

Using Microsoft Office 2003

Advanced Excel Handout

INFORMATION TECHNOLOGY SERVICES
California State University, Los Angeles

Version 1.1

Fall 2005

Contents

Advanced Microsoft Excel 2003	2
Worksheet/Workbook Enhancements	2
Viewing Workbook Properties.....	2
Editing Workbook Properties.....	3
Creating Comments.....	4
Viewing a Comment.....	4
Printing Comments.....	5
Using Paste Special	5
Working with Paste Special	5
Copying Values Between Worksheets	5
Copying Formulas Between Worksheets	6
Organizational Charts.....	6
Working with Diagrams	6
Advanced Charting.....	7
Adding a 3-D Effect	7
Applying a 3-D Setting	8
Adding and Removing Gridlines.....	8
Changing the Axis Scaling.....	9
Changing Data Series Chart Types	9
Adding a Trendline.....	10
Macros.....	10
Defining Macros.....	10
Recording a Macro	11
Running a Macro.....	12
Setting the Security Level.....	12
Deleting a Macro	13
Database.....	13
Using a Database.....	13
Creating and Saving a Database.....	13
Modifying A Database	14
Viewing Records in Data Form.....	15
Editing Records in Data Form.....	15
Adding Records in Data Form	16
Deleting Records in Data Form.....	16
Sorting Lists	16
Sorting in Ascending/Descending Order.....	17

For additional written instructional guides, visit us @ <http://www.calstatela.edu/handouts>

Advanced Microsoft Excel 2003

Microsoft Excel 2003 is a software application that can be used as a spreadsheet, database, or graphing program. The electronic spreadsheet portion of Excel allows performing sophisticated calculations and creating formulas that automatically calculate answers. Data management capability allows manipulating lists of information such as names, addresses, inventory items, prices, etc. The information created in an Excel spreadsheet or database can be used to create Excel charts. In addition, Excel shares features, such as the **Research Task Pane**, with other **Microsoft Office 2003** applications that can be used to look up the current exchange rate for currencies or check the current stock price of a publicly traded company.

This handout presents some advanced features the program offers such as macros, paste special, organizational chart, advanced charting, and database management. These are the features most commonly used by students and professionals in all fields. Other handouts include [Introduction to Excel](#) and [Intermediate Excel](#).

Worksheet/Workbook Enhancements


Worksheet/workbook enhancements focus on the features Excel offers for internal use. When changing workbook properties, none of the data in the workbook is changed - only the description of the file. When cell comments are entered, the content of the cell does not change; cell comments only provide a description or explanation of the value in a particular cell.

VIEWING WORKBOOK PROPERTIES

Workbook properties are the information attached to a workbook to summarize its purpose or to help users locate it. Usually this information can be found in the *Properties* dialog box, which contains fixed and modifiable information. Fixed information includes statistics such as the size of the workbook, the date the workbook was created, modified, date last accessed and the name of the last person who saved the workbook.

There are several ways to view the workbook properties: 1) accessing the *Properties* dialog box for an open workbook, 2) displaying the ***Properties*** view in the *Open* dialog box of a closed workbook, or 3) enabling the ***Save preview picture*** check box on the *Summary* tab of the *Properties* dialog box. The last option allows previewing the first few rows and columns of the worksheet from the *Open* dialog box the next time the same workbook is accessed (see Figure 1).

To view the file properties from the *Open* dialog box:

1. Select the **File** menu ► **O**pen command. The *Open* dialog box opens (see Figure 1).
2. Click the **Look in:** drop-down box and select the file source drive and folder.
3. Select the specific file to see its properties.
4. Click the arrow button next to the **Views** button  ► **P**roperties command (see Figure 1). The properties of the selected file will appear on the right-hand side of the *Open* dialog box (see Figure 2).

!NOTE:

A brief properties description (size, type, date modified) of the workbook can be viewed by selecting **D**etails command in the **V**iews drop-down list of the *Open* dialog box.

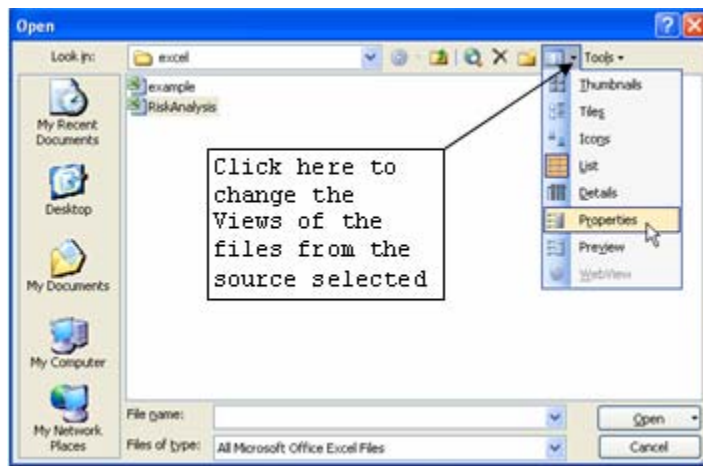


Figure 1 - Views Drop-down List in the Open Dialog Box

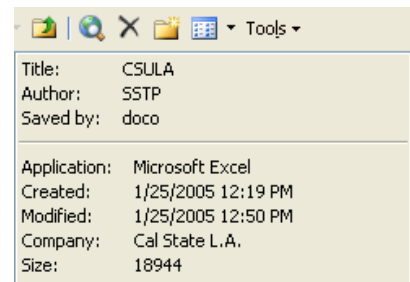


Figure 2 - File Properties

EDITING WORKBOOK PROPERTIES

The complete workbook properties can be found in the *Properties* dialog box. The *Summary* tab contains preset fields where a user can insert new or modify existing information. The user can also enter the title and subject text, enter or change the name of the author, assign categories or keywords, or include comments. In addition to the existing fields, there are options in the *Custom* tab to create new fields and field information.

To edit workbook properties:

1. Open the file.
2. Select the **File** menu ► **Properties** command. The *Properties* dialog box opens (see Figure 3).

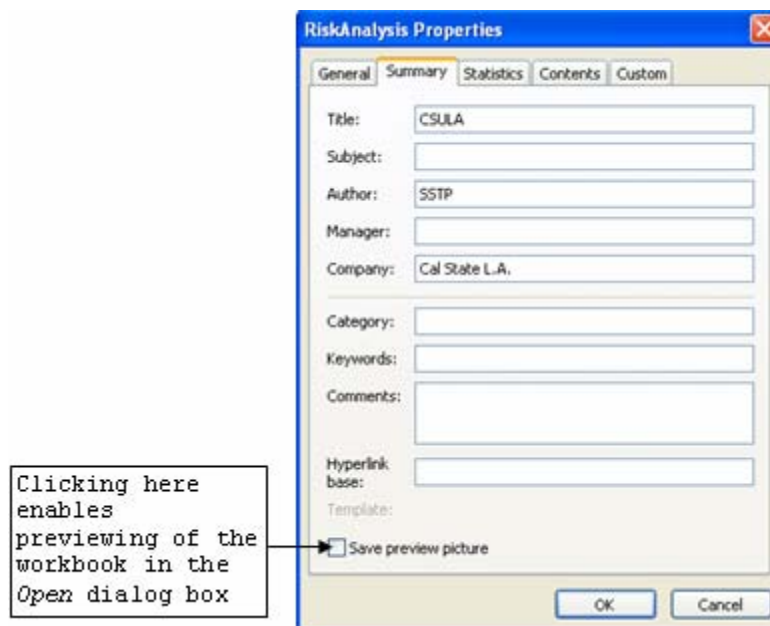


Figure 3 - Editing Workbook Properties from the Properties Dialog Box

3. Click the *Summary* tab.
4. Type the change(s) in the text box(es) of desired field(s) ► **OK** button.
5. Click the **Save** button on the **Standard** toolbar to save the workbook and its edited properties.


CREATING COMMENTS

Comments are help notes added to a worksheet. Comments can be used to provide information about data in a cell or about the worksheet itself. For example, comments can describe how the user arrived at a particular formula in a cell, or list the telephone numbers of a client to whom the data in the worksheet refers. When a comment is attached to a cell, a red indicator appears in the upper, right corner of the cell (see Figure 4). Comments are useful in communication with other users when working in shared workbooks on a network. Comments can be an effective way to explain data or the reason for a change since it includes the name of the current user. For example, if some of the users change a value in a shared workbook, a comment helps in explaining why the value was changed (see Figure 4).

Year	Cash Flow
1	2,100,000.00
2	700,000.00
3	700,000.00
4	700,000.00
5	700,000.00
6	700,000.00
WACC	12%
Risk Premium	7%

Figure 4 - Adding a Comment to a Cell

To create comments:

1. Select the cell to add a comment to.
2. Select the **View** menu ► **Toolbars** ► **Reviewing**. The **Reviewing** toolbar appears.
3. Click the **New Comment** button  on the **Reviewing** toolbar.
4. Type the desired comment.
5. Click anywhere in the worksheet to exit the comment box.

!NOTE:

An alternative way to create a comment is by right-clicking a cell and selecting the **Insert Comment** command from the pop-up menu.

Comments automatically include the name of the current user. If the name should not be included, or if the name is incorrect, delete or change the existing name by selecting the **Tools** menu ► **Options** ► *General* tab ► **User name:** text box (where the name can be edited).

If a red indicator does not appear in a cell with a comment attached to it, select the **Tools** menu ► **Options** ► *View* tab ► **Comment indicator only** option button.

VIEWING A COMMENT

The comments can be viewed using the same technique as viewing *ScreenTips*. When the mouse pointer is positioned over any cell that has a comment attached to it, the comment appears in a comment box next to the cell. To hide the comment, move the mouse pointer away from the cell.

!NOTE:

To permanently display comments, right-click the cell and select the **Show/Hide Comment** command from the pop-up menu.

PRINTING COMMENTS

The comments can be printed on a separate page at the end of a printed worksheet or in order of appearance on the worksheet. Comments that print on a separate page at the end of the printed worksheet display the cell address, the author of the comment, and the text that appears in the comment. Printing comments on a separate page is useful when describing certain formulas, for example.

To print all the comments of a worksheet:

1. Select the **F**ile menu ► **P**age **S**etup.... The *Page Setup* dialog box opens ► *Sheet* tab.
2. In the *Print* section, click the **C**omments: drop-down list box and select the *At end of sheet* or *As displayed on sheet* option.
3. Click the **P**rint... button ► **O**K button.

Using Paste Special

There may be times when it is necessary to paste only certain aspects of copied data (such as formulas, values, or formats). For example, the user wants to copy and paste all the formulas in a worksheet, but not their formatting. The **Paste Special** feature allows specifying which aspect of the copied data to paste: there are options to paste all cell attributes or only selected ones.


WORKING WITH PASTE SPECIAL

When copying the contents of a cell or a range of cells, any formatting that has been applied to it is copied, as well as the cell contents. When the user subsequently pastes the copied data, an exact copy of both the contents and its formatting is pasted.

To use the **Paste Special** option:

- Select the **E**dit menu ► **P**aste **S**pecial.... The *Paste Special* dialog box opens (see Figure 5).

Or

- Click the arrow button on the **P**aste button  on the **Standard** toolbar ► **P**aste **S**pecial....

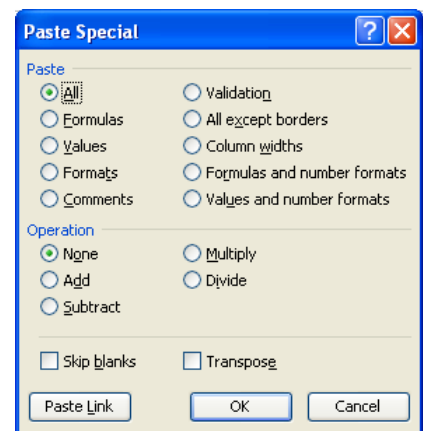



Figure 5 - Paste Special Dialog Box

COPYING VALUES BETWEEN WORKSHEETS

There may be times when it is necessary to copy the results of a formula, but not the formula itself. For example, a user may want to copy the totals from quarterly worksheets (in which each total is the result of a formula) to a summary worksheet (which only requires the formula results or totals).

To copy values between worksheets:

1. Select the worksheet containing the values to copy.
2. Select the range of cells containing the values to copy.
3. Click the **C**opy button  on the **Standard** toolbar.
4. Select the destination worksheet to paste the values.
5. Select the cell in the upper left corner of the paste range.
6. Select the **E**dit menu ► **P**aste **S**pecial... command. The *Paste Special* dialog box opens (see Figure 5).
7. In the *Paste* section, click the **V**alues option ► **O**K button.

COPYING FORMULAS BETWEEN WORKSHEETS

When it is necessary to copy a formula from one worksheet to another, only the formula itself can be pasted, not its format. This option is useful if the user does not want to overwrite existing formatting in the paste range.

There are two types of cell references - relative and absolute. When a formula is pasted, relative cell references in the formula adjust to the location of the new formula. Absolute cell references, however, do not adjust and will always refer to the absolute cell address.


To copy values between worksheets:

1. Follow steps 1 to 6 in the previous section.
2. In the *Paste* section, select the **Formulas** option ► **OK** button.

Organizational Charts

Excel includes several preset diagrams to visually represent related information. There are five predefined diagrams from which the user can choose: “*Venn*,” “*Cycle*,” “*Pyramid*,” “*Target*,” and “*Radial*.” An “*Organization Chart*” is also available in the *Diagram Gallery* dialog box (see Figure 6). When inserting a new diagram, it is placed on a drawing canvas. The canvas can then be resized to fit the diagram.

To insert a diagram:

1. Click the **Insert Diagram or Organization Chart** button  on the **Drawing** toolbar. The *Diagram Gallery* dialog box opens (see Figure 6).
2. Click the desired diagram type button ► **OK** button.

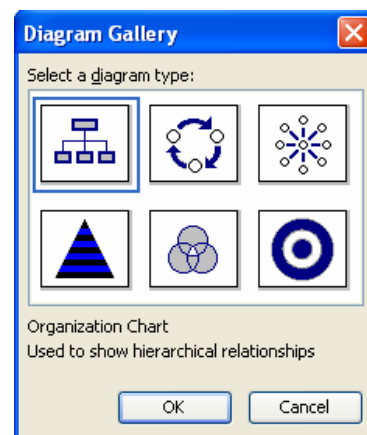



Figure 6 - Diagram Gallery Dialog Box

WORKING WITH DIAGRAMS

A diagram can be customized. For instance, additional shapes can be inserted and moved from front to back, labels can be added, and the shapes within the diagram can be changed to different colors and/or styles to emphasize distinct concepts. Excel also provides an **AutoFormat** feature that allows selection from predefined styles. The user can disable this feature if desired.

Diagram layout options include tightly fitting the drawing canvas to the diagram, expanding the drawing canvas to add more white space around the diagram, and scaling the diagram to resize it. To freely move diagram elements, it is necessary to disable the **AutoLayout** feature on the **Diagram** toolbar (see Figure 7).

Even after the diagram has been created, it can be changed to another diagram type by selecting the **Change to** button  on the **Diagram** toolbar. When changing diagram types, Excel enables both the **AutoLayout** and **AutoFormat** features.

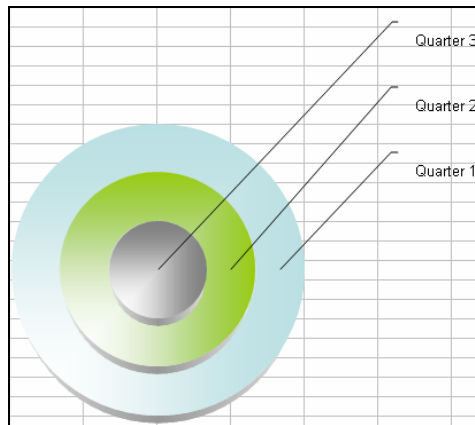





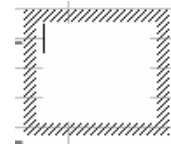


Figure 7 - Diagram (Target Layout)

To work with diagrams:

1. Select the diagram to modify.
2. To add a label, click the “**Click to add text**” display text on the diagram. A cursor will appear in the text box (see image on the right).
3. Type the desired label text. Labels can be added to other diagram shapes as desired.
4. To add a new unit to the diagram shape, select the **Insert Shape** button  on the **Diagram** toolbar.
5. To move the diagram shapes in either direction, click the **Move Shape Forward** button  or **Move Shape Backward** button  on the **Diagram** toolbar.
6. To apply a pre-defined format to the diagram click the **AutoFormat** button  on the **Diagram** toolbar, select the desired style ► **OK** button.
7. To modify the diagram layout, select the **Layout** button  on the **Diagram** toolbar and select the desired layout option.



Advanced Charting

After creating a chart, additional information or different elements may be added to the chart. Excel enables manipulation of any part of a chart as well as adding elements. Information in a newly created chart will usually have to be modified for effective presentation.

ADDING A 3-D EFFECT

An object can appear three-dimensional by adding a 3-D effect (see Figure 8). For example, when creating a logo, a 3-D effect makes the object stand out from the page. There are a variety of different 3-D styles to select from.

!NOTE:

An object can have either a shadow or a 3-D effect, but not both. A line color cannot be assigned to fill a 3-D object, but the fill color can be changed.

To add 3-D effect to an object:

1. Select the **View** menu ► **Toolbars** command ► **Drawing** toolbar.
2. Select the object to add a 3-D effect by clicking it.

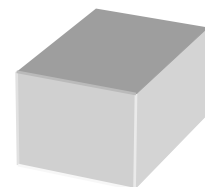



Figure 8 - An Object with a 3-D effect

3. Click the **3-D Style** button  on the **Drawing** toolbar.
4. Select the desired 3-D style.

APPLYING A 3-D SETTING

Once a 3-D effect is added to an object, the user can apply various depth, direction, lighting, surface, and color settings. There are also abilities to tilt 3-D objects down, up, left, or right. Depending on the object selected, certain options may not be available.

!NOTE:

If 3-D settings are applied to a selected object without having selected a 3-D style, certain options will have no effect.

To apply a 3-D setting to an object:


1. Select the **View** menu ► **Toolbars** ► **Drawing**.
The **Drawing** toolbar appears.
2. Select the object to apply a 3-D setting.
3. Click the **3-D Style** button  on the **Drawing** toolbar.
4. Select one of the 3-D options available.
5. Click the **3-D Style** button again ► **3-D Settings...**. The **3-D Settings** toolbar appears (see Figure 9).
6. Select the desired option(s) to adjust the appearance of the object.
7. Click anywhere in the worksheet area to deselect the object.



Figure 9 - 3-D Settings Toolbar

ADDING AND REMOVING GRIDLINES

Gridlines are the lines that start at the tick marks on an axis and extend through the plot area. Gridlines are usually added for a value axis and make it easier to read the value of a data series. Gridlines can also be used for a category axis to create separations in the data.

Excel includes two types of gridlines: major and minor. For a value axis, major gridlines appear along the numbers on the value axis and minor gridlines appear between the numbers. By default, only the major gridlines of the value axis are included in a chart. The user can add or remove major and minor gridlines to and from the category or value axis while creating the chart with the **Chart Wizard**. Gridlines can also be added after the chart is created.

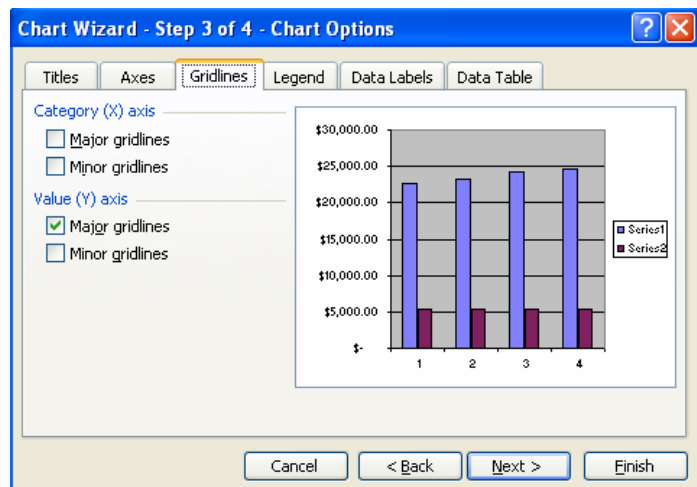


Figure 10 - Adding New Gridlines

To add/remove gridlines to a chart:

1. Right-click a blank area of the chart area. A pop-up menu opens.
2. Select the **Chart Options...** command. The **Chart Options** dialog box opens.
3. Select the **Gridlines** tab (see Figure 10).
4. Select or deselect the desired gridline options ► **OK** button.

CHANGING THE AXIS SCALING

When a chart is created, Excel automatically creates a scale for the value axis based on the data in the chart. This scaling can be changed if desired. The options in the *Auto* section of the *Scale* tab in the *Format Axis* dialog box (see Figure 11) are selected by default. When these options are selected, Excel overrides any manual settings. As soon as the user manually changes any of the scaling values, the corresponding check boxes in the *Auto* section are deselected allowing the manual values to be applied to the chart. To restore the scaling to its original values, reselect the appropriate check boxes in the *Auto* section.

The **Minimum:** and **Maximum:** options control the set of the lowest and highest numbers on the axis, while the **Major unit:** and **Minor unit:** options control the determination of how the axis is divided between the minimum and maximum values and the frequency of major and minor gridlines. The user can also manipulate where the category axis crosses the value axis. The default value is “0”, but it can be any number between the maximum and minimum values.

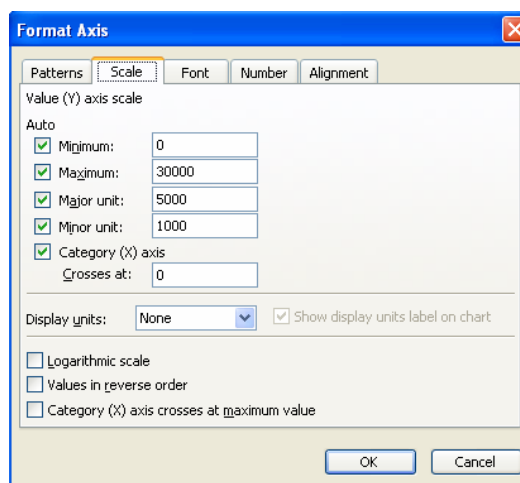


Figure 11 - Format Axis Dialog Box

To change axis scaling:

1. Double-click the chart axis being changed. The *Format Axis* dialog box opens.
2. Select the *Scale* tab (see Figure 11).
3. Enter the value in the text box(es) of the scale(s) ► **OK** button.

CHANGING DATA SERIES CHART TYPES

Excel allows mixing different chart types within a single chart to create a combination chart. For example, if it is necessary to show the total sales for a product in a column format and at the same time show the number of retail outlets in a line format. Mixing chart types can help show the relationships between the data series more accurately and may improve the overall appearance and clarity of the chart (see Figure 12).

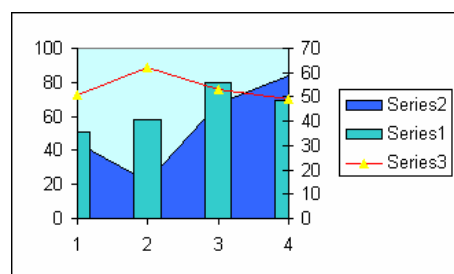


Figure 12 - Using Mixed Chart Types

To change the chart type of a data series:

1. Right-click the data series object on the chart. A pop-up menu opens.
2. Select the **Chart Type...** command. The *Chart Type* dialog box opens.
3. Select the *Standard Types* tab.
4. Select the chart type to use from the **Chart type:** list box.
5. Select the desired sub-type in the **Chart sub-type:** list box ► **OK** button.

To select a combination chart type:

1. Right-click the data series object on the chart. A pop-up menu opens.
2. Select the **Chart Type...** command. The *Chart Type* dialog box opens.
3. Select the *Custom Types* tab.
4. Select the chart type to use from the **Chart type:** list box ► **OK** button.

!NOTE:

Combination charts include *Column-Area*, *Line-Column*, *Line-Column on 2 Axes*, and *Line on 2 Axes*.

ADDING A TRENDLINE

Because of the varying height of the bars in a column chart, it is sometimes difficult to determine the general direction or trend of the data. Excel enables to quickly add a trendline to a data series (see Figure 13). A trendline has the effect of smoothing out rough spots in the data of a chart and overall provides a better picture of the data series. Trendlines are commonly used for data charted over time.

To add a trendline to a data series:

1. Right-click the data series object on the chart. A pop-up menu opens.
2. Select **Add Trendline...** ► *Type* tab.
3. Select the trendline type in the *Trend/Regression type* section ► **OK** button.
4. Click the blank area of the chart to deselect the trendline.

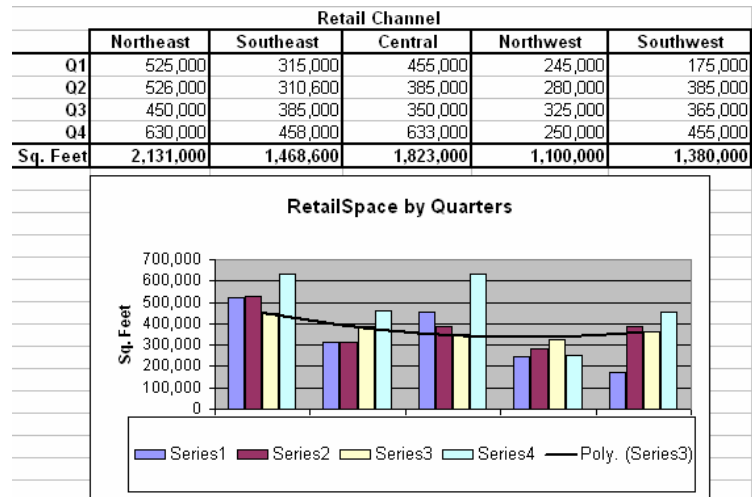


Figure 13 - Adding a Trendline

To delete the trendline, select it and press the **[Delete]** key.

!NOTE:

The **Add Trendline...** pop-up menu item may not be available on all chart types, particularly those that use a 3-D visual effect.

Macros

A macro is a program created to automatically perform frequently used operations. It contains all the commands, mouse movements, and user actions necessary to complete a task. Macros can save a considerable amount of time by automating repetitive, time-consuming tasks. Macros can be used for simple tasks performed frequently or for complex tasks that require consistency.

DEFINING MACROS

Excel macros are written in **Visual Basic for Applications** programming language. The series of commands used in a macro is known as a procedure. Each procedure is given a name that is used to execute the macro.

Each procedure is saved in an object called a module. The module is attached to the worksheet where the macro is stored. The module is hidden and cannot be seen in the normal window view. To select the module to view and edit the macro commands, the **Visual Basic Editor** must be used.

All procedures begin with the word “**Sub**”, followed by the name of the macro and an opening and a closing parenthesis. Procedures end with the words “**End Sub**.” Commands entered between these two lines are macro statements. When recording a procedure, Visual Basic translates the menu choices and keystrokes into the macro statements. Comments may also be inserted into a procedure to add clarity. Users familiar with Visual Basic can write a procedure instead of using the macro recorder.

!NOTE:

A macro can be stored in a specific workbook or in the “**Personal Macro Workbook**.” Macros stored in a specific workbook can only be used when that workbook is open. The “**Personal Macro Workbook**” automatically opens when Excel starts. As a result, macros stored in the “**Personal Macro Workbook**” are available to all files.

RECORDING A MACRO

A macro can be created using the macro recorder. Excel records the macro as the user performs the steps to include in it. The steps are not recorded as simple keystrokes but are translated into the Visual Basic for Applications programming language which translates the steps into macro statements.

When recording a macro, Excel creates a module in the current worksheet. As the user performs the macro keystrokes, the keystrokes are saved as Visual Basic language statements in that module. A module can contain more than one macro.

During the macro recording process the user names the macro and enters descriptive information about it. This information is entered in the *Record Macro* dialog box and appears as a comment in the module.

!NOTE:

If a macro is recorded to the “**Personal Macro Workbook**,” the user is prompted to save the changes when Excel is exited.

A macro can also be recorded by selecting the **T**ools menu ► **M**acro ► **R**ecord New Macro....

Some words are reserved and cannot be used in a macro name; invalid words are usually macro commands such as “**Date**,” “**If**” or “**Next**”.

To record a macro:



1. Display the **Visual Basic** toolbar (see Figure 14) by selecting the **V**iew menu ► **T**oolbars ► **V**isual **B**asic command.
2. Click the **Record Macro** button  on the **Visual Basic** toolbar. The *Record Macro* dialog box opens (see Figure 15).



Figure 14 - Visual Basic Toolbar



Figure 15 - Record Macro Dialog Box

3. Type the desired macro name in the ***Macro name:*** text box.
4. Type a character for a shortcut in the ***Shortcut key:*** text box (optional).
5. Specify where to save the macro by clicking the ***Store macro in:*** drop-down list.
6. Type the macro description by replacing the text in the ***Description:*** text box (optional).
7. Click the **OK** button. Every step performed will be recorded as a step in the macro.
8. When finished recording macro steps, click the **Stop Recording** button  on the **Visual Basic** toolbar.
9. Use the key combination of [Ctrl+(shortcut key)] to run the macro.

RUNNING A MACRO

Macros are saved in modules, and both are saved within the workbook where written. Before the user can run a macro, the workbook in which it is saved must be open. When a macro from the *Macro* dialog box is selected, Excel performs the commands in sequence. Macros in any open workbook can be run from any other open workbook.

To run a macro:

1. Select the **Tools** menu ► **Macro** ► **Macros...** command. The *Macro* dialog box opens (see Figure 16).
2. Select the macro to run from the list under ***Macro name:*** list box ► **Run** button.

!NOTE:

Macros can also be run by clicking the **Run Macro** button on the **Visual Basic** toolbar.

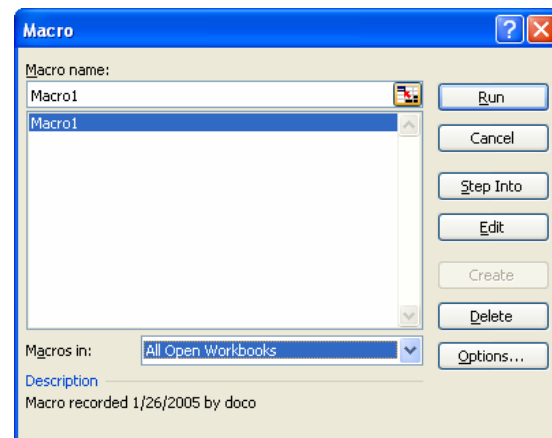


Figure 16 - Running a Macro

Setting the Security Level

To function properly, macro security must be set to medium.

To set the security level:

1. Select the **Tools** menu ► **Options...** command. The *Options* dialog box opens.
2. Click the **Security** tab ► **Macro Security...** button. The *Security* dialog box opens.
3. Click the **Security Level** tab.
4. Select the **Medium** option button ► **OK** button.
5. Click the **OK** button.


DELETING A MACRO

Macros no longer useful can be deleted. Since macros can invoke other macros, make sure that the macro being deleted is not needed by another macro. If a macro is stored in a workbook, the workbook must be open to delete the macro. If the macro is stored in the “***Personal Macro Workbook***,” which automatically loads as a hidden window every time Excel is opened, the “***Personal Macro Workbook***” window must be unhidden before the macro can be deleted.

To unhide the ***Personal Macro Workbook***:

1. Select the **Window** menu ► **Unhide...** command. The *Unhide* dialog box opens.
2. Select the file ► **OK** button. If a macro from the “***Personal Macro Workbook***” is deleted, Excel prompts to save the changes before exiting the program.

To delete a macro:

1. Click the **Run Macro** button  on the **Visual Basic** toolbar. The *Macro* dialog box opens.
2. Select the macro to delete ► **Delete** button ► **Yes** button.

Database

Although manipulation of numeric data is the primary purpose of Excel, the row-and-column format lends itself in creating and storing databases. Generally, a good rule of thumb is that if the worksheet grows to more than 2000 rows, store the information in a data warehouse or relational database such as **Microsoft Access**.

USING A DATABASE

A database is a collection of information arranged in a way that makes it easy to access. For example, a telephone book is a static database arranged in alphabetical order; because it is static, the information cannot be rearranged. In real-world applications, a better capability is needed to manipulate a database. This capability is known as database management.

Excel has built-in database management capabilities. The user can treat a worksheet, or portions of a worksheet, as a database. An Excel database can help in entering, editing, locating, sorting and analyzing information. In Excel, the user can define any list as a database, since a list is simply a range of cells made up of columns and rows. The columns contain the field categories and the rows contain the record data. Additional rows can also be inserted as records are added to the database. A valid database does not contain any blank columns or rows.

!NOTE:

The user can also work with lists created in other Microsoft Office 2003 programs by copying and pasting the lists into Excel.

CREATING AND SAVING A DATABASE

Before creating a database the user must consider the specific information to collect (i.e., the fields or categories of information). For example, it may be necessary to track a client name, address, city, state, zip code, telephone number, invoice number, date of invoice, amount of invoice and commission of the sales representative. One field can be created (or one column used) for each type of information.

A field occupies a single column of a database and contains a single piece of information in each record. For example, a “***Salary***” field might contain salary information for each employee

record. The user can enter text, numbers, formulas, dates, or functions into a field. A computed field contains formulas or functions. Excel uses the top row of the list (the column label) as the field name.

Proper planning can save hours of additional work at a later date. For example, to sort a database by last name, it is necessary to create two fields (one for the first name and one for the last name). It is impossible to enter the first and last names in a single field and then sort by last name.

Once the field names have been entered for a database, it is time to enter the records. Each row of a database contains one record. A record contains all the information related to one entry. For example, an employee record could contain the name, address, telephone number, and salary information of a single employee. Although each record contains all the fields in the database, every field is not required to contain data.

To create a database in Excel:

1. Create a new Excel file and input the data.
2. Select the cell to enter the first column label and type the desired label.
3. Press the **[Tab]** key on keyboard to move to the next cell in the row.
4. Enter additional database field labels as needed.
5. To save it as a database, select the **File** menu ► **Save As...** command. The *Save As* dialog box opens.
6. Click the *Save as type:* drop-down list ► select any of the (*.dbf) file formats ► **OK** button.

MODIFYING A DATABASE

A user can modify a database by adding and/or deleting records and fields. New records can be added to the end of the database or as new rows inserted in any particular location. The user can also delete records by deleting the row that contains the record. When a row is deleted, Excel adjusts any database ranges as needed. If the user simply clears the contents of a record, the blank row will cause problems when sorting and locating records within the database.

After a database has been created, sometimes there is a need to track additional information. The user can insert columns into the database to create additional fields as needed. Conversely, the fields that no longer need tracking can be deleted. Deleting unnecessary fields produces a more efficient database with faster sorts and queries. Modifying a database by editing the information happens the same way as editing any worksheet. The user can change the information in any field by editing it on the **Formula** bar or by typing over the old information in the cell. The information can also be copied from one cell to another.

A valid database list cannot contain any blank column or row.

!NOTE:

A database can be formatted by using any of the Excel formatting features.

When a row is deleted, all the information in that row is deleted across the entire worksheet. Before deleting a row, make sure that all the information in the row can be discarded.

To modify a database:

1. Right-click the column or row to modify. A pop-up menu opens.
2. Select the **I**nsert... or **D**elete... command to modify the column or row as desired.

VIEWING RECORDS IN DATA FORM

The *Data Form* dialog box allows easy navigation between records. For example, if a list has hundreds of records, the data form allows quick scrolling to the one needed. When the scroll box in the scroll bar is dragged, the counter in the upper right corner of the *Data Form* dialog box indicates which record will appear when the mouse button is released.

!NOTE:

To open the database from Excel, select the **F**ile menu ► **O**pen... ► select **A**ll **F**iles option from the **F**iles **of type:** drop-down list ► select the database file from the list.

To view records in the *Data Form* dialog box:

1. Open the database in Excel.
2. Select the **D**ata menu ► **F**orm... command.
The *Data Form* dialog box for the database appears (see Figure 17).
3. To move to the next record in the list, click the down-pointing scroll button.
4. To move to the previous record in the list, click the upward-pointing scroll button.
5. Drag the scroll box as desired to move through the list quickly.

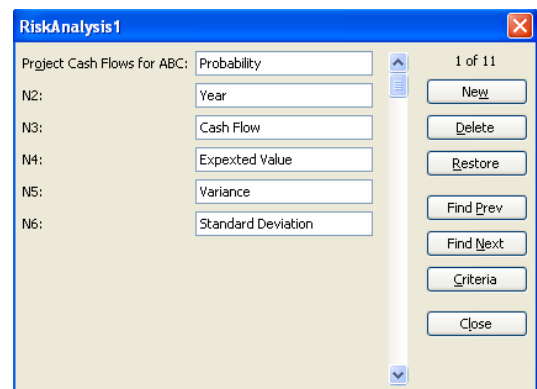


Figure 17 - Database Form Dialog Box

!NOTE:

Pressing the **[Enter]** key or the **[Shift+Enter]** key combination will move to the next or previous record, respectively. The **[Page Up]** and **[Page Down]** keys move the user through multiple records in the database.

EDITING RECORDS IN DATA FORM

The *Data Form* is used to edit records. In the *Data Form*, each field appears in its own text box. The data in the text boxes are edited the same way as in a worksheet.

To edit a record in the *Data Form* dialog box:

1. Open the *Data Form* dialog box.
2. Display the record to edit.
3. Select the field to edit.
4. Edit the text as desired.
5. Press the **[Enter]** key.

!NOTE:

The changes can be canceled and the original data restored by clicking the **Restore** button on the *Data Form* dialog box, before pressing the **[Enter]** key to move to another record.

ADDING RECORDS IN DATA FORM

Records can be added to the *Data Form* at any time. New records appear at the end of the *Data Form*. However, any existing named ranges in the list do not expand to include the new records.

!NOTE:

Pressing the **[Tab]** key or the **[Shift+Tab]** key combination moves to the next and previous fields, respectively. The insertion point moves to the **New** button when the **[Tab]** key is pressed from the last field in a record.

To add a record to the data form:

1. Open the *Data Form* dialog box.
2. Click the **New** button. A new record appears in the dialog box with all blank fields.
3. Type the information in the field(s) of the dialog box.
4. Click the **Close** button to close the *Data Form* dialog box. Scroll as necessary to verify that the new record appears correctly at the end of the list.

DELETING RECORDS IN DATA FORM

When a user no longer needs a record or it becomes irrelevant, the record can be deleted through the *Data Form*. The record is deleted from the worksheet as well.

To delete a record from the data form:

1. Open the *Data Form* dialog box (see Figure 17).
2. Display the record to delete.
3. Click the **Delete** button. A message box asking for confirmation of the deletion appears.
4. Click the **OK** button.

!NOTE:

The **Delete** button in the *Data Form* dialog box should be used with caution. Once a record is deleted from the data form, it cannot be restored.

SORTING LISTS

The user can arrange data in a list by the entries in a particular column. A list is a range of cells organized with similar sets of data in each column. For example, the user may have a list containing employee data, with columns for the first name, last name, department, salary, and age. The list can be sorted alphabetically, by employee name, or numerically by salary. Excel also allows grouping the employees alphabetically by department.

Excel uses the following guidelines when sorting data:

1. Rows with duplicate items in the sort column remain in their original order.
2. Rows with blank cells in the sort column are placed last in the sorted list.
3. Hidden rows are not moved.

!NOTE:

To restore a list to its original order, the user must include a column with the rows numbered sequentially before sorting the data. This column can then be sorted to restore the list to its original order.

Lists can be sorted by more than one column by selecting the **Data** menu ► **Sort...** command and specifying the sort order of the columns.

SORTING IN ASCENDING/DESCENDING ORDER

A list can be sorted in either ascending or descending order. Ascending order sorts a list from the lowest to highest value. Descending order sorts a list from the highest to lowest value. Lists are sorted by the column that contains the active cell.

The order of an ascending sort is listed below:

1. Numbers are sorted from the smallest negative number to the largest positive number.
2. Dates and times are sorted based on their chronological value.
3. Text and text that includes numbers is sorted as follows: 0 1 2 3 4 5 6 7 8 9 (space) ! " # \$ % & () * , . / : ; ? @ [\] ^ _ ` { | } ~ + < = > A B C D E F G H I J K L M N O P Q R S T U V W X Y Z.
4. False logical values are sorted before true logical values.
5. All error values are equal and are not sorted.
6. Blanks are always sorted last.

In a column of mixed data, the ascending sort order is numbers, dates, text, logical values, error values, and blanks with items within each category sorted in ascending order.

Descending sorts list data in the reverse order of ascending sorts, except for blanks. Blank cells are always sorted last. Therefore, in a column of mixed data, the descending sort order is error values, logical values, text, dates, numbers, and blanks with items within each category sorted in descending order.



Project Cash Flows for ABC	
Year	Cash Flow
1	(2,100,000.00)
2	900,000.00
3	800,000.00
4	700,000.00
5	680,000.00
6	550,000.00
WACC	12%
Risk Premium	7%

Figure 18 - A List Sorted in Descending Order

!NOTE:

Apostrophes (') and hyphens (-) are ignored in a sort, unless two items are identical except for the apostrophe or hyphen. In that case the apostrophe or hyphen is sorted last in an ascending sort and first in a descending sort.

To sort a list in ascending or descending order:

1. Display the entire **Standard** toolbar.
2. Select any cell in the column to be sorted.
3. Click the **Sort Ascending** button  or **Sort Descending** button  on the **Standard** toolbar.