

Introduction to Excel 2003

Updated July 2006

Himmelfarb Health Sciences Library
The George Washington University Medical Center
2300 Eye Street, NW
Washington, DC 20037

Phone: (202) 994-2850
Email: library@gwumc.edu

Microsoft Excel is a spreadsheet software program for use in organizing data, performing data calculations, and graphing datasets.

Basics

- Worksheet Layout
- Entering Text and Numbers
- Formatting Text, Numbers, and Cells

Using Data Shortcuts

- Autofill
- AutoSum
- Formulas
- Fill Right, Fill Down
- Sorting

Presenting the Information

- Page Setup Options
- Printing Options
- Creating Charts

BASICS

Worksheet Layout

Rows and Columns:

Each worksheet is composed of rows (numbered) and columns (lettered).

Cells:

The intersection of each row and column creates a cell. The cell is identified by its location on the worksheet (i.e. B3).

An *active cell* is outlined in black and the location appears in the Name box (D2 is active in Fig. 1).

Worksheet/Sheets:

Each page of cells is called a worksheet or sheet. Multiple worksheets are available in each Excel file.

Click on the Sheet tab to access a new worksheet. The Sheet tabs can be renamed by double-clicking on the current tab name, then typing the desired name.

Formula Bar:

The formula bar displays the contents of an individual cell. The contents may be text, numbers and/or formulas, depending on the cell.

Entering Text and Numbers

Moving the cursor:

You can move the cursor using several options on the keyboard:

Tab key- moves one cell to the right (along the row)

Shift-Tab keys- moves one cell to the left (along the row)

Enter key- moves one cell down (along the column)

Shift-Enter keys- moves one cell up (along the column)

Cursor keys (arrow keys)- moves one cell in direction of arrow on key

Any cell can also be activated by clicking on it using the mouse.

Entering content:

Once the cursor is in the appropriate cell, enter the content using the keyboard. Cells will accept text or numbers, as well as equations (see formula section for details).

There are a few default settings that become evident once there is content in a cell:

Numbers are right-justified.

Text is left-justified.

Whole numbers will not display zeros after the decimal point (unless the cell has been specially formatted).

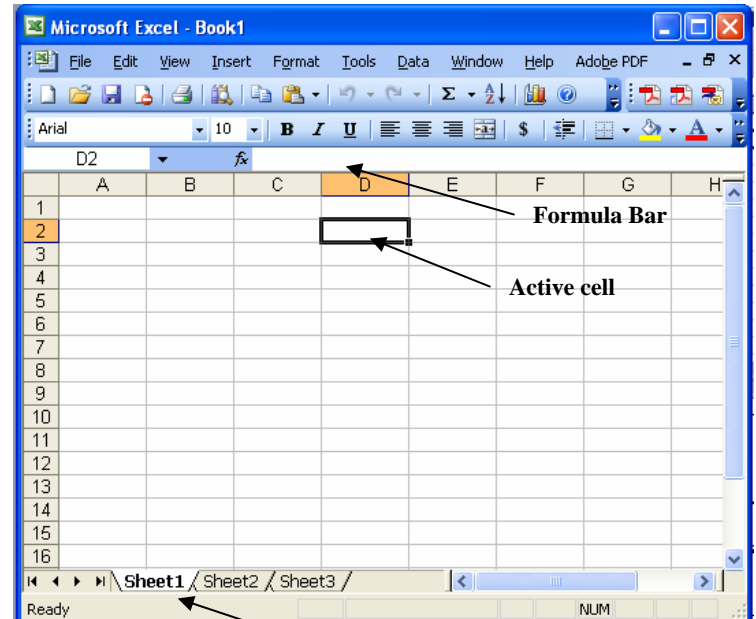


Fig. 1

Cutting and Pasting Cells:

- To move a filled cell, click on the cell to activate it, and press Ctrl-X on the keyboard (or go to the Edit menu and select Cut). The activated cell will be encircled by a flashing dotted line (Fig. 2).
- Move the cursor to the desired blank cell and press Ctrl-V (or go to the Edit menu and select Paste).
- To move a group of filled cells, hold down the left mouse button and drag the cursor over the group of cells, selecting all of them. Then complete the cut and paste commands.

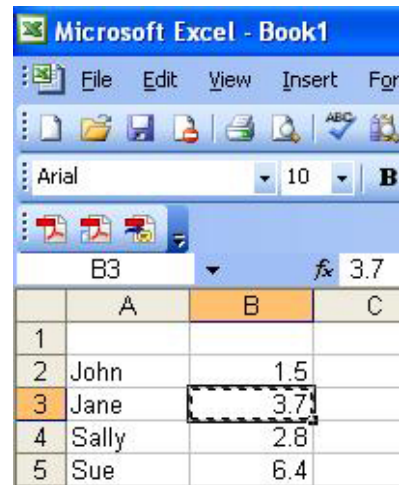


Fig. 2

Inserting Rows and Columns:

To insert a row:

Activate a cell. Under the Insert menu, select Row. The row will be added above the row containing the activated cell

To insert a column:

Activate a cell. Under the Insert menu, select Column. The column will be added to the left of the column containing the activated cell.

Editing Cell Content:

The contents of any cell can be edited at any time. To see the cell's contents, click on the cell and look in the formula bar. Click with the cursor in the formula bar to add or remove content at that location.

Formatting Text, Numbers, and Cells

Selecting Rows or Columns:

To select an entire row, click on the number of the row in the gray column on the left.

To select an entire column, click on the letter of the column in the gray row at the top.

Formatting Text:

Font/Point Size/Bold/Underline- Once the desired cell(s) have been selected, click the appropriate formatting button in the toolbar at the top of the screen (Fig. 3) to alter the appearance of the text in that cell(s).

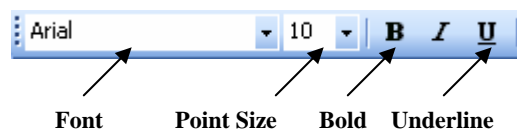
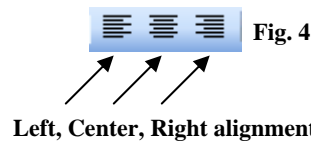


Fig. 3

Subscripts/superscripts- To add subscripts or superscripts to a cell, highlight the letter/number in the formula bar. Under the Format menu, select Cells.... Check the box for superscript or subscript as desired.

Alignment-

- Left/Center/Right: To change the default horizontal alignment of a cell's contents, select the cell(s) or row(s)/column(s), and click the appropriate alignment button on the tool bar. (Fig. 4)



- Top/Center/Bottom: To change the default vertical alignment of a cell's contents, select the cell(s). Under the Format menu, select Cells.... Click on the Alignment tab (Fig. 5), and choose the desired alignment from the Vertical drop down menu.

Wrapping text- In some cases, the content in a cell will exceed the amount of space available. If there is extra text, only the beginning of the text will be visible. If a number is too long to fit, the cell will display #####, rather than the number. To fix this problem you could increase the width of the column (see Formatting Cells), or you can format the cell to allow the text to wrap onto a second line within the cell.

- Select the cell(s) that need to have text on multiple lines. (Entire columns or rows can also be selected.)
- Under the Format menu, select Cells....
- Click on the Alignment tab (Fig. 5).
- Check the box for Wrap Text.

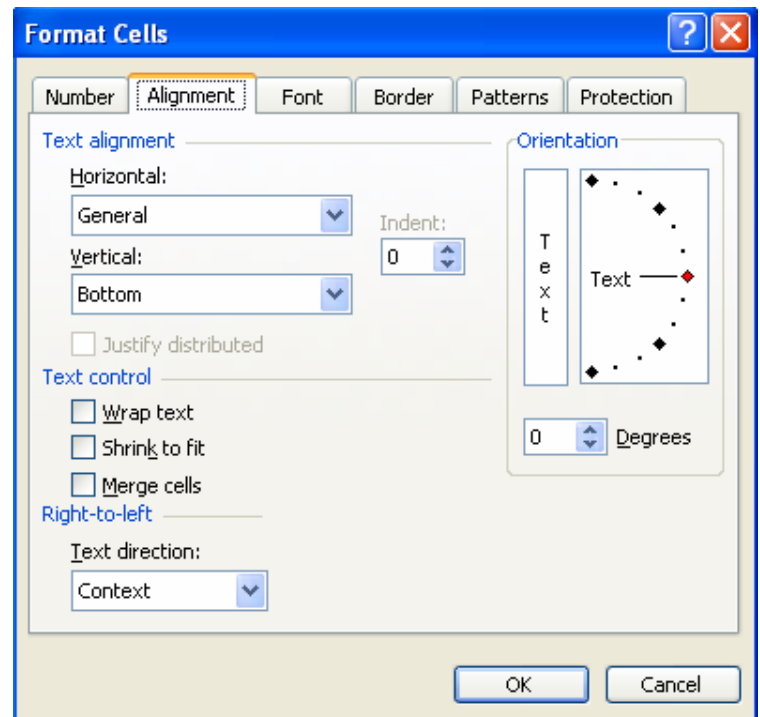


Fig. 5

Merging and Centering cells-

Sometimes text needs to be centered over multiple columns. Rather than trying to guess which column is the central one and typing the text in that column's cell, the entire set of cells in that row can be combined.

- Select the cells.
- Click the Merge and Center button on the toolbar. (Fig.6)
- The same process can be done via the Alignment window (Fig. 5 above) by checking the Merge cells box and horizontally centering the text.



Fig. 6

Formatting Numbers:

Number of decimal places- Select the cell(s). Under the Format menu, select Cells... and click on the Number tab. Click on Number to see the decimal place options (Fig. 7).

Decimal places alignment- Since Excel does not retain zeros at the end of a number (i.e. 2.0), it can be difficult to line up a column of numbers with inconsistent numbers of decimal places. To increase or decrease the number of decimal places for a column (and thereby unify the number of decimal places), select the column and click on the appropriate button in the toolbar. (Fig. 8)



Fig. 8

Increase decimals, Decrease decimals

Special notation (currency, dates, etc.)- Additional formatting options for currency (\$), times, dates, zip codes, social security numbers, and phone numbers are found under the Format menu, Cells..., and Number.

Formatting Cells:

Column width/Row height- To expand or contract the width of a column, select the column. Placing the cursor in the gray row at the top of the column, drag the right or left edge to make it wider or narrower.

Double-clicking on this edge will automatically adjust the width to fit the widest content in that column. Row height can be altered in the same manner, dragging or double-clicking on the top or bottom edge in the gray column on the left side of the worksheet.

Borders and Patterns- Borders can be placed around a cell or group of cells using the border option. Under the Format menu, select Cells.... Select Border. The number of sides and the type of line can be selected from this window. (Fig. 9) Patterns and colors are also available in the adjacent tab. These options should be used cautiously as it can be difficult to read data when the cell also contains a color or pattern.

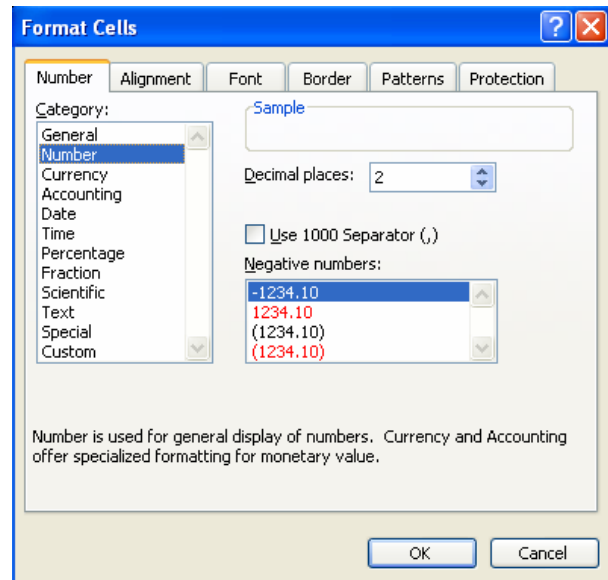


Fig. 7

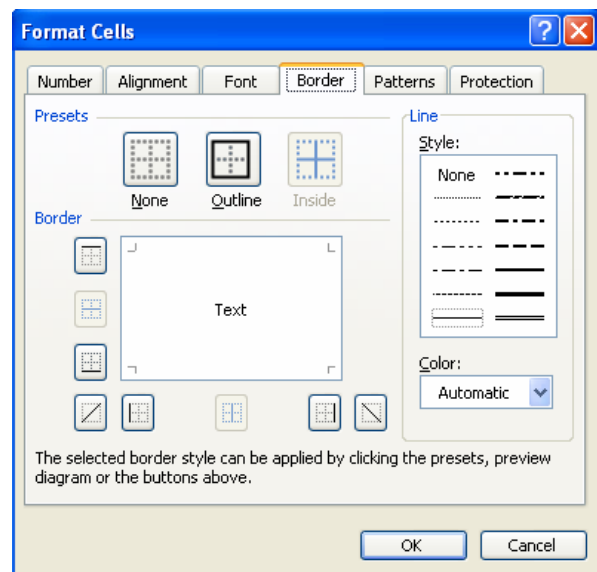


Fig. 9

Delete vs. Clear:

Two options are available to remove the contents of a cell:

Delete will remove the numbers or text, but retain any formatting.

Clear will remove both the content and the formatting.

Removing Rows and Columns:

To remove an entire row or column, click the letter (for column) or number (for row).

Under the Edit menu, select Delete.

USING DATA SHORTCUTS**Autofill**

A quick shortcut to add a series of text is to use the Autofill function.

- Enter the first term in the series (i.e. January, Monday, First Quarter, etc.)
- Using the mouse, drag the small black square in the lower right corner of the cell across the rows or down the column to fill in the remaining portion of the series.

AutoSum

Summing a column or row of numbers can be done easily by clicking the AutoSum button in the toolbar. (Fig. 10)



Fig. 10

- Place the cursor in the cell that will contain the total.
- Click the AutoSum button.
- The cells to be added will be enclosed in a flashing dotted line. Make sure all of the appropriate cells are included. If there are blank cells in the midst of the row or column of numbers, the outline will have to be added manually by dragging the cursor across the desired cells.
- The range of cells can also be double-checked by viewing the formula generated in the original cell. For example, to add the contents of cells B3 through B10, the generated formula should read

$$=SUM(B3:B10)$$
- Press Enter to view the total.

Formulas

Excel can also perform other types of mathematical calculations including multiplication, division, and subtraction.

- To enter a formula, click in the cell that will hold the results of the equation.
- Press the equal sign to start the formula, then enter the cell names and notations to complete the formula. For example, to subtract the value of B5 from B3, the equation would read

$$=B3-B5$$

Note: Use the asterisk (*) for the multiplication symbol, and the forward slash(/) for the division symbol.

Fill (Right, Down)

Once a formula has been created, it can be automatically added to adjacent cells in a row or column (adjusted for the row number or column letter).

- Put the cursor in the cell containing the formula.
- Holding the mouse button down, highlight the adjacent cells that will contain the modified formula.

- Under the Edit menu, select Fill. From the submenu, select the appropriate direction (i.e. right, down, etc.).
- The formulas will be added to the cells. The formula for each of the adjacent cells can be double-checked by clicking in the cell and viewing the contents in the Formula bar. If there is no data on which to perform the calculation, the cell will contain a zero.

Sorting

Once data has been entered, it is possible to sort the information into a different sequence, retaining the link between the label and the numerical information.

- Highlight the rows or columns to be sorted, clicking on the gray row number or column letter to select the entire row/column.
- Under the Data menu, select Sort....
- Select how the sort should occur (ascending or descending) and which column determines the sorting method. (Fig.11)
- Check the appropriate button to indicate whether or not a header row has been included in the highlighted rows of data.
- Click OK to perform the sort.
- Multiple-level sorts can be performed using the addition sorting levels in the window (i.e. Sort sales by month, then by salesperson).

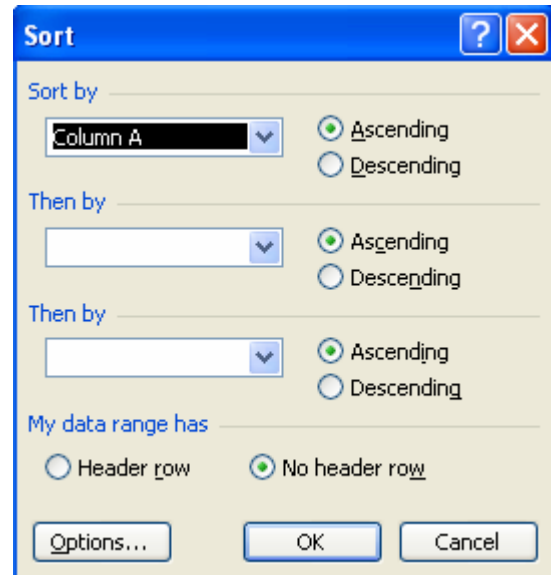


Fig. 11

PRESENTING THE INFORMATION

Page Setup Options

Orientation

Excel spreadsheets are often wider than they are long, so many will benefit from changing the orientation of the page from portrait (vertical) to landscape (horizontal).

- Under the File menu, select Page Setup.
- Click the button for the Landscape orientation. (Fig. 12)

Fit to One Page

Spreadsheets can also be automatically scaled to fit onto one (or more pages).

Click on the Fit to button and enter the page specifications. (Fig. 12)

Note: The resulting text size may be quite small.

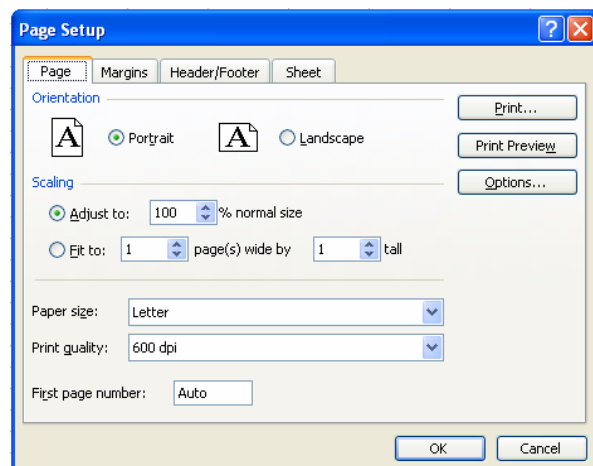


Fig. 12

Margins

Margins can be altered to provide additional space for data. (Fig. 13) No margin should be smaller than .5 inches in order to avoid cutting off part of the data when printing.

Centering on Page

To center small blocks of data on the page (without altering the margins), click the appropriate box in Page Setup-Margins (horizontally, vertically). (Fig. 13)

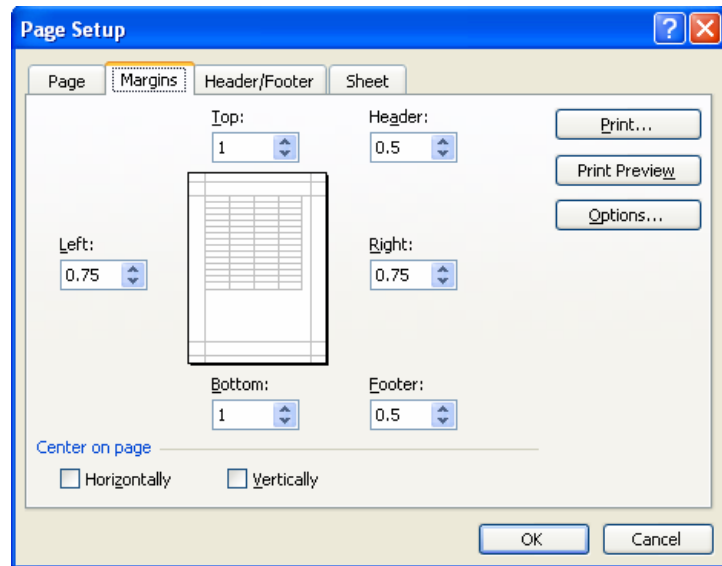


Fig. 13

Header/Footer

Headers and Footers provide a convenient location for small pieces of information. Common elements of these two text areas are page numbers, dates (creation or printing date), times, author name, version number, and/or project name.

Standard options and formatting are available under the Header and Footer drop down menus, (Fig. 14) however custom options are also available. (Fig. 15)

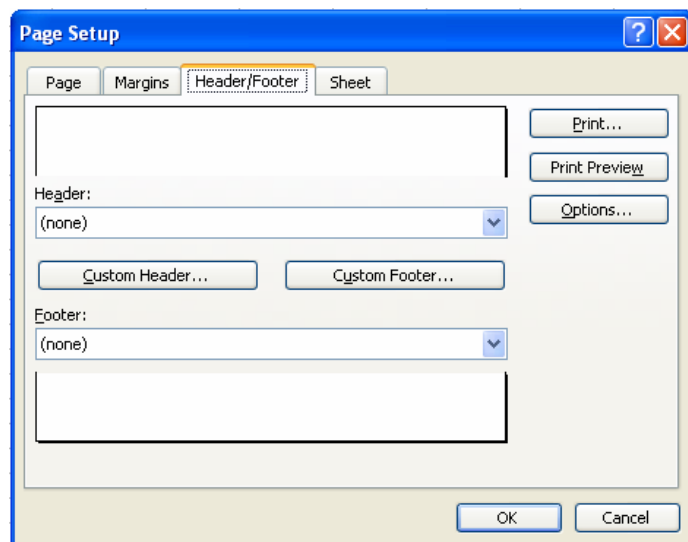


Fig. 14

To create a custom header or footer, place the cursor in the desired section and type in the appropriate text (project name, author name, etc.)

Some of the standard options (date, page number, etc.) can be added by clicking on the appropriate button.

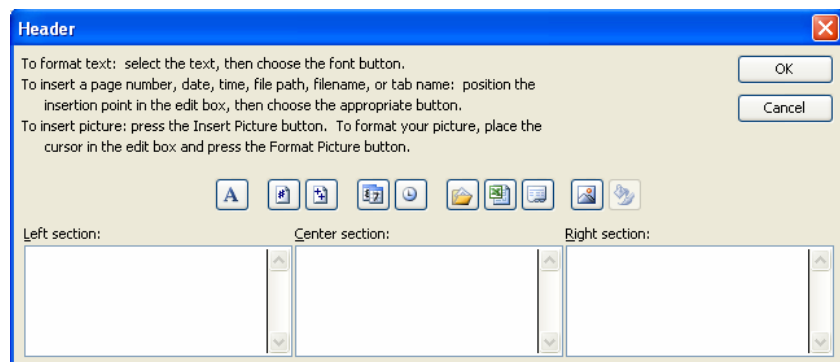


Fig. 15

Sheet

If a spreadsheet spans multiple pages, it can be helpful to include the row/column containing the headings on each page. To automatically add this option, in the Print titles area, click on the appropriate colored square (rows or columns), then click the gray row number or column letter to add the absolute value to the setup options. (Fig. 16)

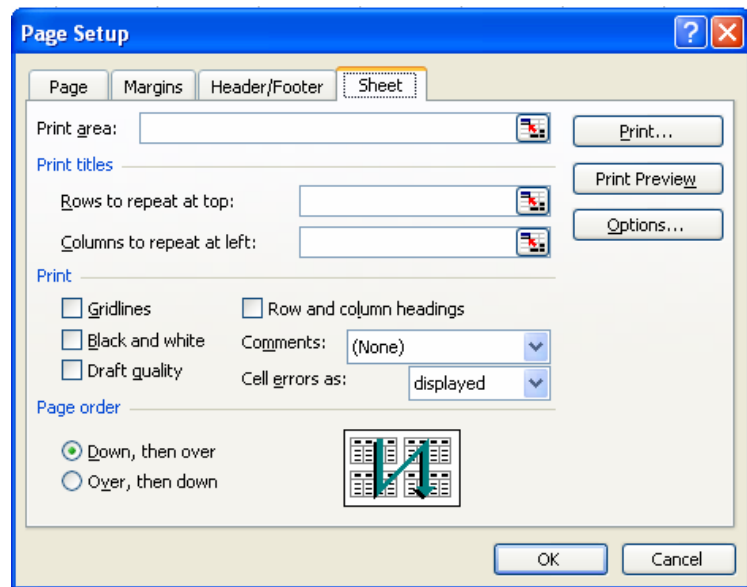


Fig. 16

Printing Options

Print Area

To print only a portion of a spreadsheet, highlight the desired area. Then under the File menu, select Print Area-Set print area. When the print command is given, only the highlighted area will print. Choose Clear Print Area to remove a previous setting.

Gridlines

The default Excel setting is printing without visible gridlines between the cells. However, sometimes it is helpful to be able to see the cell divisions.

To print the spreadsheet with visible gridlines, select File-Page Setup-Sheet and click the box for Gridlines. (Fig. 16)

Creating Charts

Once the data has been entered into the spreadsheet, a graph or chart can be created. The graph can contain portions of the spreadsheet or the entire data set.

- Highlight the data to be graphed.
- Click on the Chart Wizard button (Fig. 17) in the tool bar to go through the four step process.
- In step 1, select the type of graph desired on the left, then the appearance of that type of graph on the right side. (Fig. 18)



Fig. 17

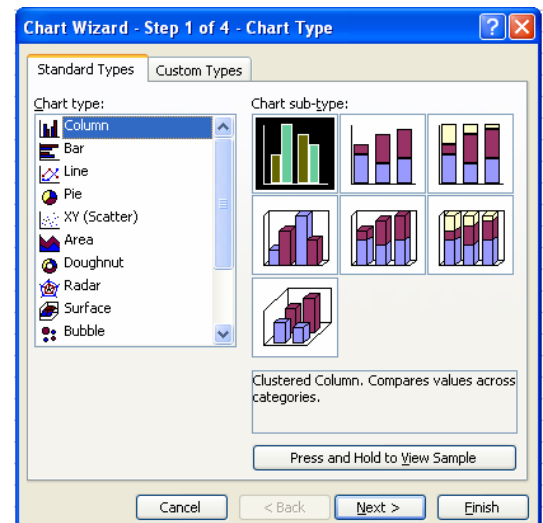


Fig. 18

- In step 2, confirm the data range. (Fig. 19)

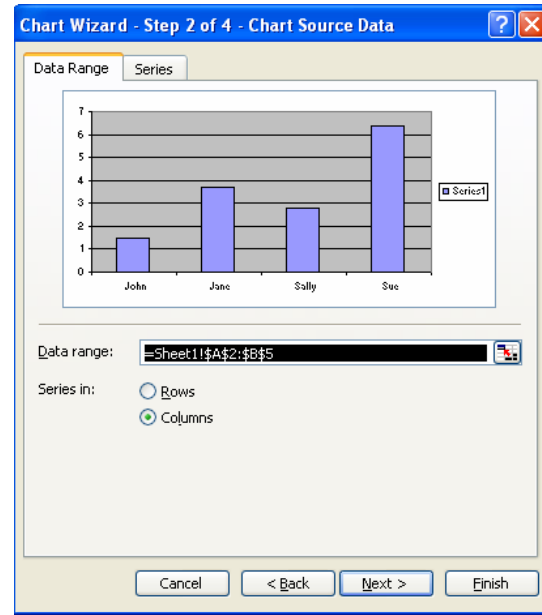


Fig. 19

- In step 3, make any desired adjustments to the chart title and location of the legend. (Fig. 20) Options for adding labels to the individual data pieces (raw number, percentage, etc.) are also available.

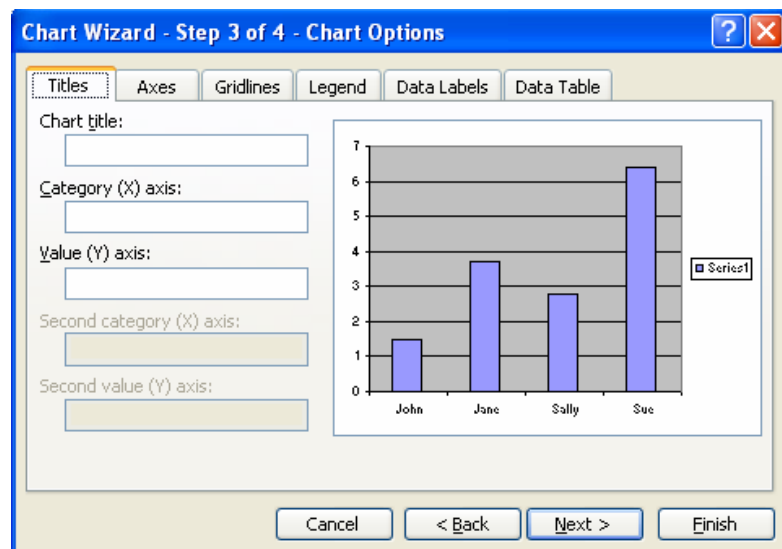


Fig. 20

- In step 4, decide whether the chart should be part of the current worksheet or be on a new worksheet. (Fig. 21)
- Click Finish to add the completed chart to your worksheet.

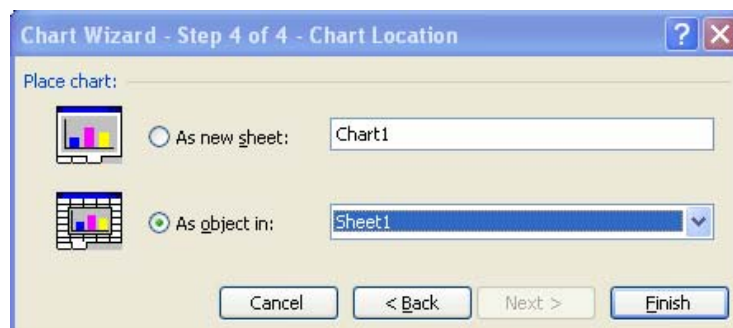


Fig. 21