

## Navigating the Excel Interface

### The Components of the Excel 2013 Interface

Component	Description
<b>Quick Access Toolbar</b>	Gives you easy access to common commands such as <b>Save</b> , <b>Undo</b> , and <b>Redo</b> .
The ribbon	Provides access to all of the commands needed to perform actions within the Excel interface.
Ribbon tabs	Each tab contains commands buttons that perform specific Excel functions.
Task pane	Displays the contents of the Outlook item you have currently selected, such as the contents of a selected email message.
<b>Formula Bar</b>	Displays the contents of the selected cell in a spreadsheet, along with a reference to the active cell or the range of the current selection of cells. You can also use the <b>Formula Bar</b> to enter content such as data, formulas, or functions into the spreadsheet.
Status bar	Provides you with information about the worksheet, as well as shortcuts for changing how the worksheet is displayed.

## Using Spreadsheets, Worksheets, and Workbooks to Organize Data

### Spreadsheets, Worksheets, and Workbooks

A **spreadsheet** is a paper or electronic document that is used to store and manipulate data. It consists of rows and columns that intersect to form cells, where the data you enter is stored. Data can be in the form of numbers, text, and symbols in a tabular format. You can customize spreadsheets based on your business needs and data requirements.

A **worksheet** is an electronic spreadsheet that is used for entering and storing data in Excel. An Excel worksheet contains columns and rows, which intersect like a grid to form cells. Excel designates columns with alphabetical headers running across the top of the worksheet, and rows with numerical headers running down the left of the worksheet. An Excel worksheet can contain various types of data such as text, numbers, pictures, formulas, charts, and tables. You can insert rows, columns, and cells into or delete them from an Excel worksheet.

A **workbook** is an Excel file that acts as a binder for related Excel worksheets. The title bar of the Excel application window displays the name of the workbook. By default, a new blank Excel workbook contains three worksheets named Sheet1, Sheet2, and Sheet3. The worksheet names are displayed on tabs at the bottom left of the workbook. You can rename, add, or delete worksheets in an Excel workbook.

## Working with Excel Files

### To open a workbook by using the Open dialog box:

1. On the ribbon, select **FILE**→**Open** to display the **Open** dialog box.
2. Navigate to the desired file, select it, and then select **Open**.

### To create a workbook and enter data:

1. Select **FILE**→**New**.
2. In the **Backstage** view, select **Blank workbook**.
3. In the new workbook, enter data into a cell.
4. Use the appropriate navigation technique to select the next cell where you want to enter data.
5. Enter data in the selected cell.
6. Continue to navigate to and enter data into cells until all of the data has been entered.
7. Select **FILE**→**Save As**. Specify a name, location, and format for the file, and then select **Save**.
8. If necessary, in the **Microsoft Excel -Compatibility Checker** dialog box, select **Continue** to convert the features that are not supported in the earlier version of **Excel**, or select **Cancel**, then select a different file format, and select **Save**.

### To save an Excel file to a SkyDrive folder:

1. In Excel, open or create a workbook.
2. Select **FILE**→**Save As**.
3. Under **Places**, select your **SkyDrive** account.
4. Select **Browse** or **Documents**, change the file name or file type as necessary, and then select **Save**.

## Using Formulas in a Worksheet

### To create a formula:

1. Select the cell in which you want to place the formula.
2. To begin the formula, type an equals sign.
3. Specify the arguments and operators for the formula.
  - Enter a number or cell reference, or select a cell.
  - Enter the operator.
  - Enter another number or cell reference.
4. If necessary, enter additional arguments and operators to complete the formula.
5. Press **Enter** or select the check mark icon to apply the formula and populate the cell with the calculated value.

### To revise a formula:

1. Select the cell that contains the formula that you want to revise.
2. Revise the formula.
  - Activate the cell and select the desired part of the formula that needs to be revised, and then make the desired changes.
  - On the **Formula Bar**, select the desired part of the formula that needs to be revised, and then make the desired changes.
3. Press **Enter** or select the check mark icon to apply the revised formula.

## Performing Calculations

### To perform calculations using the AutoSum button:

1. Enter the values that you want to calculate into a series of cells.
2. Select the cell where you want the result to be displayed.
3. If you want to apply the SUM function, on the **HOME** or **FORMULAS** tab, select the **AutoSum** button.
4. If you want to apply another function, on the **HOME** or **FORMULAS** tab, display the **AutoSum** drop-down list, and select a function.
5. In the formula, verify that the selected range of cells is accurate, and press **Enter**.
6. If necessary, drag the selection to the range of cells that you want to calculate, and press **Enter**.

## Using Functions in a Worksheet

### To enter a function using the Formula AutoComplete feature:

1. Select the cell in which you want to enter a formula.
2. Type the equal sign and the first few letters of the function's name.
3. In the **AutoComplete** list, select a function and enter the formula.
4. Specify the arguments for the function.
5. Press **Enter** to complete the function.

### To enter a function using the Function Library:

1. Select the cell in which you want to enter a formula.
2. Select the **FORMULAS** tab to display the **Function Library**.
3. Identify the category that contains the function that you want to use, and select the button.
4. From the drop-down list, select the function to include in the selected cell.
5. In the **Function Arguments** dialog box, specify the arguments for the function, preview the formula result, and select **OK**.

### To enter a function using the Insert Function dialog box:

1. Select the cell in which you want to enter a formula.
2. On the **FORMULAS** tab or on the **Formula Bar**, select the **Insert Function** button.
3. In the **Search for a function** text box, type a brief description of what you need to accomplish and then select **Go**.
4. If necessary, in the **Or select a category** drop-down list, select a category.
5. In the **Select a function** list box, select a function and select **OK**.
6. In the **Function Arguments** dialog box, specify the arguments for the function, preview the formula result, and select **OK**.

## Manipulating Data

### To edit data in a cell:

1. Select the cell that contains the data to be edited.
2. Either type the new data into the cell and press **Enter** to replace the cell data, or activate the **Formula Bar** to select and edit the data and then press **Enter**.

### To fill cells with a series of data:

1. Enter the data necessary to establish a pattern for the data series.
2. Select the cells that contain values that represent the established pattern.
3. Drag the cell handle to the last cell in the data series.
4. If necessary, display the **Auto Fill Options** drop-down list, and select a fill option for the cells.

### To clear cell data:

1. Select the cell or range of cells that contain the data to be cleared.
2. Either press **Delete**, or select **HOME**→**Editing**→**Clear** and select a clear option from the drop-down list.

### To move data from one cell or cell range to another:

1. Select the cell or cells that contain the data that you want to move.
2. Select **HOME**→**Clipboard**→**Cut**, select the destination cell or cells, and then select **Paste**.

### To transpose data:

1. Select the data that you want to transpose.
2. Depending on whether you want to do, copy or cut the selected data to the Clipboard.
3. Select the destination cell or cells.
4. Select **HOME**→**Clipboard**, and from the **Paste** drop-down list, select the **Transpose** option.

### To use the Undo and Redo commands:

1. To undo an action, on the **Quick Access Toolbar**, select the **Undo** button to undo the last action, or select the **Undo** drop-down arrow and select the actions to be undone.
2. To redo an undone action or series of actions, on the **Quick Access Toolbar**, select the **Redo** button to redo the last undone action, or select the **Redo** drop-down arrow and select the actions to be redone.

## Manipulating Worksheet Components

### To insert or delete a column or a row:

1. Select a column or row.
2. Select **HOME**→**Cells**→**Insert** to insert a column or row.
3. Select **HOME**→**Cells**→**Delete** to delete a column or row.

### To insert or delete a cell range:

1. Select a cell range.
2. Select **HOME**, and in the **Cells** group, from the **Insert** or **Delete** drop-down list, select **Insert Cells** or **Delete Cells**.
3. In the **Insert** or **Delete** dialog box, select the preferred option to shift cells up, down, left, or right and then select **OK**.

### To change column width to a specific value:

1. Select the column that you want to change.
2. Either display the pop-up menu for the selection and select **Column Width**, or select **HOME**, and in the **Cells** group, from the **Format** drop-down list's **Cell Size** section, select **Column Width**.
3. In the **Column Width** dialog box, in the **Column width** text box, type a new value for the column width.
4. Select **OK**.

### To change row height to a specific value:

1. Select the row that you want to change.
2. On the **HOME** tab, in the **Cells** group, from the **Format** drop-down list's **Cell Size** section, select **Row Height**.
3. In the **Row Height** dialog box, in the **Row height** text box, type a new value for the row height.
4. Select **OK**.

### To hide rows or columns:

1. Select the rows or columns that you want to hide.
2. On the **HOME** tab, in the **Cells** group, from the **Format** drop-down list, from the **Hide & Unhide** submenu, select **Hide Rows** to hide the selected rows or select **Hide Columns** to hide the selected columns.

### To unhide rows or columns:

1. Select the rows or columns that you want to unhide.
2. On the **HOME** tab, in the **Cells** group, from the **Format** drop-down list, from the **Hide & Unhide** submenu, select **Unhide Rows** to unhide the selected rows or select **Unhide Columns** to unhide the selected columns.

## Finding and Replacing Data

### To find data:

1. On the **HOME** tab, in the **Editing** group, from the **Find & Select** drop-down list, select **Find**.
2. In the **Find and Replace** dialog box, in the **Find what** text box, type the text that you want to find.
3. Select **Find Next**.
4. Select **Close** to close the **Find and Replace** dialog box.

### To find and replace data:

1. On the **HOME** tab, in the **Editing** group, from the **Find & Select** drop-down list, select **Replace**.
2. In the **Find and Replace** dialog box, in the **Find what** text box, type the text that you want to find.
3. In the **Replace with** text box, type the text that you want to include in place of the found text.
4. Select **Find Next**.
5. If you want to replace one occurrence of the found text, select **Replace**. The text is replaced and the next occurrence of the text is highlighted.
6. If you want to replace all occurrences of the found text, select **Replace All**.
7. Select **Close** to close the **Find and Replace** dialog box.

## Formatting Cell Contents

### To change font properties using the Format Cells dialog box:

1. Select the cell or cells that contain the data you want to format.
2. On the **HOME** tab, in the **Font** group, select the **Font** dialog box launcher.
3. To change the font face, in the **Font** list box, select a font.
4. To change the font style, in the **Font style** list box, select a style.
5. To change the size, in the **Size** list box, select a font size.
6. To select an underline style, display the **Underline** drop-down list and select a style.
7. To change the color, display the **Color** drop-down list and select a color.
8. To change font effects, select the appropriate options from the **Effects** list box.
9. In the **Preview** box, examine the preview of the text, and select **OK** to apply the changes.

### To format cells using the Format Painter:

1. Select a cell that contains the formatting that you want to reuse.
2. Select **HOME**→**Clipboard**→**Format Painter**.
3. To apply the format to a single cell, select the cell where you want to apply the formatting.
4. To apply the format to multiple cells, double-click the **Format Painter** button and then select the cells that should receive the formatting, or drag to select multiple cells.
5. To deactivate the Format Painter, press **Esc** or select the **Format Painter** button.

### To add borders to cells:

1. Select the cells to which you want to add borders.
2. On the **HOME** tab, in the **Font** group, display the **Border** drop-down list, and select a border.

### To add color to cells:

1. Select the cell or cells to which you want to add color.
2. On the **HOME** tab, in the **Font** group, display the **Fill Color** drop-down list, and select a color from the gallery.

### To apply number formats:

1. Select the cell or cell range that contains the number or numbers that you want to format.
2. On the **HOME** tab, in the **Number** group, display the **Number Format** drop-down list and select a format.

### To align cell contents horizontally or vertically:

1. Select the cell or cell range that you want to affect.
2. On the **HOME** tab, in the **Alignment** group, select an alignment option.

### To change the indent of cell contents:

1. Select the cell or cell range that you want to affect.
2. Select **HOME**→**Alignment**, and select **Increase Indent** or **Decrease Indent**.

### To change the orientation of cell contents:

1. Select the cell or cell range that you want to affect.
2. Select **HOME**→**Alignment**→**Orientation**, and select an option.

### To wrap text in a cell:

1. Select the cell or cell range that you want to affect.
2. Select **HOME**→**Alignment**→**Wrap Text**.

### To merge or unmerge cells:

1. Select the range of contiguous cells that you want to merge, or a merged cell that you want to unmerge.
2. Select **HOME**→**Alignment**, display the **Merge & Center** drop-down list, and select an option.

### To apply a cell style:

1. Select the cell or cell range that you want to affect.
2. Select **HOME**→**Styles**→**Cell Styles**, and select a style from the gallery.

## Modifying Page Layouts

### To insert headers and footers into a workbook:

1. Select the worksheet in which you want to insert a header or footer.
2. Select **VIEW**→**Workbook Views**→**Page Layout** to switch to **Page Layout** view.
3. On the **HEADER & FOOTER TOOLS** tab, on the **DESIGN** contextual tab, in the **Header & Footer** group, select **Header** or **Footer**, and select an option to insert one of the supplied headers and footers.
4. Activate any cell outside the text boxes to deselect the header or footer text box.
5. If necessary, select **VIEW**→**Workbook Views**→**Normal** to return to **Normal** view.
6. If necessary, in the **Page Setup** dialog box, on the **Header/Footer** tab, specify header and footer options.
  - Check the **Different odd and even pages** check box to specify that the headers and footers on the odd-numbered pages should be different from those on the even-numbered pages.
  - Check the **Different First Page** check box to remove headers and footers from the first printed page.

### To specify page margins:

1. Select **PAGE LAYOUT**→**Page Setup**→**Margins**, and select an option.
2. Select **Custom Margins**, and in the **Page Setup** dialog box, specify options to customize the margins and select **OK**.

### To change page orientation:

1. Select **PAGE LAYOUT**→**Page Setup**→**Orientation** and select the appropriate orientation: **Portrait** or **Landscape**.

### To insert page breaks:

1. Select the row below or the column to the right of the location where you want to insert a page break.
2. Select **PAGE LAYOUT**→**Page Setup**→**Breaks**→**Insert Page Break**.

### To print gridlines:

1. Select **PAGE LAYOUT**. In the **Sheet Options** group, under **Gridlines**, check **Print**.
2. If necessary, change the color of the gridlines in the **Excel Options** box.

## Working with Multiple Worksheets

### To insert or delete worksheets:

1. To insert one worksheet, select **HOME**→**Cells**→**Insert**→**Insert Sheet**.
2. To delete one or more worksheets, select the sheet or sheets, and select **HOME**→**Cells**→**Delete**→**Delete Sheet**.

### To move or copy worksheets within or between workbooks:

1. Right-click a worksheet tab and select **Move or Copy** to display the **Move or Copy** dialog box.
2. Next to **Move selected sheets**, from the **To book** drop-down list, select the destination workbook.
3. In the **Before sheet** list box, select the worksheet before which the selected worksheet needs to be inserted.
4. Check the **Create a copy** check box if you want to copy the sheet, rather than move it, and select **OK**.

### To group or ungroup worksheets:

1. Open a workbook and select the worksheets that you want to include in the group.
2. Edit one of the grouped worksheets, and the changes will be applied to all of the grouped worksheets.
3. To ungroup worksheets, select any worksheet tab that is not in the group.

### To hide or unhide worksheets:

1. Select the worksheets that you want to hide.
2. Select **HOME**→**Cells**→**Format**→**Hide & Unhide**→**Hide Sheet**.
3. To unhide worksheets, select **HOME**→**Cells**→**Format**→**Hide & Unhide**→**Unhide Sheet**.
4. In the **Unhide** dialog box, in the **Unhide Sheet** list box, select the hidden worksheet to display and select **OK**.

## Renaming a Worksheet Tab

### To rename a worksheet tab:

1. On the sheet tab bar, select the worksheet tab that you want to rename.
2. Select **HOME**→**Cells**→**Format**. Under **Organize Sheets**, select **Rename Sheet**.
3. Type the new name and press **Enter**.

## Managing How Worksheets and Workbooks Display

### To freeze and unfreeze panes:

1. Select the worksheet in which you want to freeze or unfreeze panes.
2. To freeze the first row or column, select **VIEW**→**Window**→**Freeze Panes**→**Freeze Top Row or Freeze First Column**.
3. To freeze other areas of the worksheet, select the cell that is below the row and to the right of the column that you want to freeze, and select **VIEW**→**Window**→**Freeze Panes**→**Freeze Panes**.
4. To unfreeze panes, select **VIEW**→**Window**→**Freeze Panes**→**Unfreeze Panes**.

### To split or unsplit a worksheet window:

1. Select a cell where you want to split the worksheet window.
2. Select **VIEW**→**Window**→**Split**.
3. Select the **Split** button again to undo the split action.

### To arrange worksheets in separate windows:

1. With a workbook open, select **VIEW**→**Window**→**New Window** to open the entire workbook in a new window.
2. Repeat step 1 until you have a new window for every worksheet that you want to view in a new window.
3. Select **VIEW**→**Window**→**Arrange All** to display the **Arrange Windows** dialog box and select the desired display option.
4. If you have multiple workbooks open, check the **Windows of active workbook** check box to avoid arranging the windows of other open workbooks, and select **OK**.

### To view different sections of a worksheet side by side:

1. With a workbook open, select **VIEW**→**Window**→**New Window** to open the entire workbook in a new window.
2. In the **Window** group, select the **View Side by Side** button.
3. If necessary, select the **View Side by Side** button again to undo the action.

## Using Range Names

### Range Names

A range name is a clear, concise, and descriptive name applied to a single cell or a range of cells.

	A	B	C	D	E	F	G
1	AuthorID	Initial Contract Date	Years Under Contract	Number of Books in Print	Number of Books Sold	Sell Price	Income Earned
2	1006	5/5/2010	2.09	15	316,237	\$ 3.99	\$1,261,785.63

### To add a name range using the Name box:

1. Select the range you want to name.
2. Select in the **Name** box.
3. Type the name for the range.
4. Press **Enter**.

### To add a name range using the New Name dialog box:

1. Select the range you want to name.
2. On the **FORMULAS** tab, in the **Defined Names** group, select **Define Name**.
3. In the **New Name** dialog box, in the **Name** text box, type the range name.
4. From the **Scope** drop-down list, select either **Workbook** or a specific worksheet name.
5. If desired, type a comment in the **Comment** text box.
6. Verify that the worksheet and range reference in the **Refers To** text box is correct.
7. Select **OK**.

### To add a name range using worksheet data:

1. Verify that some part of your data range has a meaningful label.
2. Select the range you want to name.
3. On the **FORMULAS** tab, in the **Defined Names** group, select **Create from Selection**.
4. In the **Create Names from Selection** dialog box, verify that the correct location of the labeled cell is selected.
5. Select **OK**.

### To edit a range name:

1. On the **FORMULAS** tab, in the **Defined Names** group, select **Name Manager**.
2. In the **Name Manager** dialog box, in the list of names, double-click the range name you want to edit.
3. As necessary, in the **Edit Name** dialog box, edit the attributes of the range name.
4. Select **OK**.

## Selecting a Calculation Method

### To disable automatic calculation:

1. In the workbook, select **FILE**→**Options**.
2. In the **Excel Options** dialog box, in the left pane, select **Formulas**.
3. Under **Calculation Options**, deselect the **Automatic** or **Automatic except for datatables** options.
4. Select **OK**.

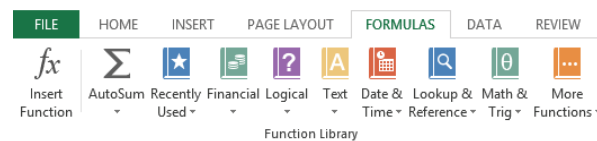
### To select a calculation method:

1. In the workbook, select **FILE**→**Options**.
2. In the **Excel Options** dialog box, in the left pane, select **Formulas**.
3. Under **Calculation Options**, select your preferred method of calculation.
4. Select **OK**.

## Using Specialized Functions

### Function Categories


Excel has 13 categories of functions. Each category has a number of functions designed for very specific types of calculations. You can access every function in the **Function Library** group on the **FORMULAS** tab.



### To manually insert a function by using the Formula Bar:

1. Select the cell that will contain the function.
2. In the **Formula Bar**, type the function and its arguments.
3. Press **Enter**.

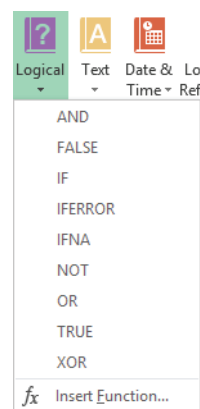
### To insert a function by using the function dialog boxes:

1. Select the cell that will contain the function.
2. On the **FORMULAS** tab, in the **Function Library** group, select **Insert Function**.
3. Locate the function you want to insert, and then select its name in the Select a Function list.
4. Select **OK**.
5. In the **Function Arguments** dialog box, identify each of the required arguments either by typing them directly into the text fields or using the **Range** button (  ) for each argument.
6. If necessary, identify any optional arguments.
7. Select **OK**.

## Using Logical Functions

### Logical Functions

Excel provides seven logical functions that can be used to run logical tests on your data.



### To write a formula that uses logical functions:

1. Write, revise, and refine the question you want to ask your data.
2. Using your question as a starting point, use the Function Reference in the Excel Help system to identify which logical functions you will need to use to answer your question.
3. Identify how many required and optional arguments each function has and whether you will need any of the optional arguments.
4. Identify whether the arguments in one function will be other functions.
5. In the **Formula Bar**, type the formula with its functions and arguments.
6. Press **Enter**.
7. Test the formula.

## Creating a Table from Your Data

### To create a table with the default table style:

1. Select any cell within the range that will be converted to a table.
2. On the **INSERT** tab, in the **Tables** group, select **Table**.
3. In the **Create Table** dialog box, verify that Excel has anticipated the correct range to convert to a table. If necessary, edit the range.
4. Select **OK**.
5. If necessary, adjust the column widths so the drop-down list arrows do not obscure the row header text.

### To create a table with a Quick Style set:

1. Select the range that you want to convert to a table.
2. On the **HOME** tab, in the **Styles** group, select **Format as Table**, and then select your desired Quick Style set.
3. In the **Format as Table** dialog box, verify that the correct range is identified. If necessary, edit the range.
4. Select **OK**.
5. If necessary, adjust the column widths so the drop-down list arrows do not obscure the row header text.

### To insert rows and columns:

1. Select a cell that is in the row that will appear immediately below the new row, or that is in the column that will appear immediately to the right of the new column.
2. Right-click and select **Insert**→**Table Rows Above** or **Insert**→**Table Columns to the Left**.

### To delete rows and columns:

1. Select a cell that is in the row or column that you wish to delete.
2. Right-click and select **Delete**→**Table Rows or Delete**→**Table Columns**.

## Converting a Table to a Data Range

### To convert a table to a worksheet data range:

1. Select a cell within the table.
2. On the **TABLE TOOLS DESIGN** tab, in the **Tools** group, select **Convert to Range**.
3. In the dialog box that asks you to confirm whether you want to make the change, select **Yes**.

## Creating Charts from Your Data

### To create a chart by selecting the chart type:

1. On a worksheet, select the data you want to include in the chart.
2. On the **INSERT** tab, in the **Charts** group, click the down-arrow of the chart type you would like to insert, and then select the sub-type.

### To create a chart with the Quick Analysis button:

1. On a worksheet, select the data you want to include in the chart.
2. Move the mouse pointer over the right bottom corner of your selection to display the **Quick Analysis** button.
3. Select the **Quick Analysis** button.
4. From the top menu, in the **Quick Analysis** dialog box, select **Charts**.
5. Select the chart of your choice.

### To change the data associated with a chart:

1. Select the chart.
2. On the **CHART TOOLS DESIGN** tab, in the **Data** group, select **Select Data**.
3. In the **Select Data Source** dialog box, set the chart's data range, and then in **Select Data Source** dialog box, select **OK**.

### To modify labels on a chart:

1. Select the chart.
2. On the **CHART TOOLS LAYOUT** tab, in the **Chart Layouts** group, select **Add Chart Element** and from the menu select **Data Labels**.
3. Select one of the options on the menu.

## Using VLOOKUP and HLOOKUP Functions

### VLOOKUP and HLOOKUP Functions

VLOOKUP and HLOOKUP are powerful functions that enable you to find data based on specific criteria.

VLOOKUP and HLOOKUP functions can be used within a single worksheet, across multiple sheets in a single workbook, or across multiple workbooks.

The data returned from a VLOOKUP or HLOOKUP function can either be displayed in a cell or used as an argument in a function. The identified data can be displayed in a cell or used in a calculation.

## Sorting and Filtering Data

### To sort data in a range:

1. Select a cell in the column or row you want to sort.
2. On the **HOME** tab, in the **Editing** group, select **Sort & Filter** and then select **Custom Sort**.
3. In the **Sort** dialog box, select **Options**.
4. To sort data by columns, select **Sort top to bottom** (this is the most common type of sort), or to sort data by rows, select **Sort left to right** (this is rarely used).
5. Select **OK**.
6. In the **Sort** dialog box, add the number of sort levels you need.
7. For each column (or row) sort level, define what to **Sort by**, what to **Sort on**, and the **Order** in which you want the sort to appear.
8. Select **OK**.

### To sort data in a table:

1. In the header row, in the drop-down list of the column you want to sort, select **Sort smallest to largest**, **Sort largest to smallest**, or **Sort by color**.
2. If necessary, to create a custom sort, in the header row, in the drop-down list of the column you want to sort, select **Sort by color**, and then select **Custom Sort**.

### To filter data in a table by using AutoFilters:

1. In the header row, in the drop-down list of the column you want to sort, select the filter options you would like to use.
2. If necessary, you can search for specific data by typing your filter criteria directly in the **Search** box and selecting the **Search** button.
3. If necessary, refine your filter by adding additional filters to additional columns.

### To filter data in a table by using advanced filters:

1. Create the criteria range, inserting enough rows above the table or range so that:
  - The criteria range contains a header row that matches the header row of the dataset.
  - In addition to the criteria range header row, there are enough rows to accommodate the total number of OR criteria you want to filter for.
  - There is one blank row between the new rows and the header row of the dataset.
2. Copy the header row of the dataset to the first row of the criteria range.
3. Enter filter criteria in the criteria cells.
4. Select any cell in the dataset.
5. On the **DATA** tab, in the **Sort & Filter** group, select **Advanced**.
6. In the **Advanced Filter** dialog box, verify that the **List Range** is the range for the dataset.
7. If necessary, select the **Criteria Range**, making sure to include the header row of the criteria range and only rows that contain criteria.

## Summarizing Your Data

### To summarize table data with summary functions:

1. Verify that the data you want to summarize is in a table and not in a range.
2. Select any cell within the table.
3. On the **TABLE TOOLS DESIGN** tab, in the **Table Style Options** group, check **Total Row**.
4. Use the drop-down list options in the **Total** row to select the type of summary function you would like to apply for each field that requires a calculation.
5. Sort and filter the table data as needed.

### To summarize table data with summary functions:

1. Create the criteria range, inserting enough rows above the table or range so that:
  - The criteria range contains a header row that matches the header row of the dataset.
  - In addition to the criteria range header row, there are enough rows to accommodate the total number of OR criteria you want to filter for.
  - There is one blank row between the new rows and the header row of the dataset.
2. Copy the header row of the dataset to the first row of the criteria range.
3. Enter filter criteria in the criteria cells.
4. Select the cell that will contain the database function.
5. In the **Formula Bar**, type the database function using the entire dataset as the database argument, the column label of the column you want to run the calculation on as the field argument, and the criteria range as the criteria argument.
6. Press **Enter**.
7. Verify that the function works as planned.

### To summarize range data with subtotals:

1. Verify that the data you want to summarize is in a range and not in a table.
2. Select the range, including the header row, of the data you want to add subtotals to.
3. On the **DATA** tab, in the **Outline** group, select **Subtotal**.
4. In the **Subtotal** dialog box, from the **At each change in** drop-down list, select the field that will indicate where each subtotal calculation should appear.
5. From the **Use function** drop-down list, select the type of calculation you would like to perform for the subtotal.
6. From the **Add subtotal to** drop-down list, select the field on which the subtotal will be calculated.
7. As necessary, check or uncheck **the Replace current subtotals**, **Page break between groups**, and **Summary below data** check boxes.
8. Select **OK**.

## Analyzing Data with PivotCharts

### To insert a PivotChart:

1. Select any cell in the PivotTable.
2. On the **PIVOTTABLE TOOLS OPTIONS** tab, in the **Tools** group, select **PivotChart**.
3. In the **Insert Chart** dialog box, select the type of chart you want to insert.
4. Select **OK**.
5. Position the chart on the worksheet and format as needed.
6. Filter the chart as needed.

## Working with Trendlines

### Trendlines

A trendline is a chart data series that makes predictions about the future state of the data based on current trends in the data.

### To create a trendline:

1. On the chart that will contain the trendline, right-click the data series to which you would like to add the trendline and then select **Add Trendline**.
2. In the **Format Trendline** dialog box, select **Trendline Options** in the left pane, and then select the type of trendline you'd like to add in the right pane.
3. In the right pane, set the remaining attributes of the trendline.
4. If necessary, use the options in the left pane to adjust the settings for the trendline's color, style, shadow, and edges.
5. Select **Close**.

## Creating a Pivot Table

### To create a PivotTable:

1. Identify a few key questions you'd like the PivotTable to be able to answer about your data.
2. In Excel 2013, on the **INSERT** tab, in the **Tables** group, select **PivotTable**.
3. In the **Create PivotTable** dialog box, select the data you want to analyze.
  - If the data is in the current workbook, select **Select a table or range** and then select the **Range** button and select the table or range.
  - If the data is in an external source, select **Use an external data source** and then select the data source.
4. In the **Create PivotTable** dialog box, choose whether you want to add the PivotTable to a **New Worksheet** or to an **Existing Worksheet**.
5. Select **OK**.
6. In the **PivotTable Field List** pane, using the structure you sketched out on scratch paper as a guide, from the **Choose fields to add to report** list, drag the fields that will be rows to the **Row Labels** field, the fields that will be columns to the **Column Labels** field, and the fields on which you want to run calculations to the **Values** field.
7. If necessary, drag fields to the **Report Filter** field.
8. On the worksheet, test your PivotTable.
9. As necessary, on the PivotTable, change the **Summarize Values By** and **Show Values As** settings.

## Analyzing and Presenting Data with Sparklines

### To add a sparkline using the INSERT tab:

1. On the ribbon, select the **INSERT** tab.
2. Select the workbook data you need to be graphed.
3. Select the type of sparkline you want.
4. Enter the destination cell where you want the sparkline to be displayed.
5. In the **Create Sparklines** dialog box, select **OK**.

### To add a sparkline from a destination cell:

1. Select the cell where you would like the sparkline to appear.
2. On the **INSERT** tab, select the type of sparkline you want.
3. Select the data you want to turn into a sparkline.
4. In the **Create Sparklines** dialog box, select **OK**.

## Filtering Data with Slicers

### To add slicers to a PivotTable:

1. Select any cell in the PivotTable.
2. On the **PIVOTTABLE TOOLS OPTIONS** tab, in the **Sort & Filter** group, select **Insert Slicer**.
3. In the **Insert Slicers** dialog box, check all of the fields on which you would like to filter.
4. Select **OK**.
5. Position the slicer(s) on the worksheet.

### To connect slicers to more than one PivotTable:

1. Select any cell in the PivotTable.
2. On the **PIVOTTABLE TOOLS OPTIONS** tab, in the **Sort & Filter** group, select the down arrow under **Insert Slicer** and then select **Slicer Connections**.
3. In the **Slicer Connections** dialog box, check all of the **Slicers** that you want to associate with the PivotTable you have selected on the worksheet.
4. Select **OK**.

## Troubleshooting Invalid Data and Formulas

### To troubleshoot for invalid data:

1. On the ribbon, select the **DATA** tab. In the **Data Tools** group, from the **Data Validation** drop-down list, select **Circle Invalid Data**.
2. If necessary, use the **Data Validation** dialog box to set the type of data a cell can accept.
3. If any invalid data is found, go to the circled cells and make the necessary corrections.

### To troubleshoot for invalid formulas:

1. On the ribbon, select the **HOME** tab. In the **Editing** group, from the drop-down list, select **Find and Select**.
2. Select **Find**.
3. In the **Find What** text box, type #, so that Excel will search for cells with invalid formulas.
4. Select **Options** to expand the **Find and Replace** dialog box options.
5. From the **Look In** drop down list, select **Values**.
6. Select the hyperlink to a cell with an error that you want to repair, and Excel will take you to that cell.
7. Select the cell with the error.
8. From the **Error Checking** drop-down list that appears next to the cell, select **Edit In the Formula Bar**.
9. In the **Formula Bar**, correct the formula.

### To troubleshoot for errors in formulas:

1. Select a cell that contains a formula error.
2. Select **How to Troubleshoot Invalid Formulas**.
3. On the ribbon, select the **HOME** tab. In the **Editing** group, from the drop-down list, select **Find and Select**.
4. On the ribbon, select the **FORMULAS** tab.
5. In the **Formula Auditing** group, from the **Error Checking** drop-down list, select **Trace Error**.
6. Fix any errors in the formulas.
7. Repeat the process by tracing more errors and fixing them until there are none left.

## Analyzing Data with Scenarios

### To add a scenario:

1. Select the range that you would like to use.
2. On the **DATA** tab, in the **Data Tools** group, select **What-If Analysis**.
3. Select the **Scenario Manager** and select **Add**.
4. Name your scenario and enter the desired values.
5. In the **Scenario Manager** dialog box, select **Show** to verify that the new values appear in the target cells.

## Working with Multiple Workbooks

### To consolidate data:

1. Open all necessary worksheets and arrange all windows into the desired position.
2. Select the worksheet, cell, or range where you want consolidated data to be displayed.
3. On the ribbon, select **DATA**, and from the **Function** drop-down list, select one of the existing functions if one is required.
4. In the **Data Tools** group, select **Consolidate**.
5. In the **Reference** text box, enter the cells or the range that you would like to consolidate.
6. Select **Add** to add the specified reference to the **All references** list.
7. Add more references to the **All references** section, if necessary.
8. Select **Create links to source data** to create a link to source data files.
9. Select **OK**.

### To link cells in different workbooks:

1. Open the source workbook (where the data is coming from) and the target workbooks (where the data is going).
2. In the source workbook, choose the cell where you want to place the formula, and create the formula.
3. Select the cells in the target workbooks where the formula is going.
4. Press **Enter** when the formula is ready.

### To display the Compare and Merge Workbooks icon on the Quick Access Toolbar:

1. Open any one of the shared workbooks.
2. On the **FILE** tab, select **Options**.
3. In the **Excel Options** dialog box, select **Quick Access Toolbar**.
4. In the **Choose commands from** drop-down list, select **All Commands**.
5. In the **All Commands** list box, select **Compare and Merge Workbooks**.
6. Select **Add**.
7. Select **OK** to add the **Compare and Merge Workbooks** icon to the **Quick Access Toolbar**.

### To merge workbooks:

1. Save copies of the shared workbook along with the main copy in a folder.
2. Open any workbooks you would like to merge.
3. On the **Quick Access Toolbar**, select the **Compare and Merge Workbooks** icon.
4. In the **Select Files to Merge Into Current Workbook** dialog box, select the folder with your files and the files you would like to merge.
5. Select **OK**.

