter (Data Tab ->Advance Filter icon).

Here besides having a data in tabular format, we have to also specify the condition to be met in a different area of a worksheet. For a clearer picture refer the following e.g.



	C	D	E	F	G	H	I	J	K	L
1	**Last Name**	**Dept**	**Region**	**Deptcode**	**Hiredate**	**Salary**		**Region**	**Salary**	**Salary**
2	Mavadia	Mktg	east	20	24-Nov-79	7,000.00		east	>3000	<5000
3	Madhrani	Finance	east	40	21-Dec-85	8,500.00		east	>=10000	<=15000
4	Desai	Director	east			0		north	>3000	<5000
5	Dixit	Admin	east			0		north	>=10000	<=15000
6	Panchal	Mktg	east			0				
7	Malik	Sales	east			0				
8	Gupta	R&D	east			0				
9	Gokhale	R&D	east			0				
10	Surti	Personal	east			0				
11	Jain	Personal	east			0				
12	Virsinghani	CCD	east			0				
13	Rao	CCD	east			0				
14	Desai	CCD	east			0				

The Advanced Filter command filters your list in place, as simple Filter does, but it does not display drop-down lists for columns. Instead, you have to select the List Range i.e. your data, type criteria in a *criteria range* on your worksheet and select the Criteria Range and in output range type the cell address where you want to display the output. It is optional.

Filtering unique records

- Select the column or click a cell in the range or list you want to filter.
- On the Data Tab, point to Filter, and then click Advanced Filter.
- Do one of the following.

To filter the range or list in place, similar to using AutoFilter, click Filter the list, inplace. To copy the results of the filter to another location, click Copy to another location. Then, in the Copy To box, enter a cell reference.

To select a cell, click Collapse Dialog to temporarily hide the dialog box. Select the cell on the worksheet, and then press Expand Dialog.

- Select the Unique records only check box.

Note: Advanced filter, copy to Option copies on a same worksheet, if you want to copy the Filter data in to different worksheet, and then select the Advanced Filter command from a new worksheet.

Grouping Data Using Subtotals

If you want to summarize the salary details according to region wise, you display automatic subtotals by selecting a single cell in the list and choosing the Subtotals command from the Data menu. Microsoft Excel uses the column labels to help you identify the items you want grouped and the values you want summarized.

Display Subtotal at Single Level

For performing Subtotal on data, first the table fields on which subtotal are done must be sorted. After you click the subtotals command from the Data Tab->Outline Group, select the desired column from At Each Change In list box then select the function which you want to perform on data from the Use function list box then select the column on which you want to perform subtotals from the Add Subtotal to field. When you choose the OK button, Microsoft Excel inserts a subtotal row for each group of identical items in the selected column.

Choosing a Summary Function

The first time you use the Subtotals command for a list, Microsoft Excel suggests a summary function based on the type of data in the column you select in the Add Subtotal To box, Choose a different calculation, such as Average, by selecting a different summary function in the Use Function box in the Subtotal dialog box.

Choosing the Values to Summarize

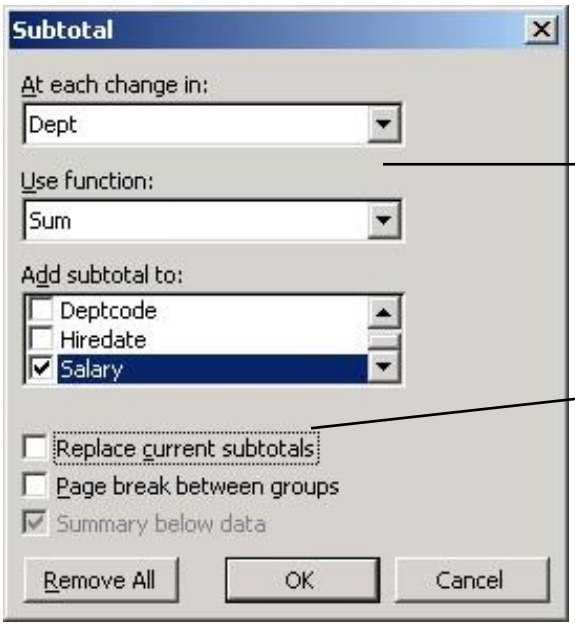
The first time you use the Subtotals command; the Add Subtotal To box displays the label of the right-most column. You can leave that label as your selection, or you can select the label of any other column in the list. The next time you use the Subtotals command, Microsoft Excel displays the label of the last column you selected.

Displaying Subtotal Rows above the Detail Data

If you want your subtotal rows to appear above their associated detail data, and if you want the Grand Total row to appear at the top of the list, clear the Summary below Data check box in the label of the end of the list to see grand total data.

Displaying Nested Subtotals

You can insert subtotals for smaller groups within existing subtotal groups; For example, you can insert subtotals for each type Dept in a list that already has subtotals for each Region wise.



Select the column for Nested Subtotal

Clear Replace current subtotals checkbox while displaying Nested Subtotal

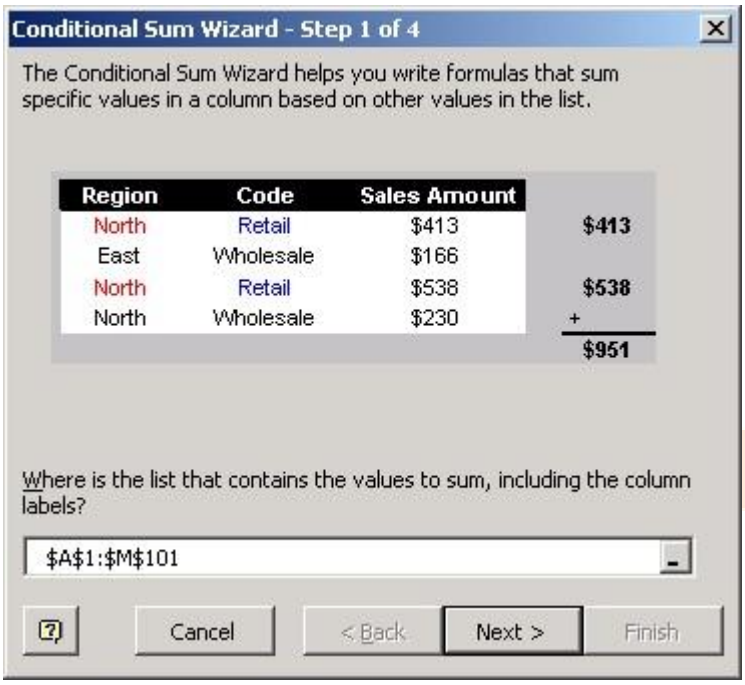
Note: If you want to copy only the summary details then select the outline2 select the column, press **Alt;** that will select only visible cell] and then copy and paste it.

Using add-ins - Conditional Sum Wizard

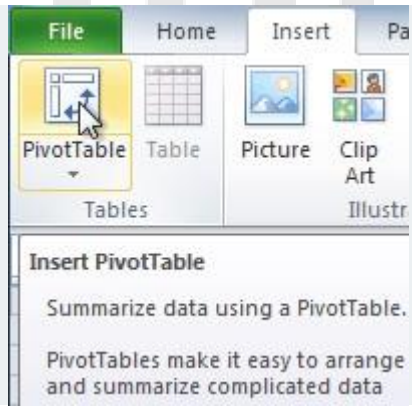
Add-ins is additional programs that provide custom commands and functions. You can load add-ins such as the Conditional Sum Wizard and the Lookup Wizard by using the Add-Ins command on the Tools menu.
Conditional Sum Wizard

The *Conditional Sum Wizard* helps you generate a formula that adds the values matching a condition you specify. Here‘s how:

Choose Tools, Conditional Sum to start the Conditional Sum Wizard. In the Step 1 dialog box, specify the range containing the data, including the column headings. Click Next.
In the Step 2 dialog box, specify the column containing the values to add and the criterion to be used for the conditional sum. You can specify a condition by using the three available lists: Column, Is, and This value. Click Add Condition and then click Next. In the Step 3 dialog box, specify whether you want to insert only the result or both the result and the condition. Click Next.
In the Step 4 dialog box, specify the cell where you want the result to appear, and then click Finish.



Creating PivotTables



PivotTable reports (or, simply PivotTables) make the data in your worksheets much more manageable by summarizing the data and allowing you to manipulate it in different ways. PivotTables can be an indispensable tool when used with large, complex spreadsheets, but they can be used with smaller spreadsheets as well.

A pivot table is an interactive worksheet table that quickly summarizes large amounts of data using the format and calculation methods you choose. It is called a pivot table

because you can rotate its row and column headings around the core data area to give you different views of the source data. As source data changes, you can update a pivot table. Because it resides on a worksheet, you can integrate a pivot table into a larger worksheet model using standard formulas.

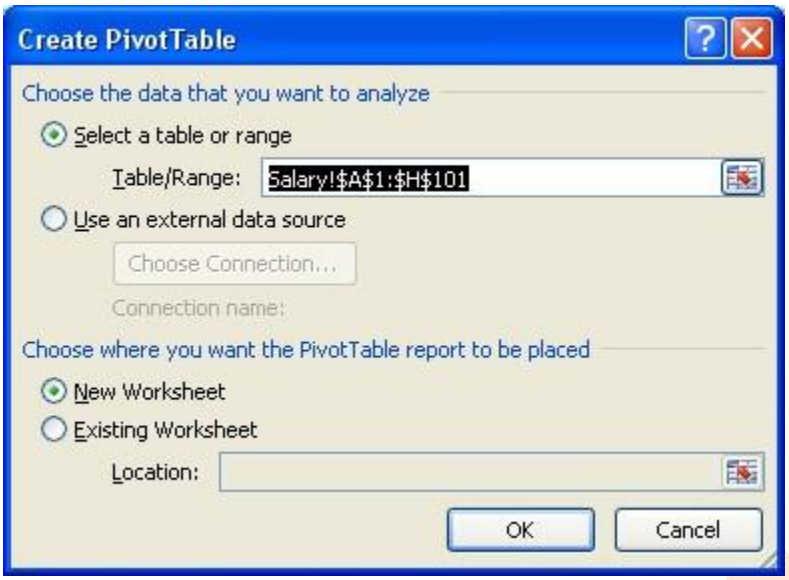
Steps to Create a Simple Pivot Table

You create a pivot table using the Pivot Table Wizard. The Pivot Table Wizard is an interactive set of dialog boxes that guide you through the steps of choosing the source data and layout you want to use for the pivot table.

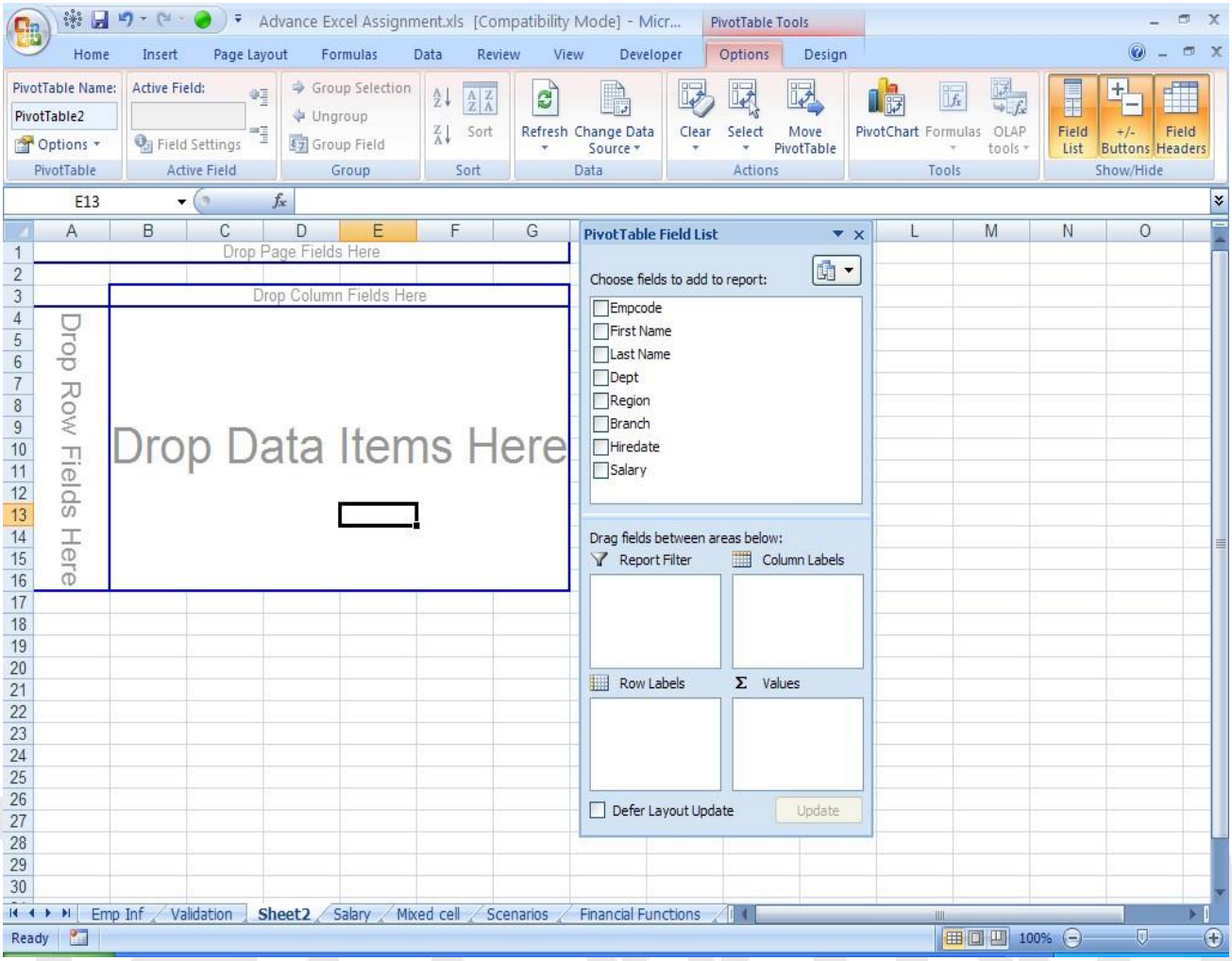
Start the Pivot Table Wizard

A Pivot Table is an interactive table that summarizes and analyses data from existing lists and tables. Use the PivotTable Wizard to specify the list or table you want to use and to define how you want to arrange the data in the PivotTable. After you create a PivotTable, you can reorganize the data by dragging the fields and items. When you base a PivotTable on external data, you may want to retrieve the external data before you create the PivotTable.

- Open the workbook where you want to create the PivotTable. If you are basing the PivotTable on a Microsoft Excel list or database, click a cell in the list or database.
- On the Insert Tab ->Table Group, click PivotTable
- Select the data source range
- If you are inside database, it automatically picks the range
- Then decide where you want to place your PivotTbale report, i.e. in same sheet or different sheet
- Click OK



- Once you click OK the screen shown below:



- Drag the fields you want to use as row field and column field labels into the Row and Column areas.
- The more fields you include in an area, the finished pivot table contains more fields. Adding two fields to the Row area adds two row fields to the pivot table.
- By moving the Dept field to the Report Filter area, you create a pivot table that displays data for one particular Dept at a time. (Dept wise report is generated. If there is any date/month field, a date-wise report could be generated.). It is mandatory to place any one of the fields into the VALUE area.
- If a numeric field is placed by default, it calculates the total of that field, else any other text/date/ character field is placed, and then the count of it will be displayed at the end of report. If you don‘t specify any field in this area, wizard won‘t allow you to proceed to the next step.

How to Save Data with the Pivot Table Layout

When you create a pivot table, Microsoft Excel stores a copy of the source data as hidden data with the pivot table layout on the worksheet. If you have a large amount of data and you do not want to store a copy of it with the pivot table, clear the Save Data with Table Layout by following.

- Right click your mouse on report area
- Click PivotTable Options
- Click Data Tab
- And then check off-> save source data with file

Output

	A	B	C	D	E	F	G
1	Drop Page Fields Here						
2							
3			Region				
4	Dept	Data	east	north	south	west	Grand Total
5	Admin	Sum of Salary	19000	33000	15500	17500	85000
6		Count of First Name	2	4	2	2	10
7	CCD	Sum of Salary	28000	58900	23000	28000	137900
8		Count of First Name	3	7	3	3	16
9	Director	Sum of Salary	15000				15000
10		Count of First Name	1				1
11	Finance	Sum of Salary	8500	25000	18500	20000	72000
12		Count of First Name	1	2	2	2	7
13	Mktg	Sum of Salary	29400	52200	30900	24900	137400
14		Count of First Name	4	7	3	4	18
15	Personal	Sum of Salary	16900	46100	25200	16900	105100
16		Count of First Name	2	5	3		
17	R&D	Sum of Salary	30600	62600	25900	2	
18		Count of First Name	4	7	3		
19	Sales	Sum of Salary	30500	77000	39400	27000	173900
20		Count of First Name	3	8	4	3	18
21	Total Sum of Salary		177900	354800	178400	163800	874900
22	Total Count of First Name		20	40	20	20	100

PivotTable
PivotTable

Updating a Pivot Table

If you change data in the source list of table, you can update or refresh the pivot table without recreating it. Most changes you make to the source data can be quickly displayed in the pivot table using the Refresh Data command on the Option Tab -> Data Group, or by right clicking mouse on report area and then refresh option. You can set certain interval in the terms of minutes for auto refresh, if your report is based on external data source.

Format a PivotTable report

Click on Design Tab ->PivotTable Styles Group –>select either design/style or go for New PivotTable Styles

Calculate the Percentage of the field

In the report layout go to Value area and then click down arrow key of field for which you want the Percentage,

 Click Show value as tab and the click Show value as drop down list box Select the % of total from show data a

Group items in a PivotTable

If you want to generate a report on Year wise Quarter wise based on existing data you have for such scenario you can use a group option in Pivot Table

Group date field

- Right-click the field with the dates or times, clicks on **Group**
- Enter the first date or time to group in the **Starting at** box, and enter the last date or time to group in the **Ending at** box.
- In the **By** box, click one or more time periods for the groups.

If you have grouping on date field, you can group items by weeks, click Days in the By box, make sure Days is the only time period selected, and then click 7 in the Number of

days box. You can then click additional time periods to group by, such as Month, if you want.
Create a chart from data in a PivotTable report

Create a Graph using Pivot Data

- From inside report press F11 function key
- Or Click Pivot chart from Option Tab ->Tools Group

The Graph will be created based on the pivot table. You have drop down to select the graph according to condition wise.

What-if-Analysis Tools

If you have created a formula to calculate PMT, base on the formula, if you want to know in if you pay x amount of value in how many months you can complete the installment

The Goal seek Feature in Excel helps us to compute a value for the spreadsheet input that makes the value for the given formula match the goal you specify. Goal Seeking saves you from performing time-consuming trial-and error analysis.

Using the Goal Seek Command

To find a specific value that solves a formula, select the cell containing the formula. Then choose Goal Seek from the Data Tab ->Data Tools Group ->What-If Analysis >Goal Seek.

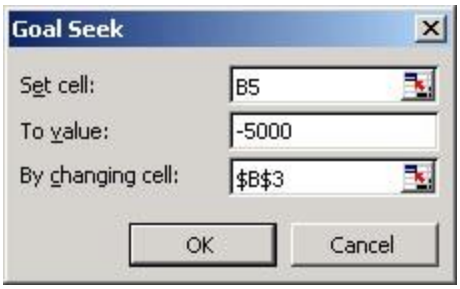
Select the reference or name of the cell containing the formula for which you want to find a specific solution if it is not displayed in the Set Cell option of the Goal seek dialog box. (Assuming that we have started from cell A1, select the address of selling price value i.e., B3).

Type the value that you want the formula to reach in the To Value option i.e.,-5000 Select the reference or name or the cell containing the variable that you want to adjust for the goal to be attained i.e., B2 address of the cost price value.

E.g., If a person takes a Loan of 100000 for 36 Months the EMI [PMT] is 3250, if he pays monthly 5000 then in how many months he will complete his installment.

Before Goal Seeking		After Goal Seeking	
Loan	100000	Loan	100000
Rate	10.5%	Rate	10.5%
Months	36	Months	22.08
PMT	3250.24	PMT	3250.24

Should be a formula or



Goal-Seeking Guidelines

- You can enter either cell references or names in the Set Cell and By Changing Cell boxes.
- The address in the Set Cell box must be directly or indirectly a formula.
- A changing cell must contain a value that the formula in the Set Cell box depends on, either directly or indirectly.
- A changing cell cannot contain a formula.
- While goal seeking proceeds, the Goal Seek Status dialog box appears on the screen. To interrupt the operation, choose the Pause button.
- If you want to continue one step at a time after choosing the Pause button, choose the Step button to resume normal operation.
- When goal seeking is complete, Microsoft Excel displays the results on the worksheet and in the Goal Seek Status dialog box. Choose the OK button to keep the solution values on the worksheet; choose the Cancel button to restore the original values.
- If you decide to keep the solution on the worksheet but then change your mind, choose Undo Goal Seek from the Edit menu immediately after goal seeking is complete.

Projecting Figures Using a Data Table

Most of the spread sheet models contain assumption about certain parameters or input to the model, or based on different cost price and selling price what will be the profit.

Once you've entered formulas on your worksheet, you can perform a "what-if" analysis using a data table to see how changing certain values in your formula affects the results of formulas. A data table is a range of cells that show the results of substituting different values in one or more formulas. Data tables provide:

- A shortcut for calculating multiple variations in one operation.

- A way to view to and compare the results of all of the different variations together on your worksheet.

There are two types of data tables.

One-Input Data Table: You enter different values for one variable and see the effect on one formula.

Using a One-Input Data Table

To see how changes in one variable affect one or more formulas, use a one-input data table. The data table in the following illustration is set up so that the interest rates entered in column B-the input values-are substituted in cell D5-the input cell. The resulting monthly payments are entered in the cell below the formula in cell C11.

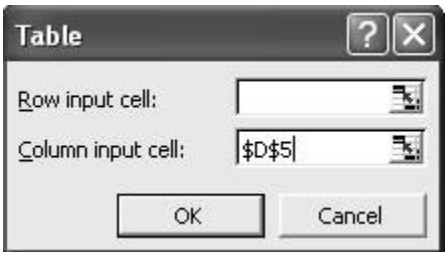
	D	E
5	5	Years
6	10.5%	Rate
7	100000	amt.

Cell C11 contains the formula=PMT(D6/12,D5*12,D7) that calculates the monthly payments using the input cell D5.

First, select the rectangular range containing the formula and the input values **(B11:C16).**

	B	C
11		(Rs2,149.39)
12	1	
13	2	
14	3	
15	4	
16	5	

The Column B gives the number of years you want to calculate the PMT for. When you choose Table from the Data Tab ->Data Tools Group ->What-If Analysis, specify cell D5 as the Column Input Cell.



As soon as we click on OK we get the following result as shown in figure below.

	B	C
11		(Rs2,149.39)
12	1	-8814.86029
13	2	-4637.60416
14	3	-3250.24435
15	4	-2560.33798
16	5	-2149.39004

Adding Formulas or input Values to an Existing Data Table

You can use as many formulas and input values, as you need in a one-input data table. However, each formula must directly or indirectly refer to the same input cell. To add additional formulas or input values to a data table, enter them in the blank cell below or to the right of the existing formulas. Then select the entire table and modify it using the Table command on the Data Tab ->Data Tools Group ->What-If Analysis.

In the preceding illustration, for example, you can also enter a formula in cell D11 that calculates total interest paid on the loan. First, select the rectangular range containing both the formulas and the input values, as shown in the following illustration. Then specify cell D5 as the column-input cell. After you choose the OK button, the new values are added to the table under cell D11.

Row Input Values versus Column Input Values

In addition to entering input values in a column, as shown in the preceding example, you can also enter input values in a row across the top of the table and enter formulas on the side of the table. With this layout, you specify a Row Input Cell in the Table dialog box.

Using a Two-Input Data Table

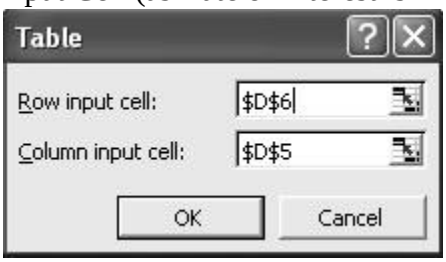
To see how changes in two variables affect one formula, use a two-input data table. You can include a number of values for each of the two variables, but you can use only one formula in a two-input data table.
Look at the following Table

	D	E
5	5	Years
6	10.5%	Rate
7	100000	amt.

In the following illustration, fill up the table as shown in the figure below. The figure shows we have filled in 11th row rate of Interest and in the Column B from b12:b16 Period. The cell B11 contains the formula =ABS(PMT(D5/12,D6,D7))

	B	C	D	E
11	(Rs2,149.39)	5%	6%	7%
12	12			
13	24			
14	36			
15	60			
16	120			

When you choose Table from the Data Tab ->Data Tools Group ->What-If Analysis, specify cell D5 as the Column Input Cell (as Years are in Column). And cell D6 as Row Input Cell (as Rate of Interest is in Rows).



Click on the OK button.

The Table command calculates these values and adds them to your worksheet.

C	B	C	D	E
11	(Rs2,149.39)	5%	6%	7%

12	1	-8560.75	-8606.64	-8652.67
13	2	-4387.14	-4432.06	-4477.26
14	3	-2997.09	-3042.19	-3087.71
15	4	-2302.93	-2348.5	-2394.62
16	5	-1887.12	-1933.28	-1980.12

What-If Scenarios

Scenarios are part of a suite of commands sometimes called what-if analysis tools. A scenario is a set of values that Microsoft Excel saves and can substitute automatically in your worksheet. You can use scenarios to forecast the outcome of a worksheet model. You can create and save different groups of values on a worksheet and then switch to any of these new scenarios to view different results. You can define up to 32 changing cell per scenario.

You can use the Scenario Manager to:

- Create multiple scenarios with multiple sets of changing cells.
- View the results of each scenario on your worksheet.
- Create a summary report of all input values and results.
- Merge scenarios from a group into a single scenario model.
- Protect scenarios from modification and hide scenarios.
- Keep track of modifications with an automatic scenario history.

Creating scenarios For example, if you want to find a Net Income on different scenario in given example.

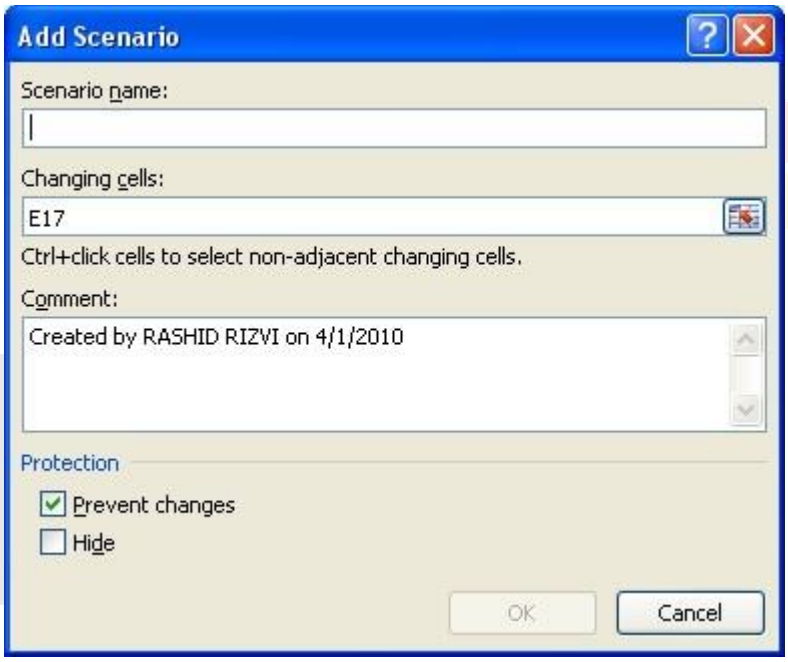
	1999
Sales	54500
Other Income	28000
Gross Income	**82500**
Expense	
Tel. Exp	3264
Tra. Exp	3570
Mis. Exp	2537.5
Total Exp	**9371.5**
Net Income	**73128.5**

	Current Scenario	Best Scenario	Worst Scenario
Sales	9%	13%	5%

Other Income	12%	18%	8%
Tel. Exp	2%	3%	5%
Tra. Exp	2%	4%	5%
Mis. Exp	1.50%	1.50%	1.50%

Create a scenario

- Go to Data Tab ->Data Tools Group ->What-If Analysis ->Scenario Manager Click **Add**.
- In the **Scenario name** box, type a name for the scenario.



- In the **Changing cells** box, enter the references for the cells that you want to change. [eg select the range of current scenario range] Click **OK**.
- In the **Scenario Values** dialog box, type the values you want for the changing cells.
- To create the scenario, click **OK**.
- If you want to create additional scenarios, click **Add** again, and then repeat the procedure. When you finish creating scenarios, click **OK**.

Create a scenario summary report

- Go to Data Tab ->Data Tools Group ->What-If Analysis ->Scenario Manager Click **Summary**.

- Click Scenario summary or Scenario PivotTable.
- In the **Result cells** box, enter the references for the cells that refer to cells whose values are changed by the scenarios. Eg [Net Income in the above example]. Separate multiple references with commas.

Delete a scenario

 Go to Data Tab ->Data Tools Group ->What-If Analysis ->Scenario Manager Click the name of the scenario you want to delete, and then click **Delete**.

Display a scenario

When you display a scenario, you change the values of the cells saved as part of that scenario.

- On the **Tools** menu, click **Scenarios**.
- Click the name of the scenario you want to display.
- Click **Show**.

Tip: Double-clicking the name of the scenario displayed in the Scenarios box is the same as selecting the name and choosing the Show values.

Merge scenarios from another worksheet

It is easier to merge scenarios when all what-if models on the worksheets are identical. All changing cells on the source worksheet must refer to the corresponding changing cells on the active worksheet. Microsoft Excel copies all scenarios on the source sheet to the active worksheet.

Open all of the workbooks that contain the scenarios you want to merge. Switch to the worksheet where you want to merge the scenarios.

- Go to Data Tab ->Data Tools Group ->What-If Analysis ->Scenario Manager Click **Merge**.
- In the **Book** box, click a workbook name.
- In the **Sheet** box, click the name of a worksheet that contains the scenarios you want to merge, and then click **OK**.

Repeat this process if you want to merge scenarios from more worksheets.

Protecting Scenarios

The Add Scenario and Edit Scenario dialog boxes contain two protection options: Prevent Changes and Hide. If you select Prevent Changes and then activate sheet protection, the scenarios you define cannot be edited. However, this does not prevent you from the values of the changing cells directly on the sheet (unless the cells themselves are locked). Rather, the scenarios themselves are protected from modification when the Prevent Changes check box is selected. In addition, selecting the Hide check box removes a scenario name from the list of defined scenarios, preventing its display.

Once you select protection options in the Add Scenario or Edit Scenario dialog box, you must activate sheet protection. To do this, use the protection command on the Tools menu, and then choose Protect Sheet.

Note: When sheet protection is activated, you can still add scenarios. However, you cannot edit or delete them unless the Prevent Changes check box is cleared.

Using multiple worksheets

Linking worksheets by using 3-D formulas

Excel formulas can refer to cells and ranges in other worksheets within a workbook. They can also refer to cells or ranges on a range of worksheets.

3-D formulas

A *3-D formula* references the same cell or range on multiple worksheets. For example, the formula = Jan!b2+Feb!b2+March!b2 will sums the data from the different worksheet range. The syntax for referring to cells in another worksheet is:

worksheet_name!reference

Here, worksheet_name, refers to the name of the worksheet that provides the data, reference is the name of the cell or range, and ! is the divider between the worksheet reference and the cell reference.

To insert a 3-D reference in a formula:

- Begin to enter your formula or function up to the point of needing a reference or an argument.
- Activate the tab for the first worksheet to which you want a reference.
- While holding the Shift key, activate the tab for the last worksheet you want to reference.
- Select the cell or range of cells you want to reference.
- Complete and enter the formula or function.

Consolidating Data

Consolidation means collecting data which is scattered in different workbooks or worksheets. To consolidate data, you combine the values from several ranges of data. For example, if you have a worksheet of sales figures for each of your regional offices, you might use a consolidation to roll these figures into a corporate sales worksheet.

If we have a sheet consisting sales figure for different products for each month like Jan, Feb and March. Suppose we want to find quarterly sales i.e. total sales of the first three months. In such cases, we can consolidate the three worksheets and get a summary of the same. Let‘s see how we do it.

Assuming we have data in three sheets:

Jan Sheet

Product	Amount
Coca-Cola	125000
Pepsi	57000
Sprite	45781
Thumps Up	80000
Feb Total	307781

Feb Sheet

Product	Amount
Coca-Cola	125000
Pepsi	45000
Sprite	7800
Thumps Up	16000
Jan Total	193800

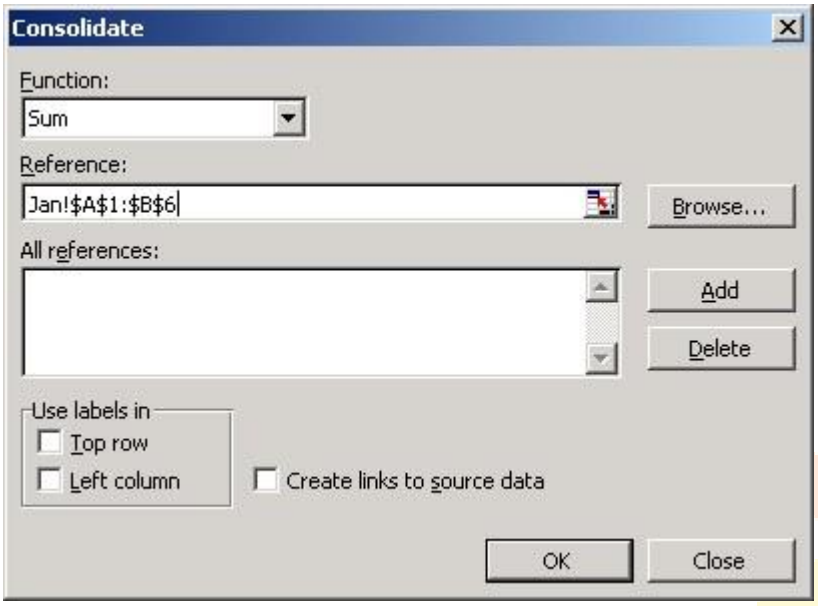
March Sheet

Product	Amount
Coca-Cola	45050
Pepsi	48000
Sprite	78005
Thumps Up	450016
Mar Total	621071

Qtr Sheet

Product	Amount
Coca-Cola	295050
Pepsi	150000
Sprite	131586
Thumps Up	546016

In a new sheet, Click on Data Tab ->Data Tools Group ->Consolidate. The consolidate dialog box will open.



Select the function from the function drop down menu.

In the Reference option, click on the small red arrow and select the Jan. total. Click on Add.

- Similarly select the range for Feb. and March and click on Add. In the Use Labels In option select the option Left column.
- Select the option Create links to source data. Then click on OK. The consolidated data will be displayed on the new sheet (Qtr)

Creating Hyper Link

Creating links within the same sheet

To link a particular cell, first define name to the cell.

- Select the cell, go to Formulas Tab ->Define Names Group -> Define Name. The define name dialogue box will appear. In the define dialogue box type a name for the cell and click on Add. Click on Close.
- Now click on the cell where the hyper link is to be created and Click on Insert-Hyperlink or press Ctrl+K.

- The Insert Hyperlink box will appear. Click on the Browse button of the _Named Location in file‘ option.
- In the browse dialog box click on the option Defined name the defined names for the workbook will appear. Select the defined name, which we created in the above step and click on OK.
- The selected name will appear in the _Named Location in file option. Click on OK. The link is created.

Creating links between different worksheets.

To link a particular cell, first define name to the cell.

- Select the cell, Formulas Tab ->Define Names Group -> Define Name. The define name dialogue box will appear. In the define dialogue box type a name for the cell and click on Add. Click on Close.
- Now click on the cell where the hyper click is to be created and Click on Insert-Hyperlink or press Ctrl+K.
- The Insert Hyperlink box will appear.
- Click on the Browse option of the _Link to file or URL‘ option and select the workbook for which the cell is to be linked.
- Then in the next option i.e. _Named Location in file‘ click on browse.
- In the browse dialog box click on the option Defined name the defined names for the workbook will appear. Select the defined name, which we created in the above step and click on OK.
- The selected name will appear in the _Named Location in file‘ option. Click on OK. The link is created.

Creating links between different software

Let's assume we have to copy a certain data from an excel sheet to the Word document .If you do a normal copy-paste the contents pasted in the Word document are static i.e. they will not be updated even if there is a change of data in the excel worksheet. Now let's see how to create a link so that the data is updated even in the Word document.

- Copy the contents from the Excel worksheet.
- While pasting in a Word document click on Edit-Paste special
- In the Paste Special dialog box select the option Paste Link and click on OK

Now whenever the data in the excel worksheet in changed the change will be automatically reflected in the word document.

Data Form

Excel can generate a built-in data form for your range. The data form displays all of your column labels in a single dialog box, with a blank space beside each label for you to fill in data for the column. You can enter new data; find rows based on cell contents, update existing data, and delete rows from the range.

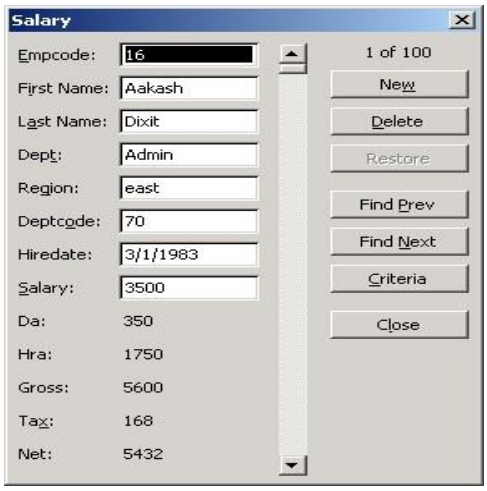
Use a data form when a simple form listing the columns is sufficient and you don't need more sophisticated or custom features. A data form can make data entry easier than typing across the columns when you have a wide range with more columns than will fit on the screen at one time.

Use a data entry form to edit a range or list

A data form is a dialog box that gives you a convenient way to enter or display one complete row of information, or record, in a range or list at one time.
Before you can use a data form to add a record to a new range or list, the range or list must have labels at the top of each column. Microsoft Excel uses these labels to create fields on the form.

Like Excel 2003, Form option/command is not available anywhere. The reason is that the Form option is not available on any of the ribbon tabs. To use the form capabilities of Excel, you'll need to add the option to the Quick Launch Toolbar by following these steps:

1. Click the File->Options. The Excel Options dialog box appears.
2. At the left side of the dialog box, click Customize.
3. Using the Choose Commands From drop-down list, choose Commands Not in the Ribbon.
4. Scroll through the list of commands and select the Form command.
5. Click the Add button. The Form command now appears at the right side of the dialog box.
6. Click OK. The Form command now appears on the Quick Access Toolbar.



Add a record

- Click **New**.
- Type the information for the new record.
- When you finish typing data, press ENTER to add the record.
- When you finish adding records, click **Close** to add the new Record and close the data form.

Modify a record

Find the record you want to change.

To move through records one at a time, use the scroll bar arrows in the dialog box. To move through 10 records at a time, click the scroll bar between the arrows.
To move to the next record in the range or list, click **Find Next**. To move to the previous record in the range or list, click **Find Previous**.

To set search conditions, or comparison criteria, click **Criteria**, then enter the criteria into the data form. To find records that match the criteria, click **Find Next** or **Find Previous**. To return to the data form without searching for records based on the criteria you specified, click **Form**.

Wildcard characters you can use as criteria

The following wildcard characters can be used as comparison criteria for filters, and when searching and replacing content.

Use	To find
? (question mark)	Any single character For example, sm?th finds "smith" and "smyth"
* (asterisk)	Any number of characters For example, *east finds "Northeast" and "Southeast"
~ (tilde) followed by ?, *, or ~	A question mark, asterisk, or tilde For example, fy91~? finds "fy91?"

Change the information in the record.

- Fields that contain formulas display the results of the formula as a label. The label cannot be changed in the data form.
- If you change a record that contains a formula, the formula is not calculated until you press ENTER or click **Close** to update the record.
- To move to the next field, press TAB. To move to the previous field, press SHIFT+TAB.
- When you finish changing data, press ENTER to update the record and move to the next record.
- When you finish changing records, click **Close** to update displayed record and close data form.

Delete a record

- Find the record you want to delete.
- To move through records one at a time, use the scroll bar arrows in the dialog box. To move through 10 records at a time, click the scroll bar between the arrows.
- To move to the next record in the range or list, click **Find Next**. To move to the previous record in the range or list, click **Find Previous**.
- To set search conditions, or comparison criteria, click **Criteria**, then enter the criteria into the data form. To find records that match the criteria, click **Find Next** or **Find Previous**. To return to the data form without searching for records based on the criteria you specified, click **Form**.

Wildcard characters you can use as criteria

- Click **Delete**.

Notes

- Data forms can display a maximum of 32 fields at one time.
- While you are adding or changing a record, you can undo changes by clicking Restore as long as the record is the active record in the data form

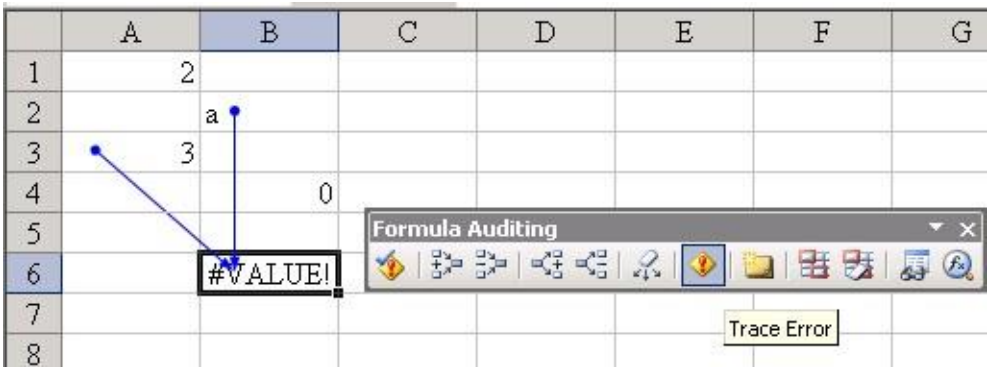
Auditing features

You can use Excel‘s auditing features to trace errors in a worksheet. You can also trace the relationships between cells and formulas on your worksheets.

Tracing errors in a worksheet

When Excel detects an error in a worksheet, it will display an error value in the cell as well as an Error Checking Smart Tag. You can click this smart tag to display a list of commands that can help you to trace and correct the error. The Formula Auditing toolbar also provides tools for doing this.

To correct an error, select the cell that contains the error and then either click the Trace Error button (Formula Tab ->Formula Auditing Group-> Error Checking) or choose the Trace Error command (available through the Smart Tag options or the Formula Tab >Formula Auditing Group). When you do so, you will see *tracer arrows* pointing from the cell containing the error to other cells that contain values used by the formula in the first cell. Red arrows indicate possible sources of the error while blue arrows point to cells that probably are not the cause.



Workgroup collaboration

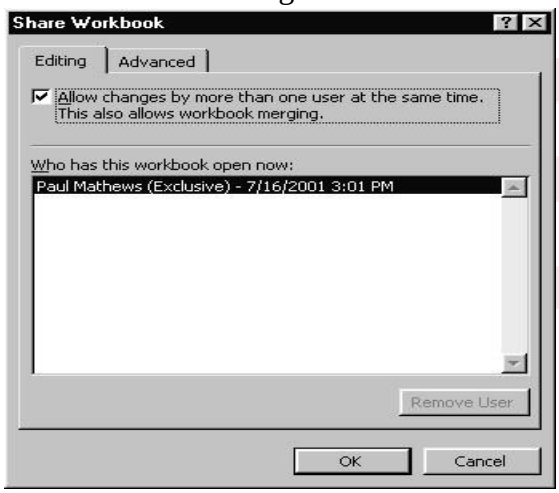
Sharing a workbook makes it possible for several members of a workgroup to collaborate on the same set of data. For example, several sales managers could enter their respective regional sales figures in the same workbook, making it unnecessary to collect and consolidate the data manually.

Sharing workbooks

To share a workbook:

- Open the workbook that you want to share.
- Go to Review Tab ->Changes ->Share Workbook to open the Share Workbook dialog box, and then activate the Editing tab.
- Check Allow changes by more than one user at the same time, and then click OK.
- Save the workbook in a location where other users can access it.

You can control how a workbook is shared by using the advanced tab of the Share Workbook dialog box. For example, under Update changes, you can select when file is saved to see other users‘ changes each time you save the workbook. You can also set the interval at which changes will be shown automatically.



Merging workbooks

You may need to share a workbook among users who cannot access the same file simultaneously. In such a situation, you can distribute copies of the shared workbook, allow users to make changes to their copies, and then merge those copies into a single workbook. To share a workbook that you intend to merge later:

- Open the Share Workbook dialog box, activate the Editing tab, and check Allow changes by more than one user at the same time.

- On the Advanced tab, under Track changes, select Keep change history for. In the box, enter the number of days you want to allow users to make changes in the workbook, and then click OK.
- Make copies of the workbook and distribute one to each user.

After the users have made changes to their copies of the workbook, you can merge the copies into a single workbook. Here‘s how:

- Choose Tools, Compare and Merge Workbooks to open the Select Files to Merge Into Current Workbook dialog box.
- From the list, select the copy or copies of the workbook that contain changes you want to merge.
- Click OK.

Tracking changes

You can analyze changes users have made to a workbook by using the Track Changes feature. This will tell you who made the changes, when they were made, and the original and changed values without having to manually compare the two workbooks. If your workbook is not shared, Excel makes the workbook shared automatically when you turn on the Track Changes feature.
To highlight changes:

- Go to Review Tab ->Changes ->Track Changes ->Highlight Changes to open the Highlight Changes dialog box.
- If the workbook is not shared, check Track changes while editing. If the workbook is shared, this option will be checked by default.
- Specify how you want changes to be tracked:
- If you want view changes based on when they were made (for example, after a specific date), check when and then select the desired setting from the list.
- If you want to view the changes made by a specific user, check whom and then select Everyone, Everyone but your own user name, or me.
- If you want to view the changes made to a specific range of cells, check where and then enter the range.
- Click OK.

To review workbook changes and accept or reject them:

- Open the workbook that has the tracked changes.
- Go to Review Tab ->Changes ->Track Changes ->Accept or Reject Changes. You‘ll be prompted to save the workbook.
- Click OK to save the workbook. The Select Changes to Accept or Reject dialog box appears.

- If you want view changes based on when they were made, check when and then select a time setting.
- Click OK to open the Accept or Reject Changes dialog box. At the same time, the cell that contains the changed value will be highlighted. The dialog box displays information about each change, including the name of the person who made the change, the date and time when it was made, and other changes that will occur if you accept or reject the suggested change. You can scroll down to view the rest of the contents.
- Click Accept to accept the change or Reject to keep the original value. The next cell with a changed value will be highlighted.

Advanced formatting features

Excel has all sorts of formatting features that you can use to quickly format data, increase consistency, or highlight particular data. These features include AutoFormat, conditional formatting, and merging styles.

AutoFormat

The AutoFormat feature provides single-step combinations of text formatting, borders, colors, and shading. The feature works best on data that is logically arranged in a table. By default, the AutoFormat feature will interpret the first row and column of a selected range as headings, and the last row and column as totals.

- To apply an AutoFormat to a range:
- Select the range to which you want to apply the format.
- Go to Home Tab ->Styles Group ->Format a Table to open the AutoFormat galleries.
- From the list of sample formats, select the format you want. You can go for new Table Style also.

Conditional formatting

You can use conditional formatting when you want to apply a format to a cell or range only if certain conditions are met. You can specify a maximum of 64 conditions. Each condition can have a separate format, such as a different font, border, or pattern. Conditional Formatting allows you to change the appearance of a cell, depending on certain conditions. What we'll do is to color the Overall Averages on our Student Exam spreadsheet, depending on the grade. Here's the spreadsheet we'll be working on.

	A	B	C	D	E	F	G	H	I
1		Steven	Mary	Ann	Raymond	Mark	Paul	Eliza	Kelly
2	Maths	76	89	43	48	51	76	87	56
3	English	55	85	78	61	47	87	91	73
4	Science	65	82	39	58	52	65	57	45
5	History	45	91	56	72	49	56	78	56
6	Geography	51	84	54	64	47	64	67	67
7	Art	43	63	49	62	39	89	64	63
8	Computer Studies	63	95	45	59	41	92	89	52
9	French	35	91	65	26	28	51	92	56
10									
11	Overall Average	54.13	85.00	53.63	56.25	44.25	72.50	78.13	58.50

- Highlight the cells with Overall Grades, which should be cells B11 to I11

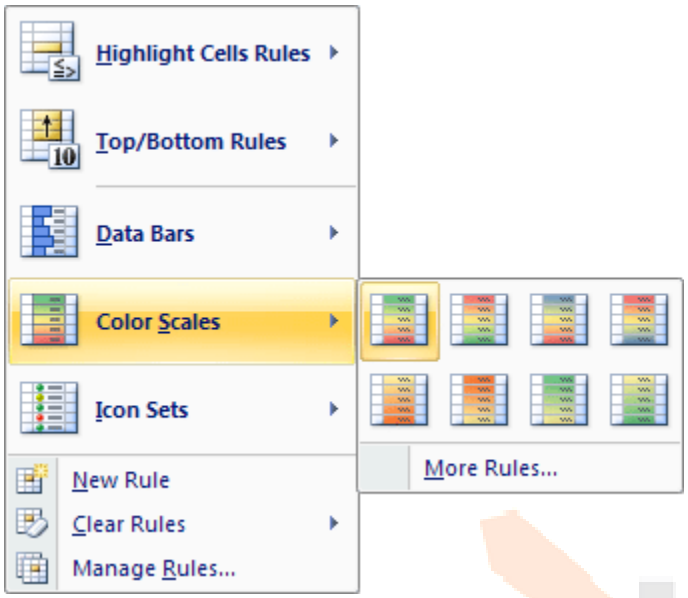
The Overall Averages range from 44 to 85. We'll color each grade, depending on a scale. A different color will apply to the following grades:

- 50 and below
- 51 to 60
- 61 to 70
- 71 to 80
- 81 and above

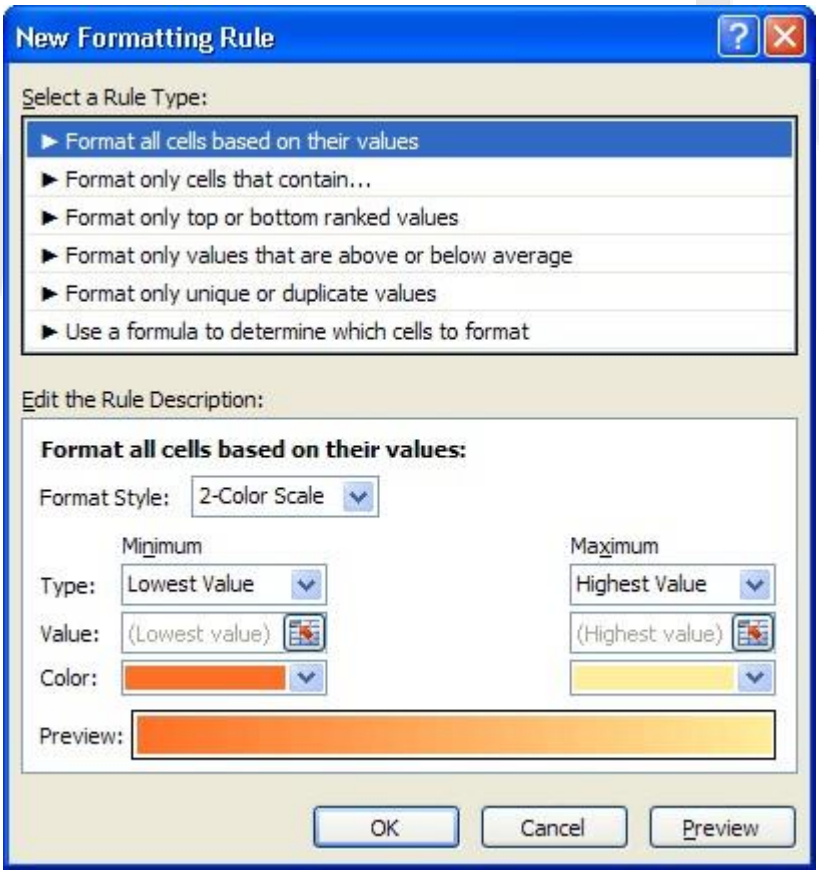
So five different bands, and a color for each. To set the Conditional Formatting in Excel 2010, do the following:

- With your Overall Averages highlighted, click on the Home menu at the top of Excel
- Locate the **Styles** panel, and the **Conditional Formatting** item:

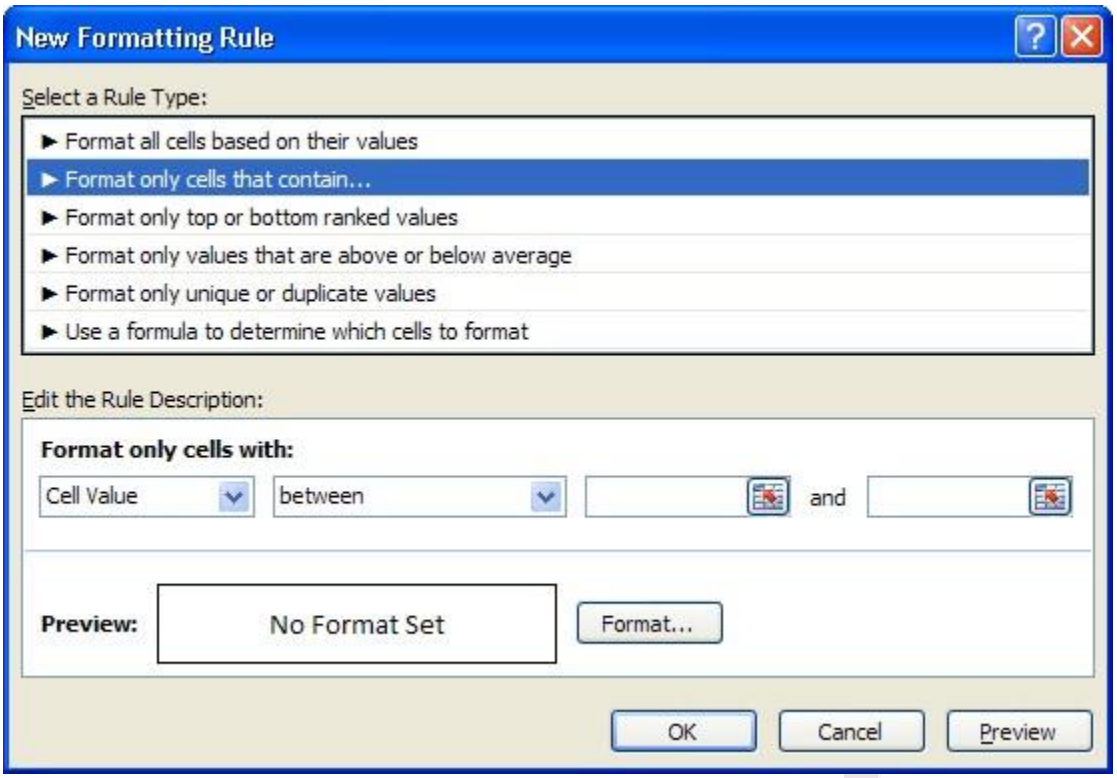
The Conditional Formatting menu gives you various options. The easiest one is the Color Scales option. Select one of these and Excel will color the cell backgrounds for you:



That's not quite what we're looking for, though. We'd like to choose our own values. So click on **More Rules**, from the **Color Scales** submenu. You'll see the following rather complex dialogue box:

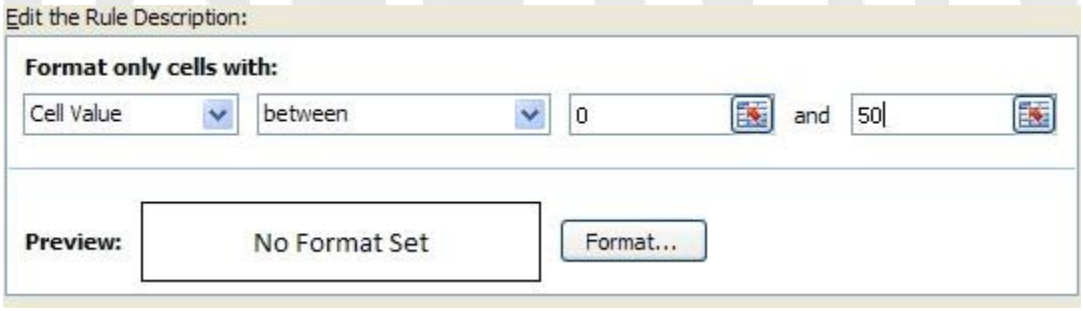


The one we want is the second option, **Format only cells that contain**. This will allow us to set up our values. When you click this option, the dialogue box changes to this:

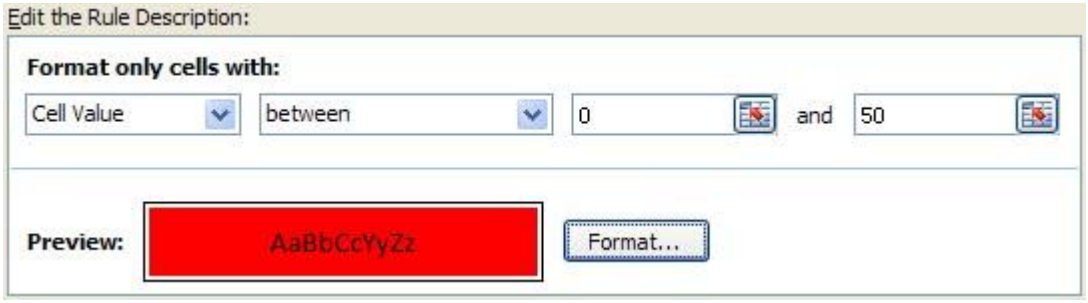


The part we're interested in is the bottom part; under the heading **Edit the Rule Description**. It says **Cell Value** and **Between**, in the drop down boxes. These are the ones we want. We only need to type a value for the two boxes that are currently blank in the image above. We can then click the **Format** button to choose a color.

So type 0 in the first box and 50 in the second one:

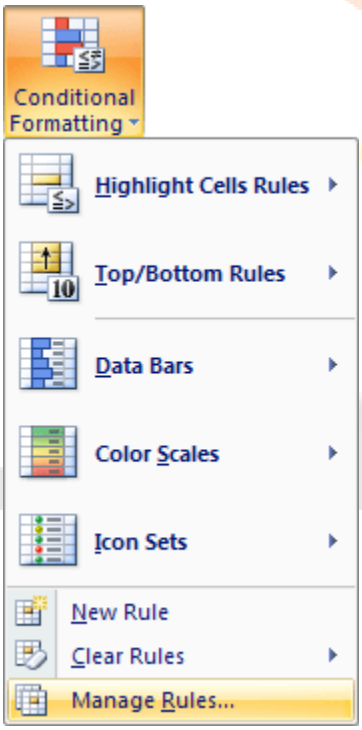


Then click the **Format** button. You'll get another dialogue box popping up. This is just the Format Cells one though. You've met this before. Click on the Fill tab and choose a color. Click OK and you should see something like this under Edit the Rule Description:

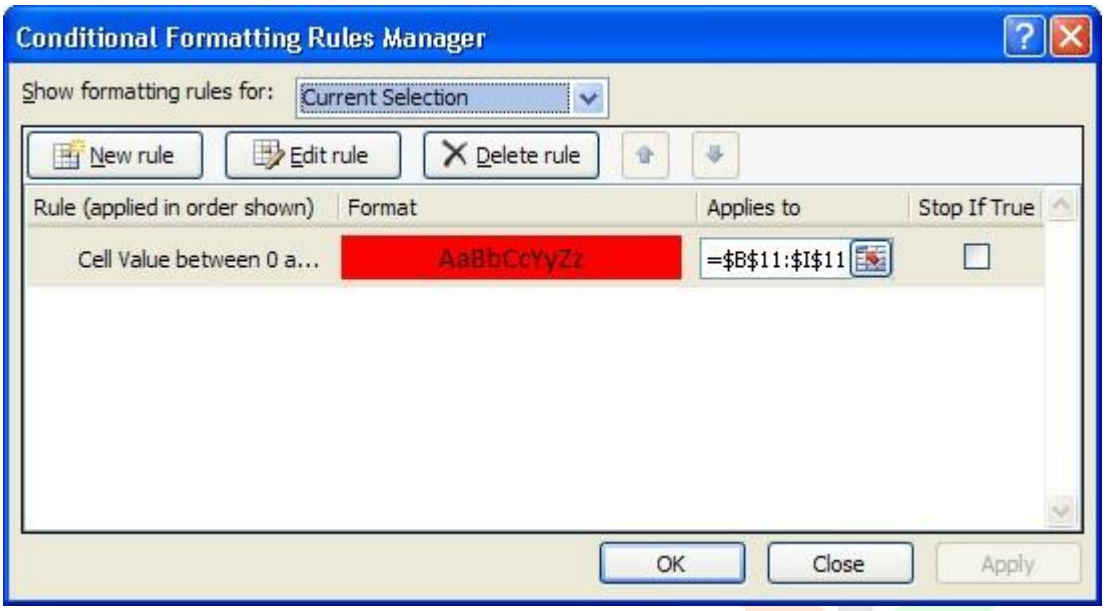


The Preview is showing the color we picked. So we've said, "**If** the Cell Value is between 0 and 50 **then** colors the cell Red".

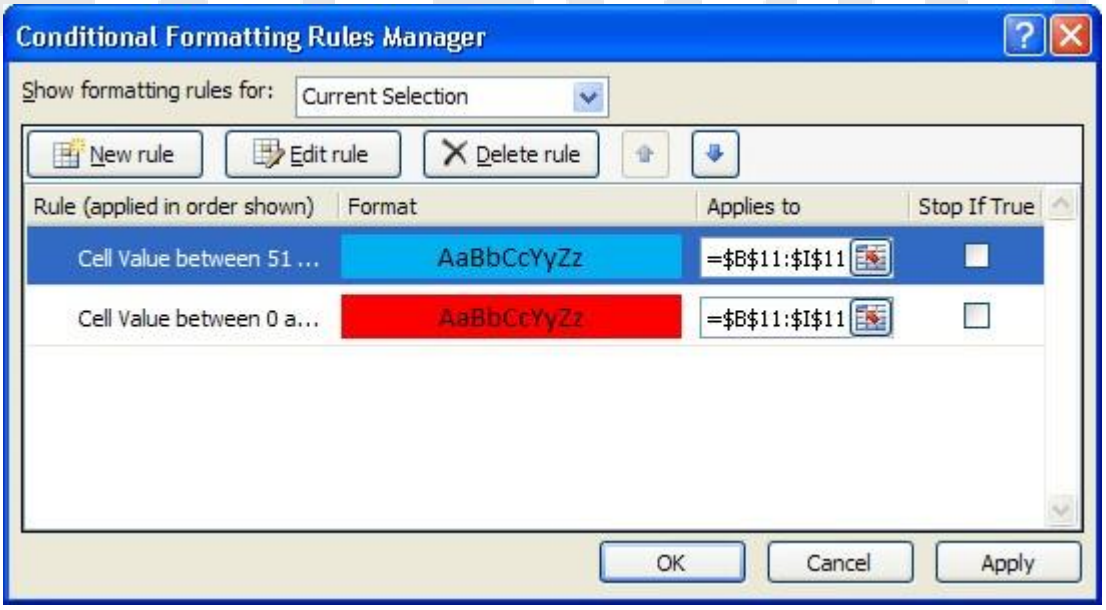
Click OK on this dialogue box to get back to Excel. You should find that one of the cells has turned red. To format the rest of the cells, click on Conditional Formatting on the Styles panel again. From the menu, click on **Manage Rules**:



You'll get yet another complex dialogue box popping up! This one:



Our first rule is already there - Cell Value Between. The only thing we're doing here is adding New Rules, similar to the one we've just set up. Click the **New Rule** button then. You'll see the exact same dialogue boxes you used to set up the first rule. Set a new color for the next scores - 51 to 60. Choose a color, and keep clicking OK until you get back to the Rules Manager dialogue box. It should now look something like this one:

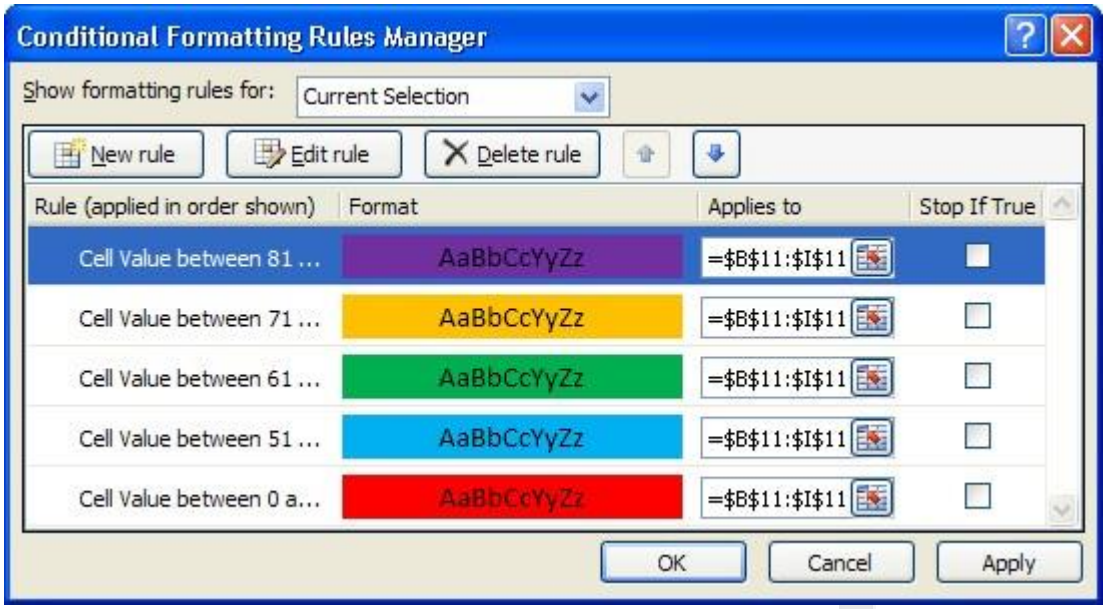


We now have to colors in our range. Do the rest of the scores, choosing a color for each. The scores are these, remember:

- 50 and below
- 51 to 60
- 61 to 70
- 71 to 80

- 81 and above

When you've done them all, your dialogue box should have five colors:



The colors above are entirely arbitrary, and you don't have to select the same ones we did. The point is to have a different color for each range of scores. But click OK when you're done. Your Overall Averages will then look something like this:

	A	B	C	D	E	F	G	H	I
1		Steven	Mary	Ann	Raymond	Mark	Paul	Eliza	Kelly
2	Maths	76	89	43	48	51	76	87	56
3	English	55	85	78	61	47	87	91	73
4	Science	65	82	39	58	52	65	57	45
5	History	45	91	56	72	49	56	78	56
6	Geography	51	84	54	64	47	64	67	67
7	Art	43	63	49	62	39	89	64	63
8	Computer Studies	63	95	45	59	41	92	89	52
9	French	35	91	65	26	28	51	92	56
10									
11	Overall Average	54.13	85.00	53.63	56.25	44.25	72.50	78.13	58.50
12									

Formatting your spreadsheet in this way allows you to see at glance relevant information. In the spreadsheet above, it's obvious who's failing - just look for the red cells!

Macros

What is Macro?

 VBA (Macro), which stands for Visual Basic for Applications, is a programming language developed by Microsoft Excel, along with the other members of Microsoft Office 2003, includes the VBA language (at no extra charge). In a nutshell, VBA is the tool that people like you and me use to develop programs that control Excel. Don't confuse VBA with VB (which stands for Visual Basic). VB is a programming language that lets you create standalone executable programs (those EXE files). Although VBA and VB have a lot in common, they are different animals.

How to Start Recording a Macro

Here are the steps to begin recording a new macro:

- Plan exactly what you want to accomplish, and how to go about it. In fact, you should run through the precise keystrokes that you plan on recording before actually recording them.
- Turn on the recorder using the View Tab ->Macro Group->Record Macro
- Enter a meaningful Macro Name. The name can be up to 255 characters in length, consisting of letters, numbers, and under scores. There can be no spaces or other punctuation marks. (It is common to use underscores or proper case to separate words.) The name must begin with a letter.

VALID	INVALID NAMES	REASON
MyMacro	My Macro	contains a space
Sales_Report	Sales.Report	contains a period
Summary95	95Summary	starts with a numbers
Get_YTD_Info	Y-T-D	contains illegal characters

By default, the Description will include your name and the date. This text is place above the actual macro in the VBA module, as comments. You can add additional comments to explain the purpose of the macro.

- At this point, you can click OK to begin recording. But there are additional settings that are made Available by clicking the Options button. You can create a format of a report, giving Company Name as the header. Insert date to the right corner of a page, also create a format of a table below it with proper headings having special fonts-bold etc.
- After doing other formatting, stop recording the macro – either by clicking the stop recording button or using Tools, Macro, Stop Recording option from the main menu.

Other Options of Macro

Shortcut Key

Check this option if you want to assign a shortcut key for the macro you is about to record. Then enter a key that is to be used in conjunction with the Ctrl key to run the macro. If you check Shortcut Key, and enter T as the Ctrl+key, then after the macro is recorded, pressing Ctrl+T will run the macro.

Store In

These options specify where the macro to be recorded will be stored.

Personal Macro Workbook

This workbook, named PERSONAL.XLS, is automatically opened and hidden, each time you start Excel. This is a good place to store macros that you want available at all times.

This Workbook

Place the macro in the active workbook. If there is no active workbook, this option is not available.

New Workbook

A new workbook will be created, and the macro will be recorded in it.

Stopping the Recorder

There are two ways to stop recording:

- Click the Stop tool.
- Choose Tools, Record Macro, Stop Recording. Or, if there is no active workbook, choose File, Stop Recording.

Running a Macro Using Menu Commands

Go to View Tab ->Macro Group->Macro

Macros that are contained on all currently open workbooks are displayed in the list. To run a macro, select it from the list and click Run. The Macro dialog box provides several additional capabilities:

Step .	Click this button to run the macro step by step. Stepping through a macro is useful for debugging purposes
Edit	The module containing the macro is activated, and the macro is displayed for editing purposes.
Delete	Deletes the selected macro. (You can also delete macros by activating the module and clearing the macro.)
Options	Lets you assign a shortcut key, add a command to Excel's Tools menu that runs the macro, and change the description of the macro.

How to insert button into worksheet and assigning Macro to a Button

- Click Office Button ->Excel Option ->Popular Tab and check on Show Developer tab in the Ribbon
- Go to Developer Tab ->Controls Group ->Form Controls Click the Button tool, and then draw the button on the worksheet.
- The Assign Macro dialog box is displayed.
- Select a macro from the list, and click OK.

Here are two important implications of assigning macros to buttons:

If the macro is in a different workbook than the button, a link is established to the workbook containing the macro. (The workbook will display in the Edit, Links dialog.) If the workbook containing the macro is closed, and you click the button, the workbook containing the macro is opened automatically, and the macro runs.

Note: If you delete a button that is assigned to a macro, the macro is not deleted.

Excel 2010 specifications and limits

Worksheet and workbook specifications and limits

Feature	Maximum limit
Open workbooks	Limited by available memory and system resources
Worksheet size	1,048,576 rows by 16,384 columns
Column width	255 characters
Row height	409 points
Page breaks	1,026 horizontal and vertical
Total number of characters that a cell can contain	32,767 characters
Characters in a header or footer	255
Sheets in a workbook	Limited by available memory (default is 3 sheets)
Colors in a workbook	16 million colors (32 bit with full access to 24 bit color spectrum)
Named in a workbook	Limited by available memory
Unique cell formats/cell styles	64,000
Fill styles	32
Line weight and styles	16
Unique font types	1,024 global fonts available for use; 512 per workbook
Number formats in a workbook	Between 200 and 250, depending on the language version of Excel that you have installed
Names in a workbook	Limited by available memory
Windows in a workbook	Limited by available memory
Panes in a window	4
Linked sheets	Limited by available memory
Scenarios	Limited by available memory; a summary report shows only the first 251 scenarios
Changing cells in a scenario	32
Adjustable cells in Solver	200
Custom functions	Limited by available memory
Zoom range	10 percent to 400 percent
Reports	Limited by available memory
Sort references	64 in a single sort; unlimited when using sequential sorts
Undo levels	100

Fields in a data form	32
Workbook parameters	255 parameters per workbook
Filter drop-down lists	10,000

Calculation specifications and limits

Feature	Maximum limit
Number precision	15 digits
Smallest allowed negative number	-2.2251E-308
Smallest allowed positive number	2.2251E-308
Largest allowed positive number	9.99999999999999E+307
Largest allowed negative number	-9.99999999999999E+307
Largest allowed positive number via formula	1.7976931348623158e+308
Largest allowed negative number via formula	-1.7976931348623158e+308
Length of formula contents	8,192 characters
Internal length of formula	16,384 bytes
Iterations	32,767
Worksheet arrays	Limited by available memory
Selected ranges	2,048
Arguments in a function	255
Nested levels of functions	64
User defined function categories	255
Number of available worksheet functions	341
Size of the operand stack	1,024
Cross-worksheet dependency	64,000 worksheets that can refer to other sheets
Cross-worksheet array formula dependency	Limited by available memory
Area dependency	Limited by available memory
Area dependency per worksheet	Limited by available memory

Dependency on a single cell	4 billion formulas that can depend on a single cell
Linked cell content length from closed workbooks	32,767
Earliest date allowed for calculation	January 1, 1900 (January 1, 1904, if 1904 date system is used)
Latest date allowed for calculation	December 31, 9999
Largest amount of time that can be entered	9999:59:59

Charting specifications and limits

Feature	Maximum limit
Charts linked to a worksheet	Limited by available memory
Worksheets referred to by a chart	255
	255
	32,000
Data points in a data series for 3-D charts	4,000
Data points for all data series in one chart	256,000

PivotTable and PivotChart report specifications and limits

Feature	Maximum limit
PivotTable reports on a sheet	Limited by available memory
Unique items per field	1,048,576
Row or in a PivotTable report	Limited by available memory
Report filters in a PivotTable report	256 (may be limited by available memory)
Value fields in a PivotTable report	256
Calculated item formulas in a PivotTable	Limited by available memory report
Report filters in a	256 (may be limited by available memory)

Value fields in a PivotChart report	256
Calculated item formulas in a PivotChart report	Limited by available memory
Length of the MDX name for a PivotTable	32,767 item
Length for a relational PivotTable string	32,767

Shared workbook specifications and limits

Feature	Maximum limit
Users who can open and share a at the same time	256
Personal in a shared workbook	Limited by available memory
Days that is maintained	32,767 (default is 30 days)
Workbooks that can be merged at one time	Limited by available memory
Cells that can be highlighted in a shared workbook	32,767
Colors used to identify changes made by different users when change highlighting is turned on	32 (each user is identified by a separate color; changes made by the current user are highlighted with navy blue)

Short Cut Keys For Excel 2010

Select cells, columns, rows or object in worksheets and workbooks By using keyboard shortcut keys	
Select the current region around the active cell (the current region is an area enclosed by blank rows and blank columns)	CTRL + SHIFT + *(ASTERISK)
Select the entire column	CTRL + SPACEBAR
Select the entire row	SHIFT + SPACEBAR
Select the entire worksheet	CTRL + A
If multiple cells are selected, select only the active cell	SHIFT + BAKSPACE
Extend the selection down one screen	SHIFT + PAGE DOWN
Extend the selection up one screen	SHIFT + PAGE UP
With an object selected, select all objects on a sheet	CTRL + SHIFT + SPACEBAR
Alternate between hiding objects, displaying objects and displaying placeholders for objects	CTRL + 6
Show or hide standard toolbar	CTRL + 7

Move and scroll on a worksheet or workbook by using shortcut keys	
Move between unlocked cells on a protected worksheet	TAB
Move to the beginning of the row	HOME
Move to the beginning of the worksheet	CTRL + HOME
Move to the last cell on the worksheet	CTRL + END
Move down one screen	PAGE DOWN
Move up one screen	PAGE UP
Move one screen to the right	ALT + PAGE DOWN
Move one screen to the left	ALT + PAGE UP
Move to the next sheet in the workbook	CTRL + PAGE DOWN
Move to the previous sheet in the workbook	CTRL + PAGE UP
Move to the next workbook or window	CTRL + F6 or CTRL + TAB
Move to the previous workbook or window	CTRL + SHIFT + F6
Move to the next pane	F6
Move to the previous pane	SHIFT + F6

Format data by using shortcut keys	
Display the style command (Format menu)	ALT + _ (APOSTROPHE)
Display the cells command (Format menu)	CTRL + 1
Apply the general number format	CTRL + SHIFT + ~ (TILD)
Apply the Currency format with two decimal places (negative numbers appear in parenthesis)	CTRL + SHIFT + $
Apply the Percentage format with no decimal places	CTRL + SHIFT + %
Apply the Exponential number format with two decimal places	CTRL + SHIFT + ^

Select cells with special characteristics by using shortcut keys	
Select the current region around the active cell (the current region is an area enclosed by blank rows and blank columns)	CTRL + SHIFT + *(ASTERISK)
Select the current array, which is the array that the active cell belongs to	CTRL + /
Select all cells with comments	CTRL + SHIFT + O
Select only visible cells in the current selection	ALT + ; (SEMICOLON)

Apply the date format with the day , month and year	CTRL + SHIFT + #
Apply the time format with the hour and minute and indicate A.M. or P.M.	CTRL + SHIFT + @
Apply the number format with two decimal places, 1000 separator, and – for negative values	CTRL + SHIFT + !
Apply the outline border	CTRL + SHIFT + &
Remove all borders	CTRL + SHIFT + -
Apply or remove bold formatting	CTRL + B
Apply or remove italic formatting	CTRL + I
Apply or remove an underling formatting	CTRL + U
Apply or remove strikethrough formatting	CTRL + 5
Hide rows	CTRL + 9
Unhide rows	CTRL + SHIFT + (
Hide columns	CTRL + 0 (ZERO)
Unhide columns	CTRL + SHIFT +)

Print and preview a document by using shortcut key	
Display the print command (File menu)	CTRL + P

Keys for menus	
Show a shortcut menu	SHIFT + F10
Make the menu bar active	F10 or ALT
Show the program icon menu (on the program title bar)	ALT + SPACEBAR

Edit data by using shortcut keys	
Edit the active cell and complete	F2 + Enter
Cancel an entry in the cell or formula bar	ESC
Edit the active cell and then clear it or delete the preceding character in the active cell as you edit the cell contents	BACKSPACE
Paste a name into a formula	F3
Enter a formula as an array formula	CTRL + SHIFT + ENTER
Display the Formula Palette after you have a valid function name in a formula	CTRL + A
Insert the argument names and parentheses for a function, after you type a valid function name in a formula	CTRL + SHIFT +A
Insert, delete and copy a selection by using shortcut keys	
Copy the selection	CTRL + C
Paste the selection	CTRL + V
Cut the selection	CTRL + X
Clear the contents of the selection	DELETE
Insert blank cells	CTRL + SHIFT + PLUS SIGN
Delete the selection	CTRL + -
Undo the last action	CTRL + Z