Excel: Introduction

Basic Computer Science

Module 4

Angelo Gargantini

AA 19/20

Some text and examples used with permission from:

http://www.jegsworks.com

Note: We are not endorsing or promoting religious doctrine, but simply taking advantage of this website for educational purposes.

Objectives

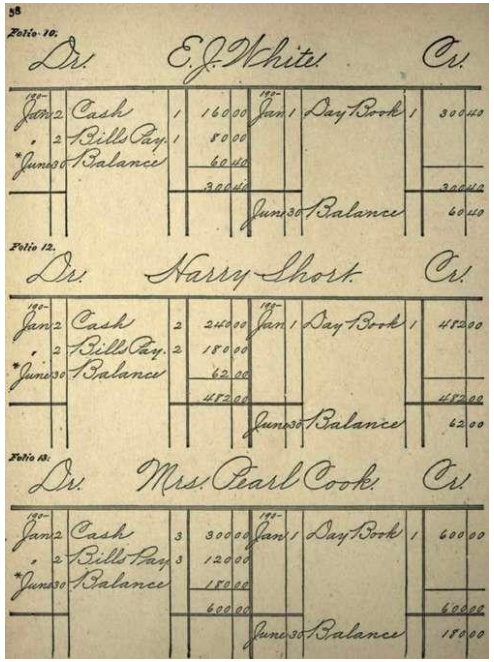
- The student will
  - Understand the purpose of Excel
  - Know the differences in the ribbons between Excel and Word
  - Know the types of data that can be entered into an Excel file
  - Create a basic Excel worksheet

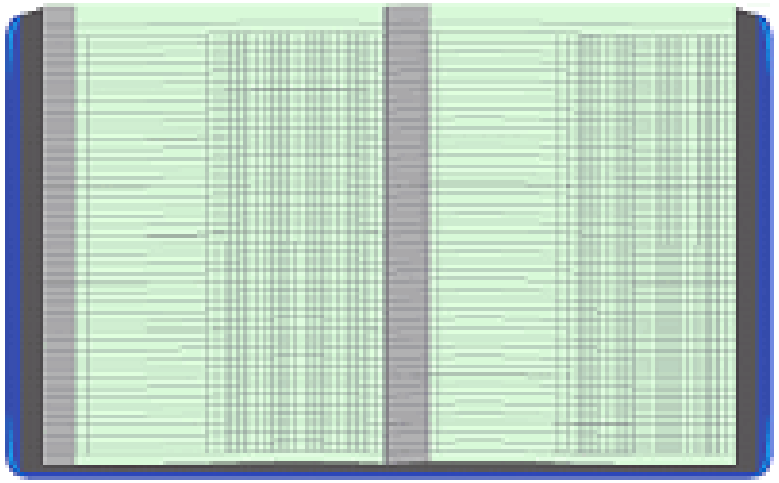
Excel

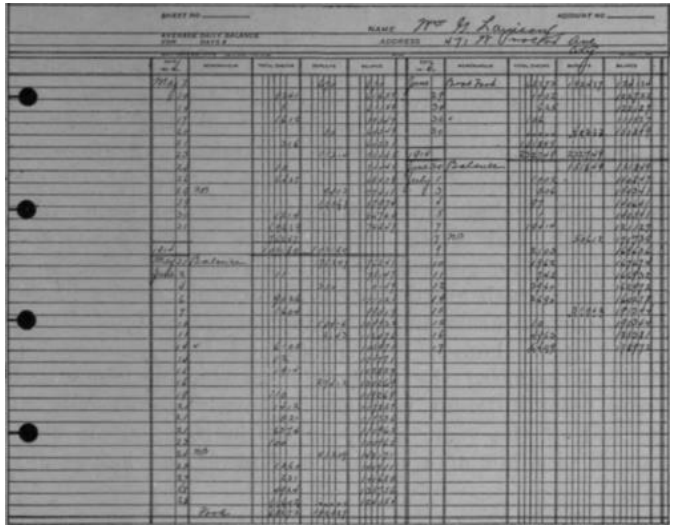
- Excel is a spreadsheet program
  - Spreadsheet: An accounting or bookkeeping program that displays data in rows and columns.
  - The purpose of a spreadsheet is to solve problems that involve numbers. Computer spreadsheets have the ability to complete complex and repetitious calculations quickly and accurately
- Excel makes it easy to arrange and format columns of numbers and to calculate totals, averages, percentages, budgets, and complex financial and scientific formulas.

Excel: History

- The look of Excel comes from the account ledgers that have been used to keep records for centuries.
- Ledger pages are lined off into rows and columns to record such things as items in inventory, income and expenses, debits and credits.





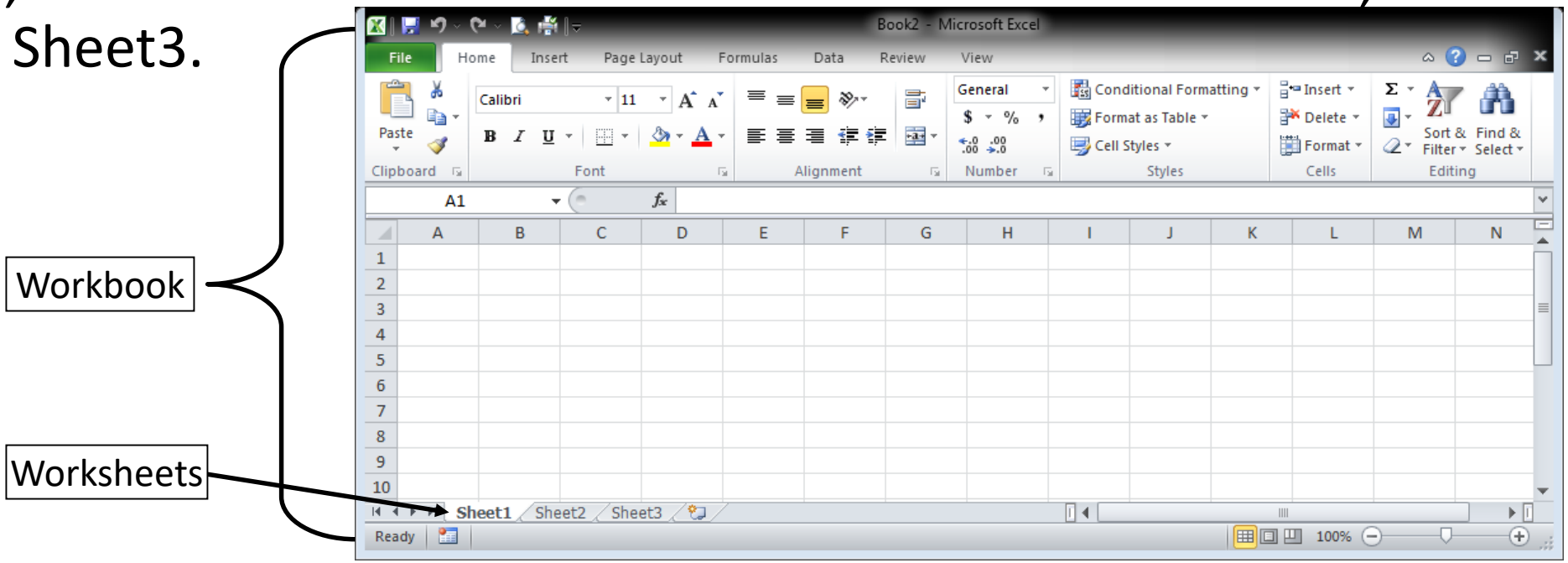


Excel: Advantages over Ledgers

- Ease of editing the data
- The ability to update totals and other calculations automatically as you enter new data.
- The ability to print and send the files.

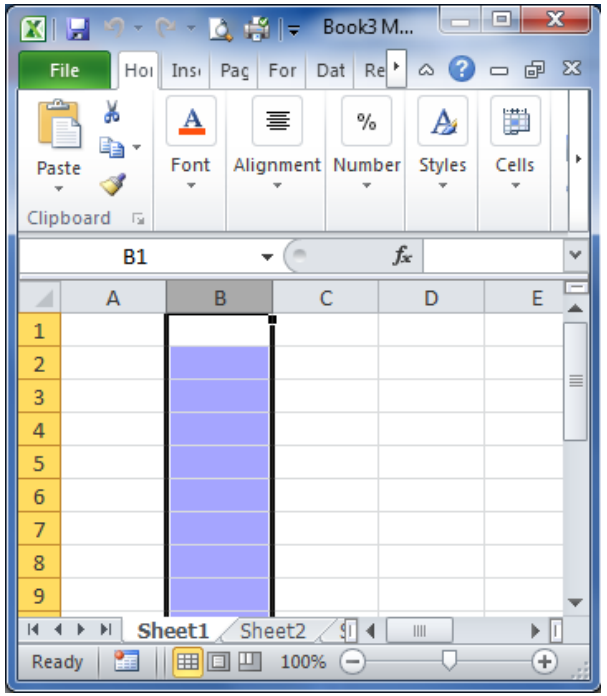
Excel: Definitions

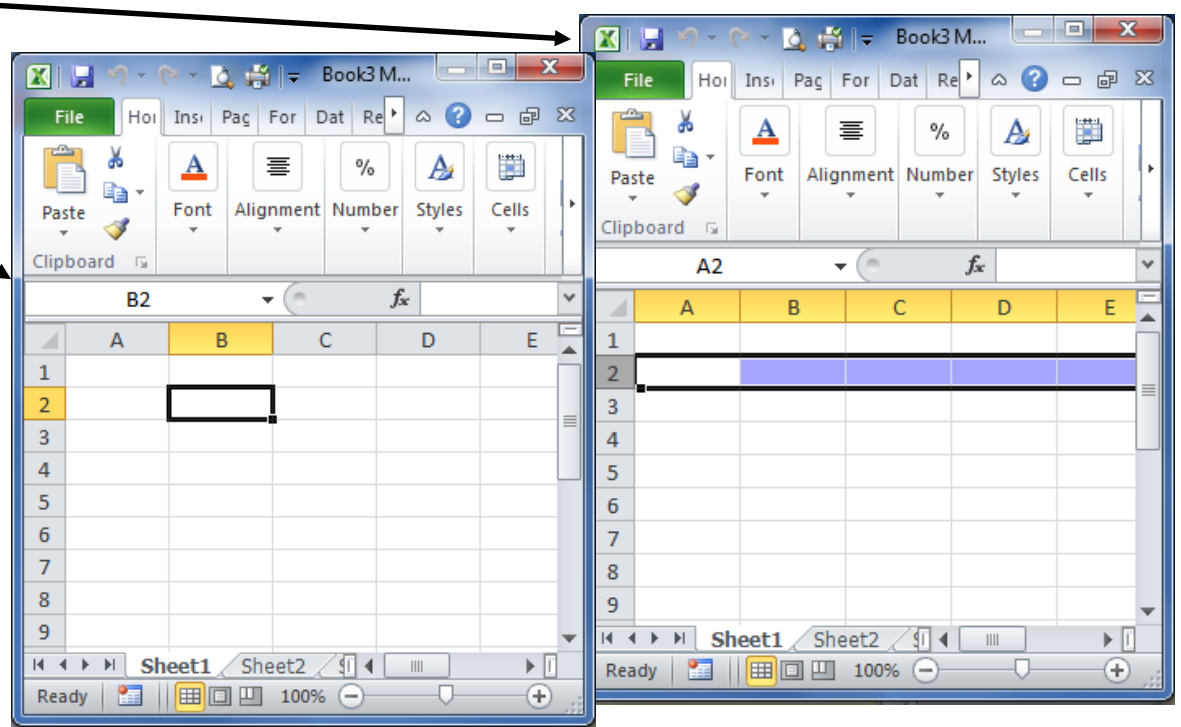
- An Excel file is called a Workbook.
- A workbook is composed of Worksheets
- When Excel starts, the program window displays a blank workbook titled Book1, which includes three blank worksheets titled Sheet1, Sheet2, and Sheet3.



Excel: Definitions

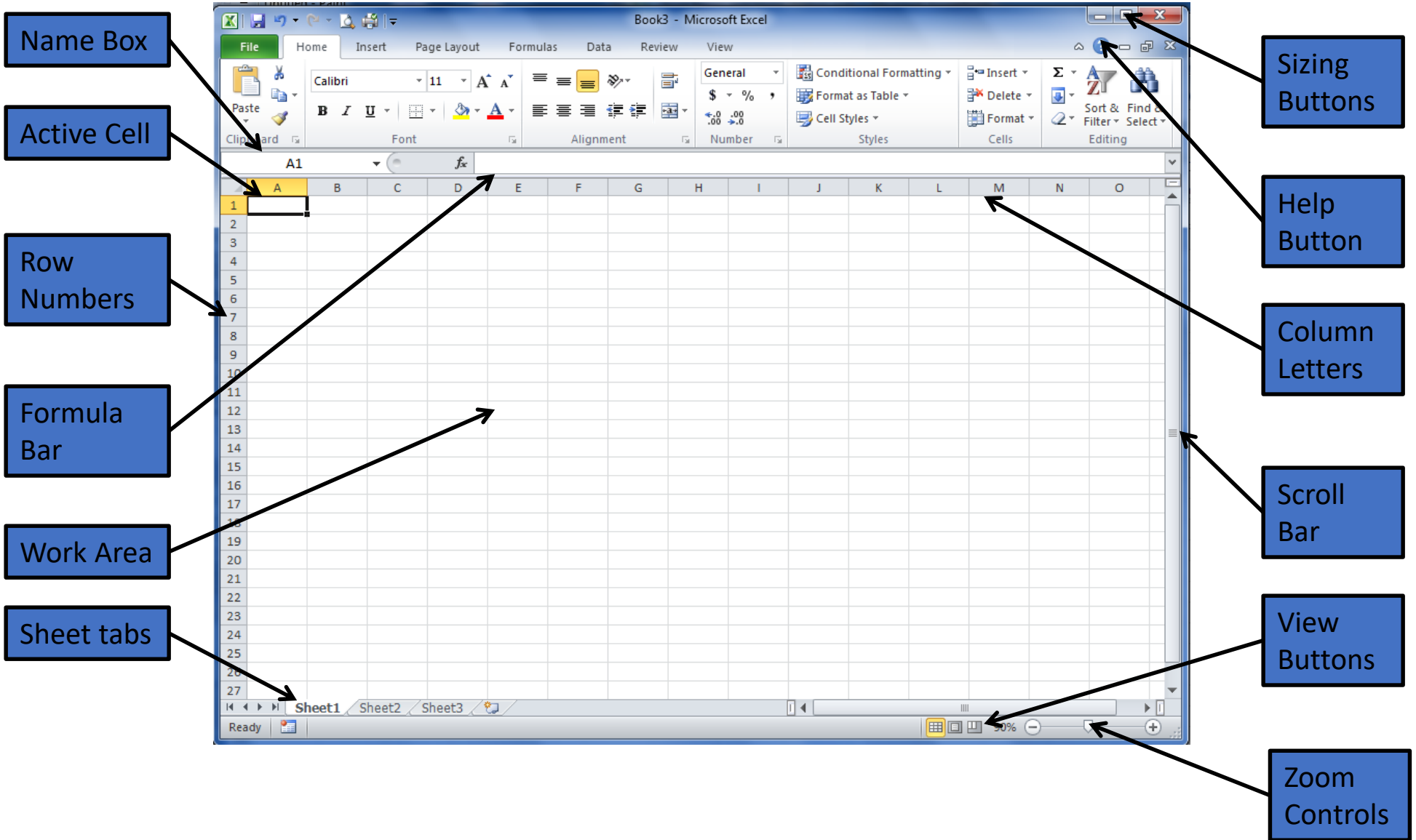
- Worksheets are made up of
  - Columns
  - Rows
  - Cells





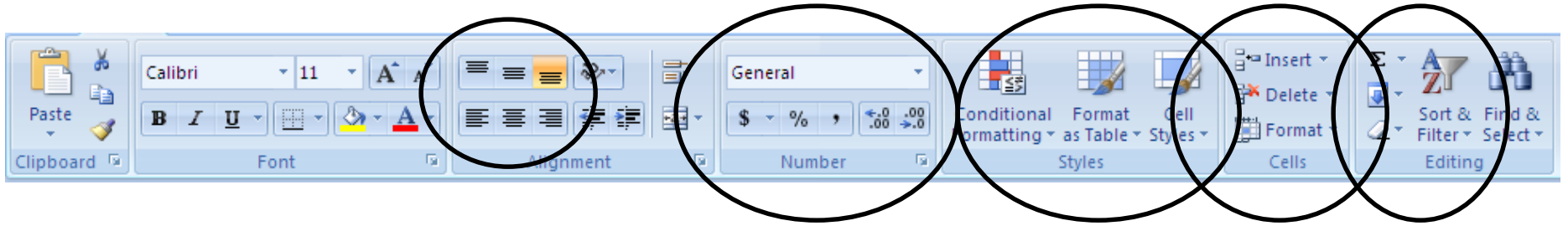
- The biggest difference between Excel and other programs is that you work in a cell

Excel: Program Window



Excel: Home Ribbon – What's New?

- Alignment in both directions
- **Number** group added – Formatting numbers
- Styles over the table or cells in the **Styles** group
- Cell Commands in the **Cells** group
- Autosum, Sort & Filter, etc. added to the **Editing** group



Excel: Data types

- In a cell you can enter the following:
  - **Text:** A combination of letters, numbers, spaces, etc. Automatically aligns to the left
  - **Number:** a constant value – includes numeric values and some symbols: + - ( ) %
  - **Date or Time:** Is treated as a value. They can be used and in formulas
  - **Formula:** a set of instructions for calculating values. *=C1 + C2* would add the numbers in cells C1 and C2

Excel: Navigating Screen

- Use the **arrow** keys to move from cell to cell
- **Tab** and **Shift+Tab** also moves you right and left in the worksheet.
- **PageUp** and **PageDn** – Move up or down 1 window
- **Home** – move to the beginning of a row
- Cntl-Home – move to cell A1
- Cntl-End – move to the last cell containing data

Rest of Today

- Download and complete Homework 6-1

Excel:
2. Navigating the Screen

Objectives

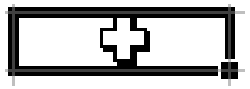
- The student will
  1. Understand how to move about and select cells
  2. Understand what the different cursors mean
  3. Navigate between worksheets
  4. Understand how to move and change worksheets

Excel: Selecting Cells

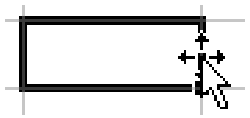
- Navigation review:
  - Arrow keys
  - Tab and Shift+Tab moves right and left.
  - PageUp and PageDn – Move up or down 1 window
  - Home – move to the beginning of a row
  - Cntl-Home – move to cell A1
  - Cntl-End – move to the last cell containing data

Excel: Pointer Shapes

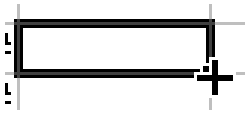
- The cursor changes shape to indicate the action that will happen when you click it:



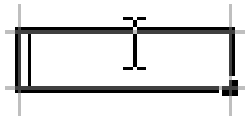
Select a cell or range



Drag selected cell or range

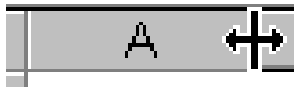


Fill (copies values into the cells you drag across) or fill series (copies a pattern of values, such as filling in the days of the week)

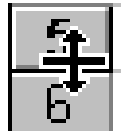


Entering or editing data. The cursor (vertical line inside the cell) blinks.

Excel: Row and Column Pointers

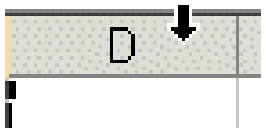


Resize column

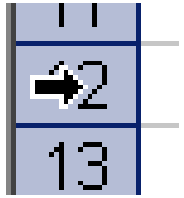


Resize a Row

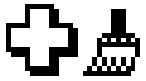
Select the whole column



Select the whole row.

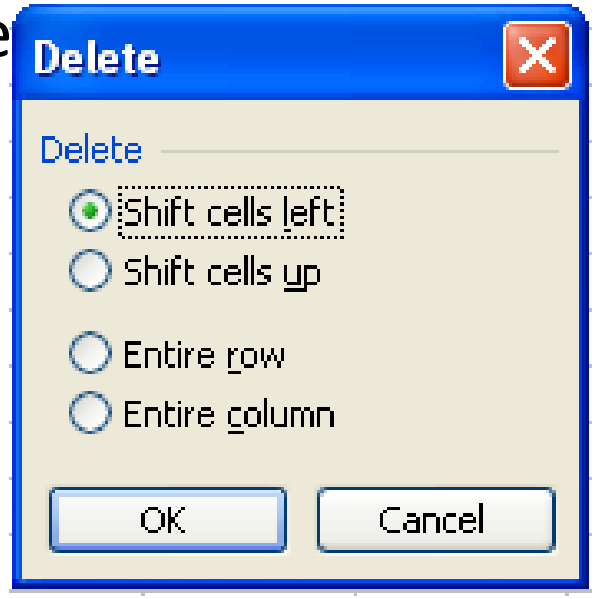


Copy cell formats with Format Painter



Excel: Cut, Delete, Copy and Paste

- Cut – Use this to delete cells from 1 location and paste in another. Removes the contents from the cell but the empty cell remains
- Delete – Deletes the cells from the current location. This removes the entire cell. You need to pick how the cells are adjusted.



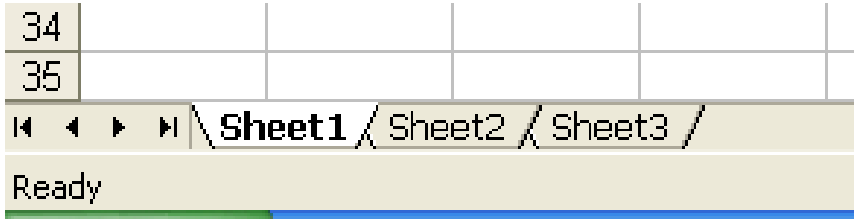
Excel: Cut, Delete, Copy and Paste

- **Copy** – Creates a copy but does not change the data.
- **Paste** – Puts the data from Copy or Cut into the current location.

- **Cut**, **Copy** and Paste can be found in the Clipboard group on the Home ribbon.
- All can be found right clicking the mouse after the cells are selected.

Excel: Worksheets

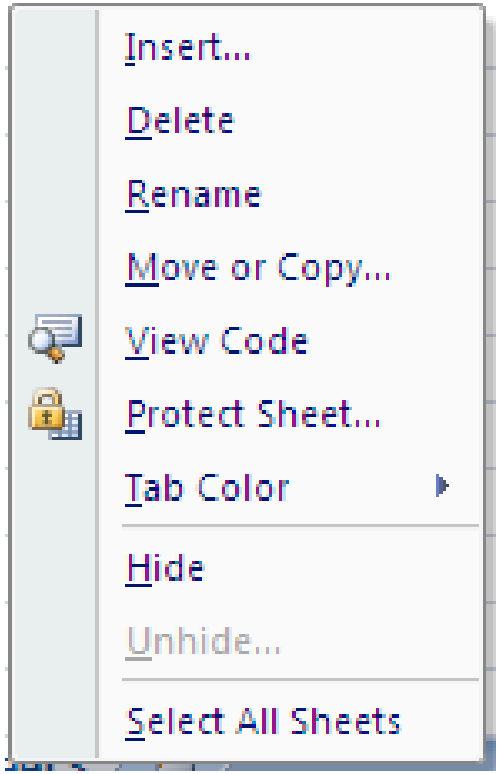
- When you open Excel it creates 3 worksheets.



- You move between worksheets by clicking on the tab for the worksheet.

Excel: Changing Worksheets

- If you right click on a worksheet tab you get the menu for changing worksheets:

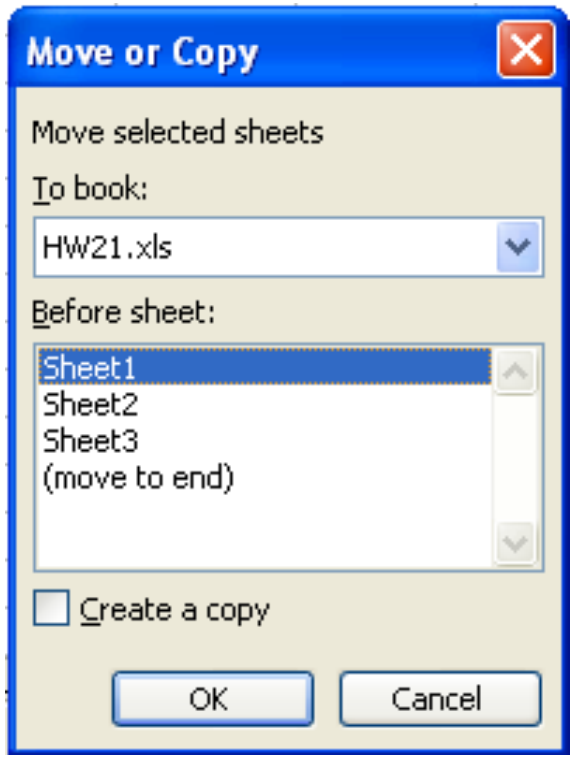


Excel: Changing Worksheets

- Insert – Creates a new blank worksheet
- Delete – Deletes the current worksheet. Note: This cannot be undone!
- Rename – Changes the name on the tab for worksheet
- Select All Sheets – Selects all sheets. Some actions can be performed on multiple sheets at once.

Excel: Changing Worksheets

- Move or Copy… - Brings up a menu select where you want the tab placed and if you want a copy made:



Summary

- Use the arrow or tab keys to move around a worksheet
- The cursor defines what action will happen when you click in a cell
- Cut, Copy and Paste work the same in Word but when you Delete you need to pick how the delete affects the remaining cells.
- Right click on a worksheet tab to get the menu for worksheets

Rest of Today

- Complete Homework 6-1. This needs to be completed before you can start 6-2.
- Download Homework 6-2. Complete the assignment. Print to pdf.

Excel:
Cell and Number Formats

Computer Information Technology
Section 6-3

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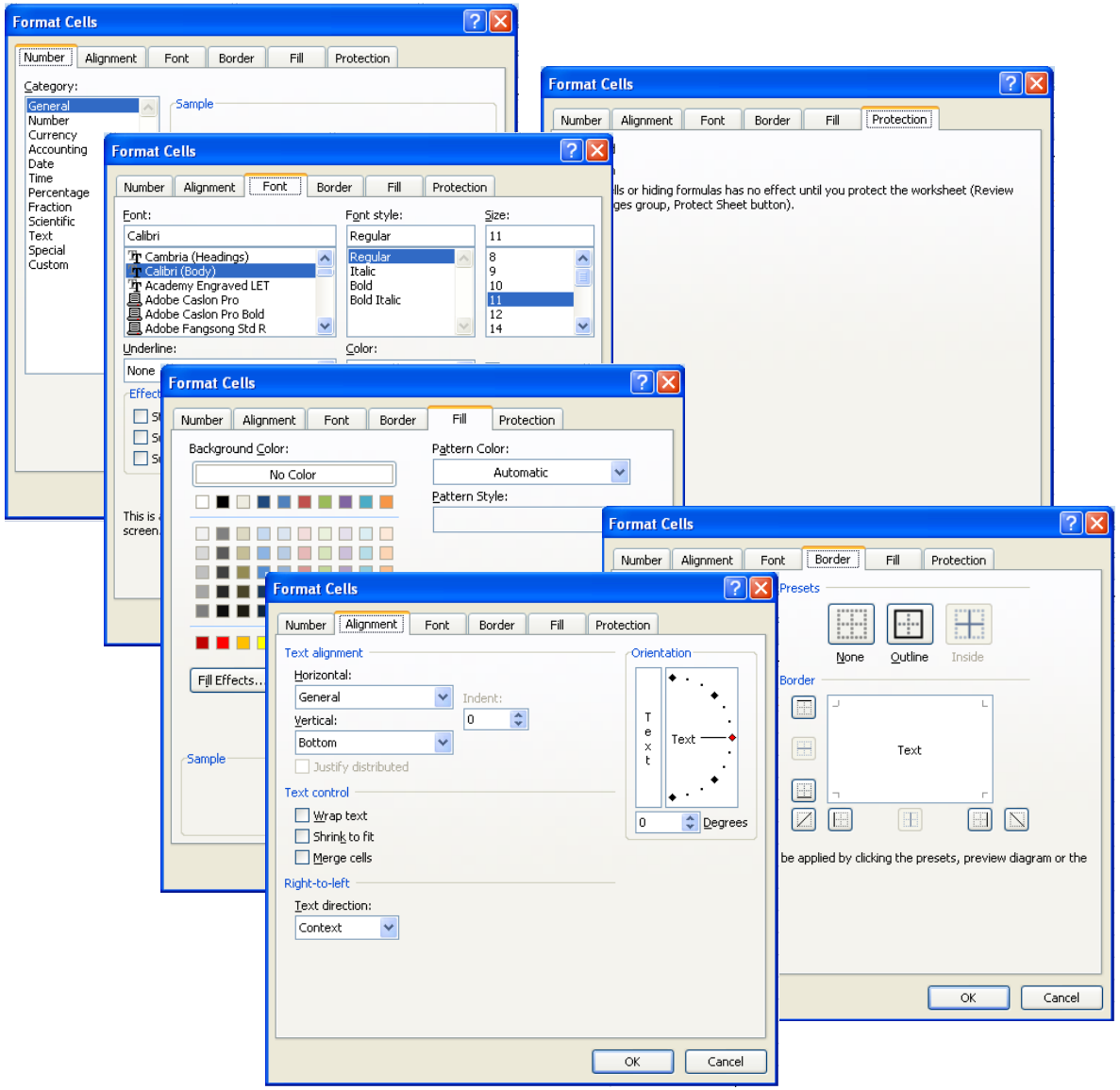
Objectives

- The student will
  1. Understand the tabs on the Format Dialog box
  2. Know how to set formats for numbers, dates, etc.

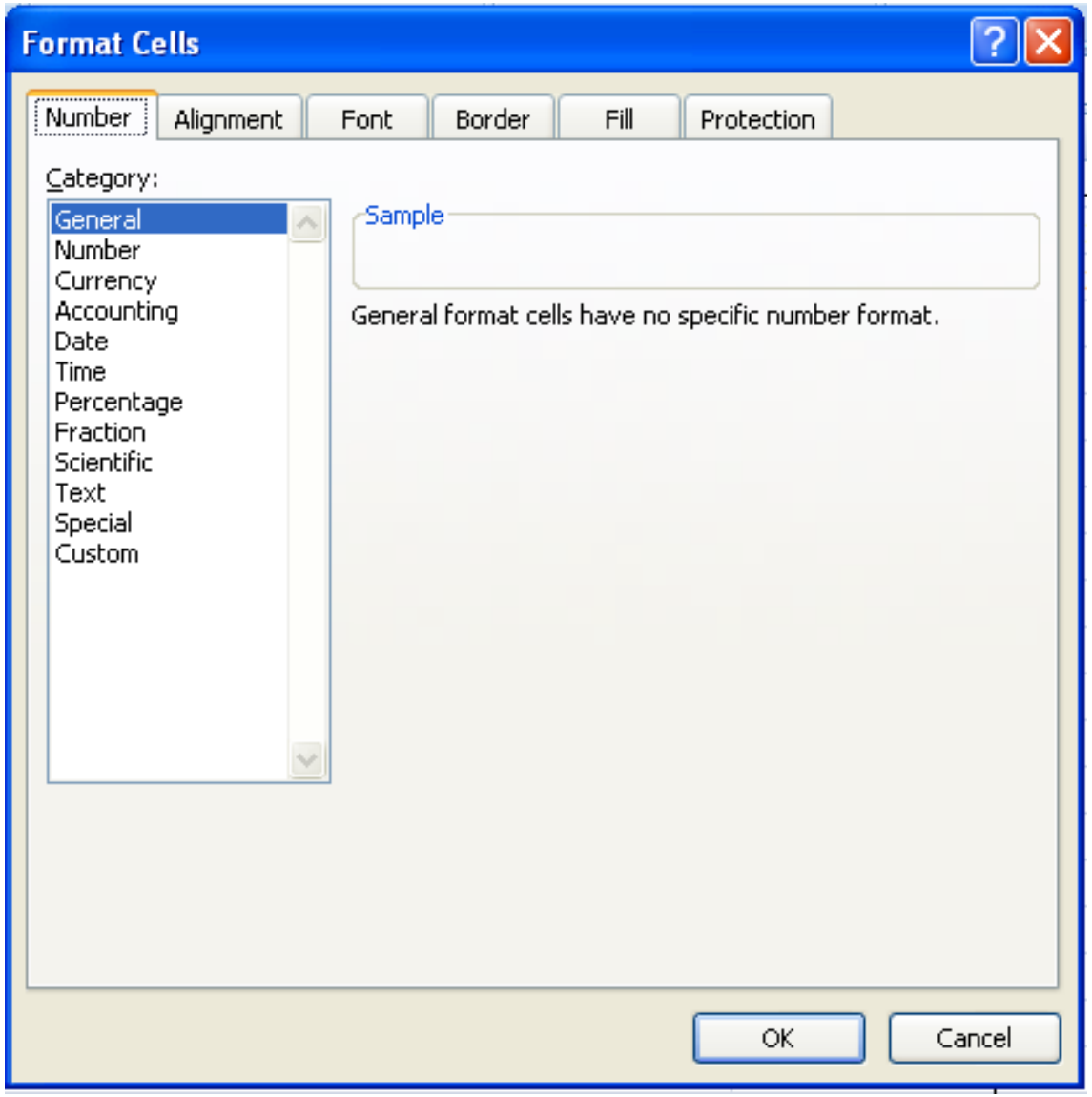
Excel: Formatting Cells



- The dialog box for **Format Cells** has six tabs, each with several characteristics that you can set.

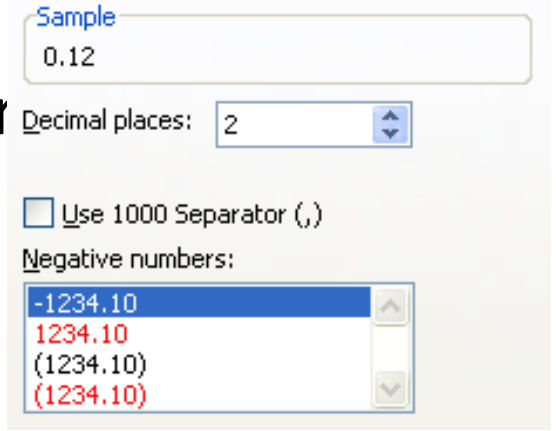
Excel: Number Tab

- The number tab allows you to select the style for a number in the cell.



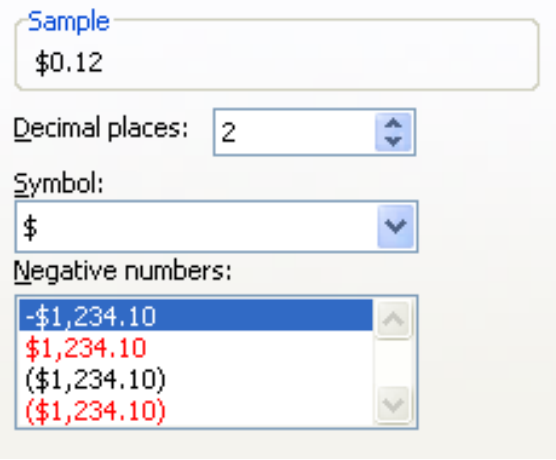
Excel: Number Formats

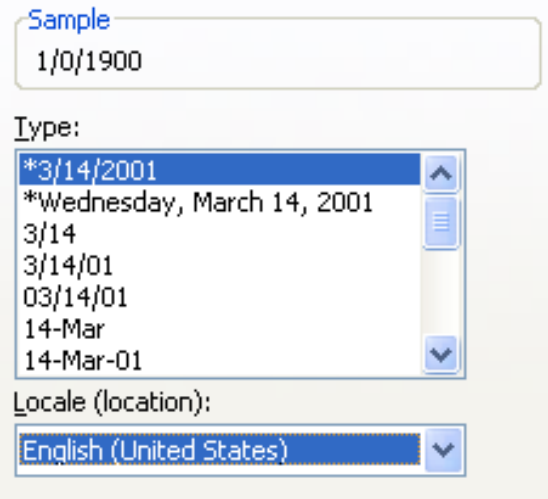
- **General** – Works for numbers and general text. No commas, number of decimals places to whatever fits in the cell. General is the default formatting.
- **Number** – Allows you to set the number of decimal places, if you want commas and the format for positive and negative numbers.



Excel: Number Formats

- **Currency** – money format, default is 2 decimal places and $. Can choose the symbol for most currency.
- **Date** – Format the date, there are many choices to choose from



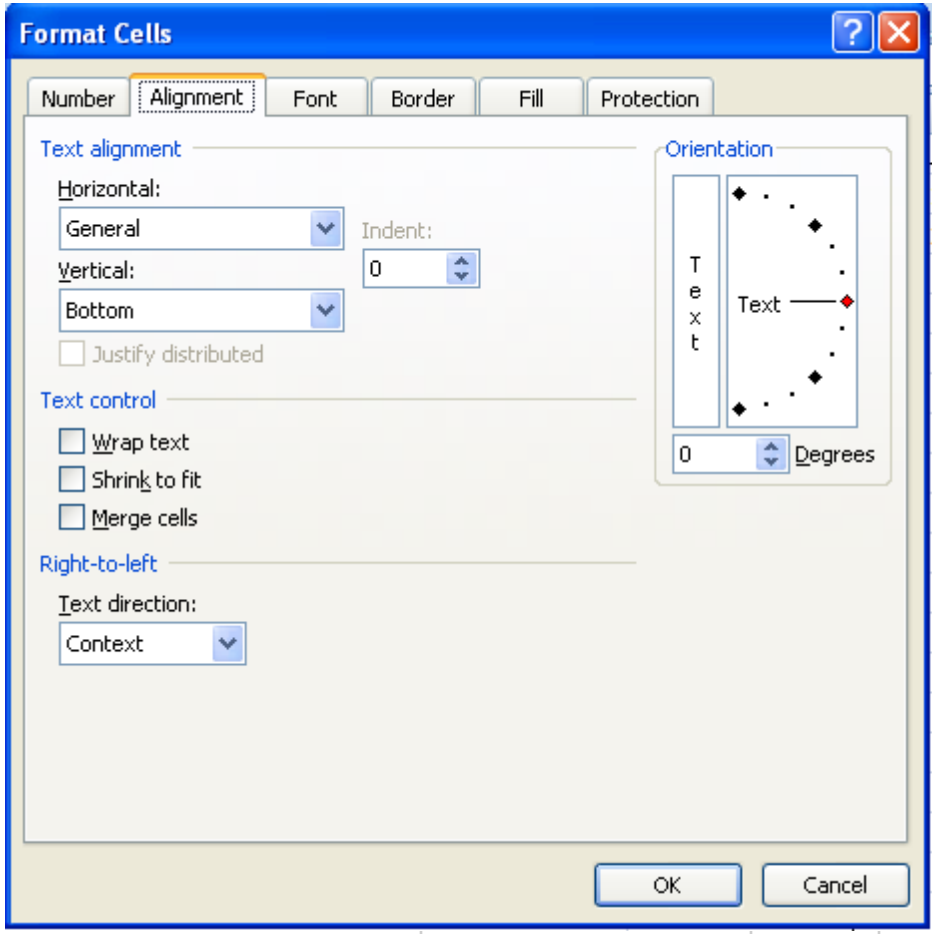


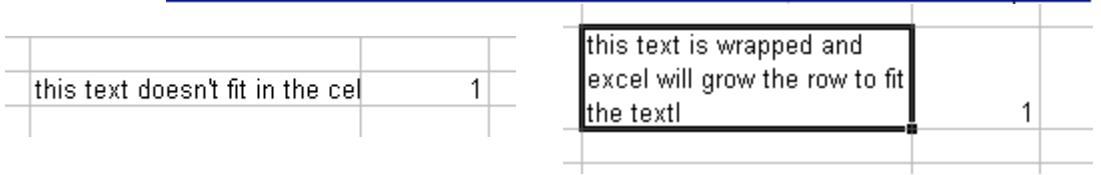
Excel: Number Formats

- **Percentage** – Adds the % sign, select the number of decimal places

Excel: Alignment

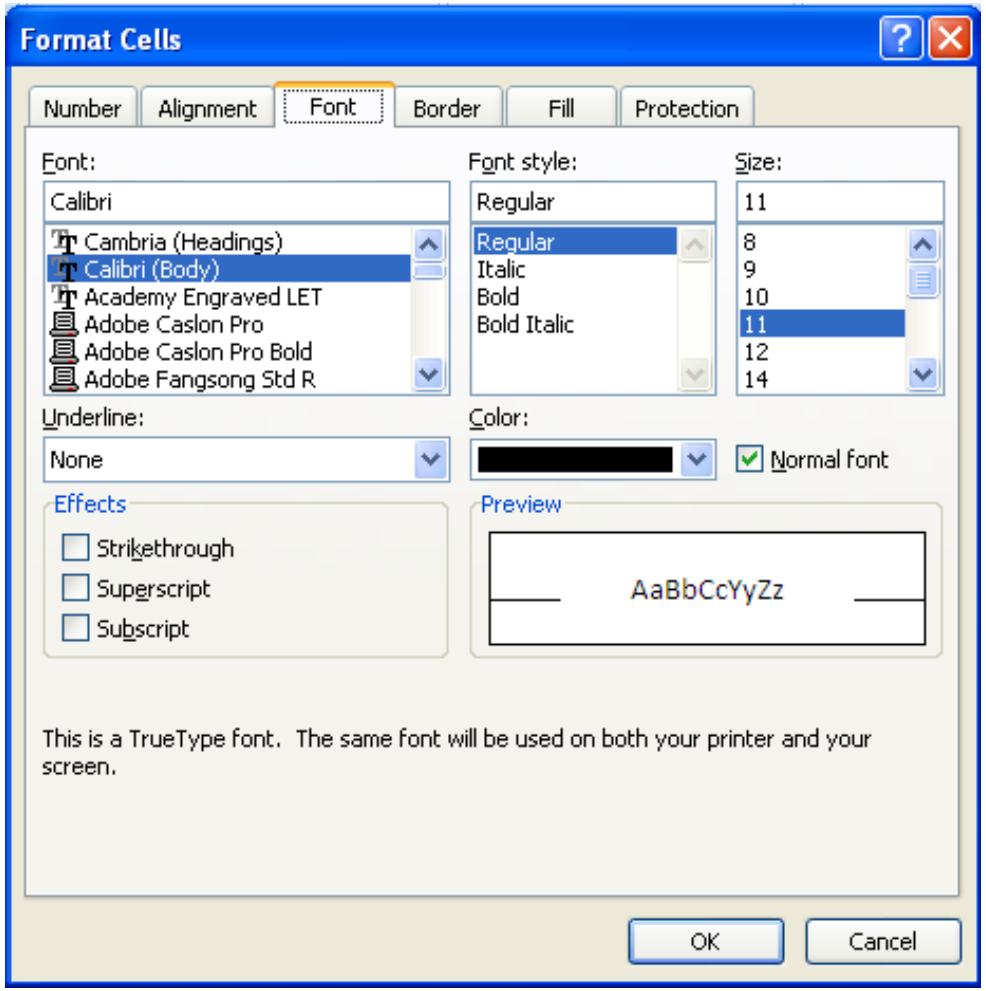
- Select how the text is placed in the cell. Note that if the text doesn't fit and you can't make the cell wider then click on wrap text





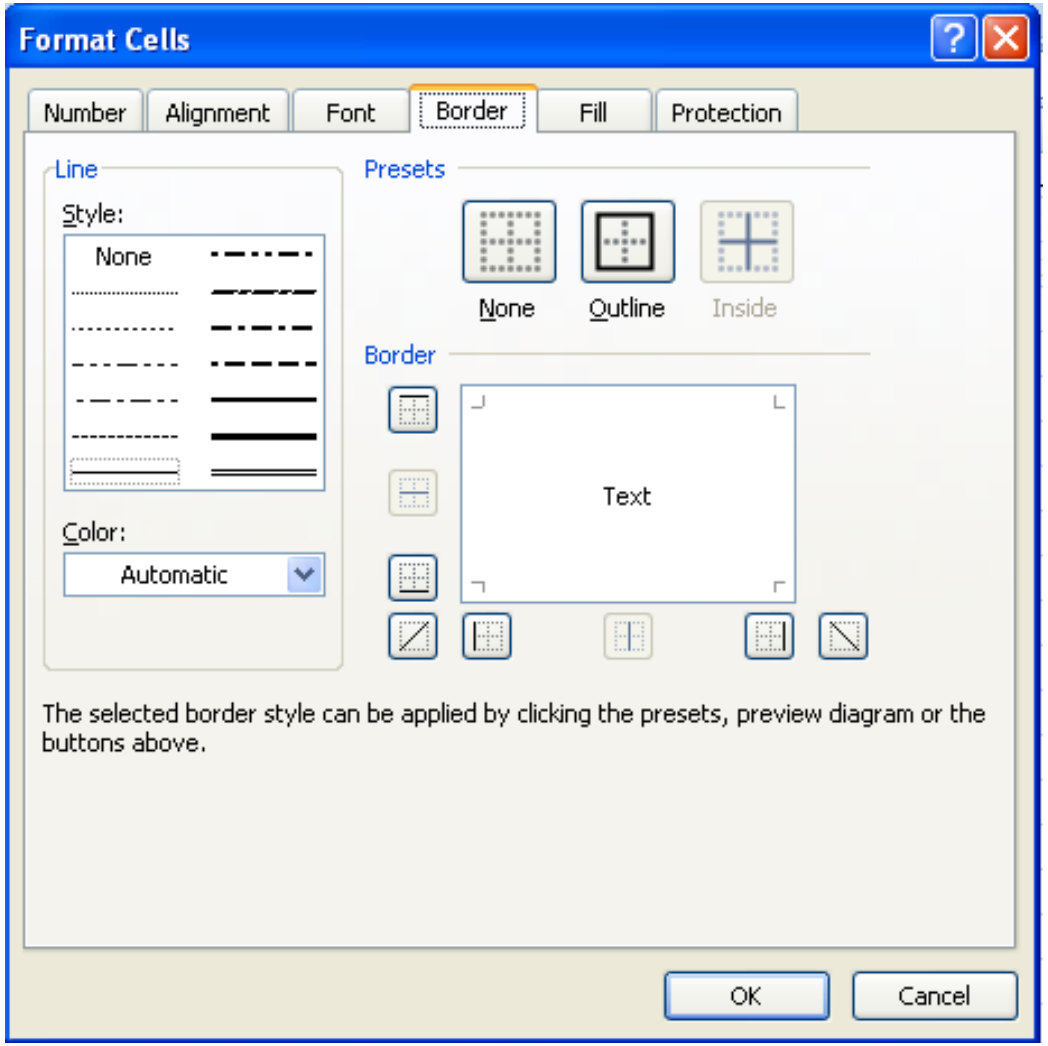
Excel: Font

- The normal settings for fonts.



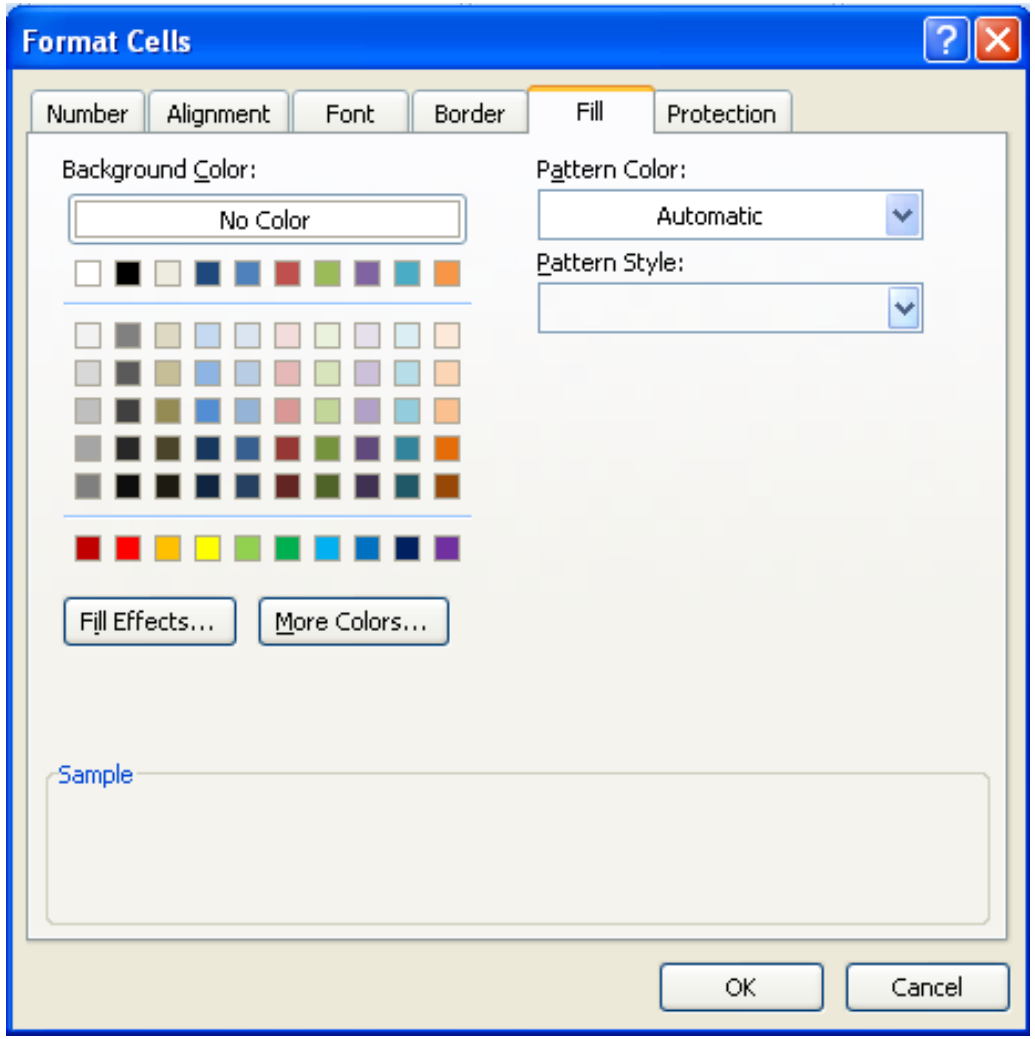
Excel: Border

- Set the border style, color, etc



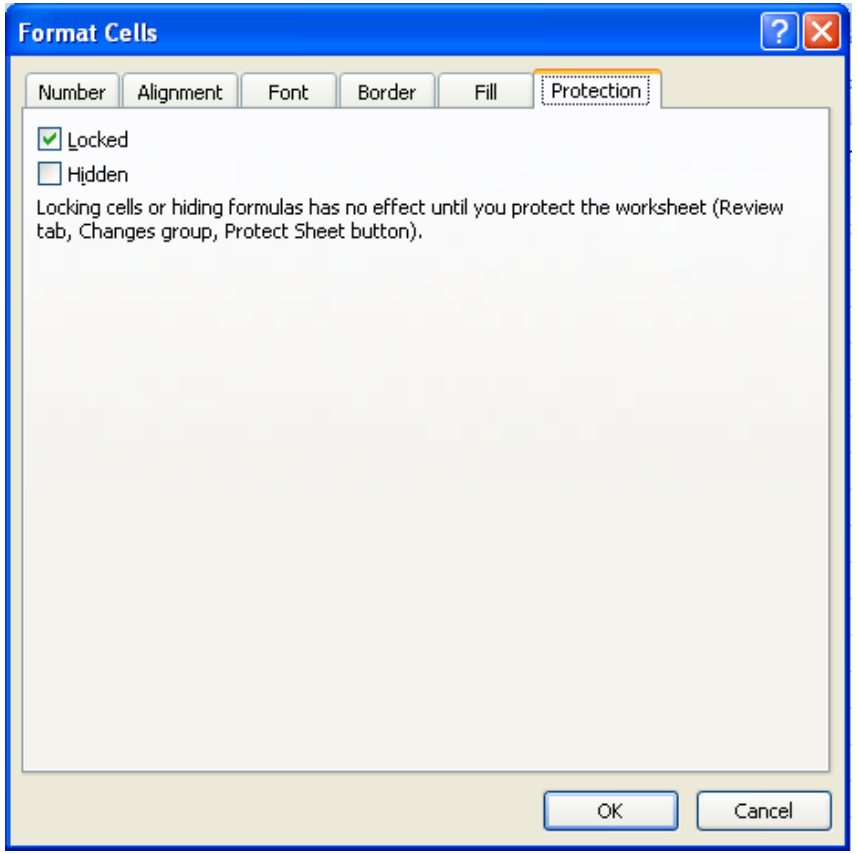
Excel: Patterns

- Fill or place a pattern inside the cell



Excel: Protection

- You can set up Excel to lock portions of the worksheets or the entire workbook.



Summary

- There are many options to formatting cells in Excel
- There are many options for displaying numbers in Excel.
- Best way to learn is to experiment.

Rest of Today

- Finish Homework 6-1 & 6-2

4. Excel: Cell References

Objectives

- The student will
  1. Understand references (names) for cells and ranges.
  2. Be able to identify a cell or range given a reference
  3. Know how to name a cell or range of cells
  4. Know to go to a specific “name”

Excel: Cell Names

- Quick Review: Name the following cells

1. Georgia
   B7
2. Vancouver
   C10
3. Computers Today
   A1
4. The Active Cell
   A4

Excel: Cell Names

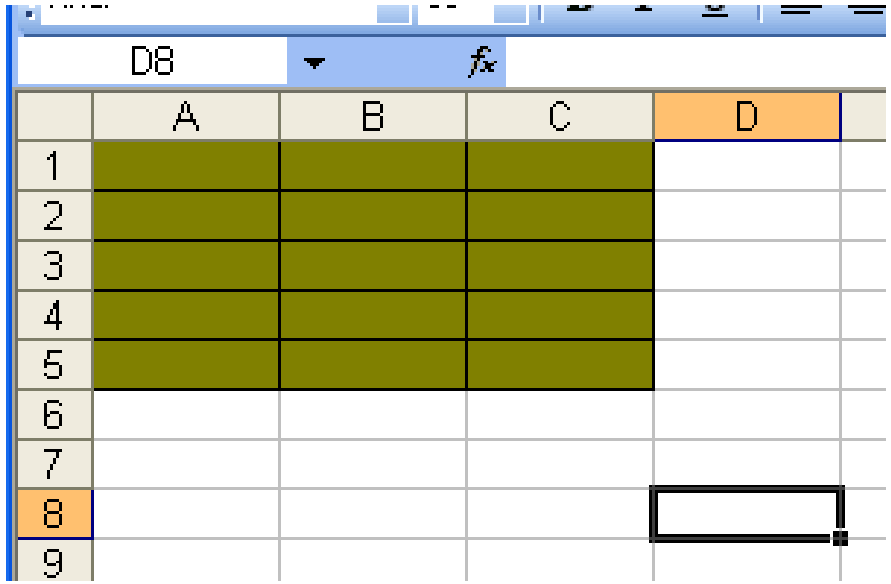
- Cell references are defined by the column letter and the row number
- The active cell is always shown in the formula toolbar

Excel: Ranges of Cells

- A range is a set of cells
- Ranges of cells are referenced by:

  Starting Cell:Ending Cell

  For example A1:C5 is this highlighted range:



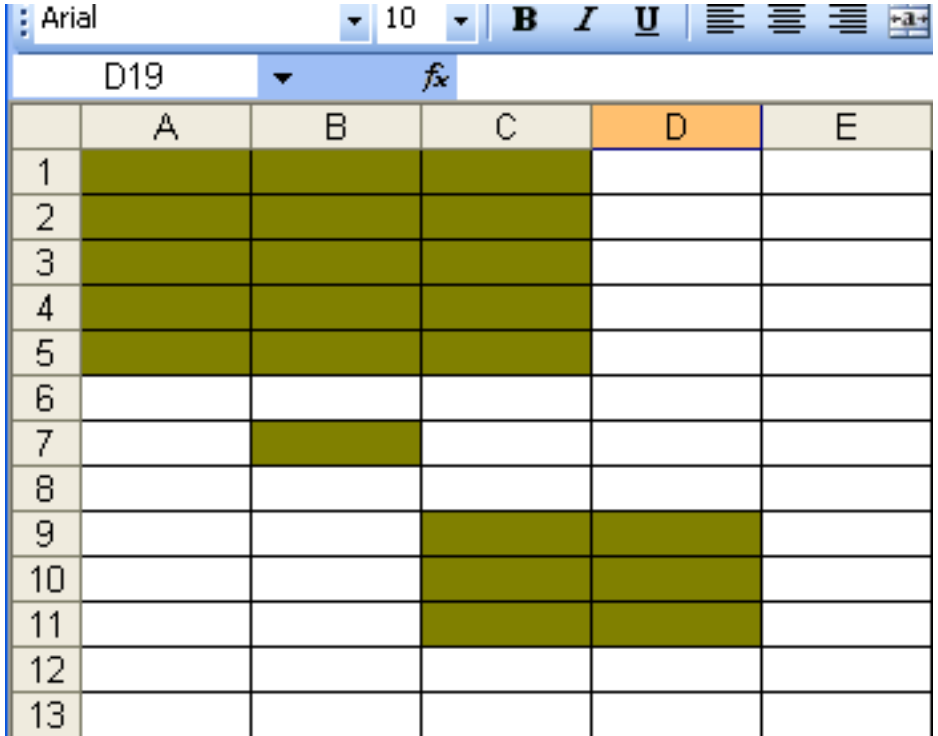
Excel: Cell Ranges

- Cell ranges do not have to be contiguous
- Non-contiguous ranges are referenced by the parts separated by a comma

Excel: Non-contiguous range

- The reference for the highlighted areas is defined as:

  A1:C5,B7,C9:D11

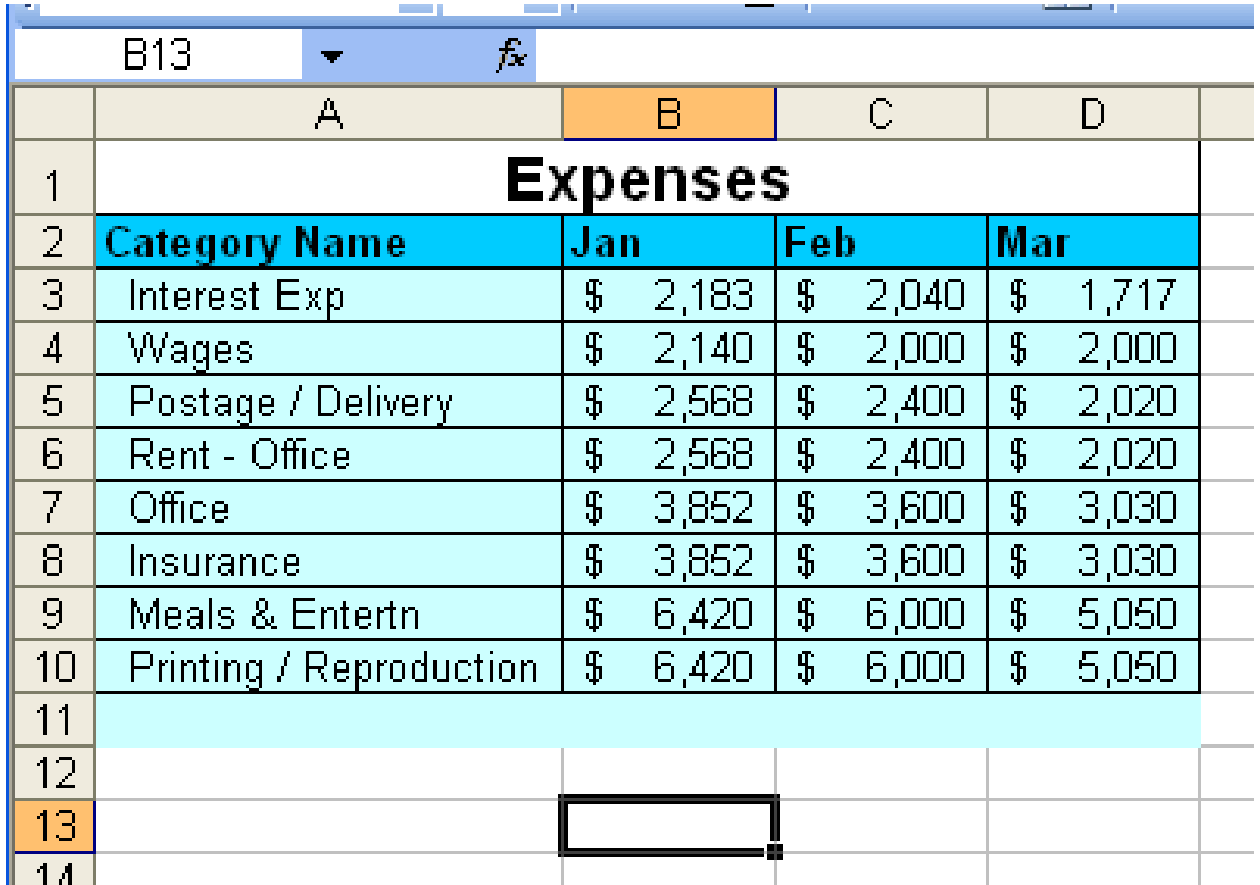


Excel: Ranges

- Why are ranges important?
  - Ranges are used to defined a set of related values.
  - You can perform functions on ranges
    - Sum
    - Average
    - Etc.

Excel: Ranges

- What ranges might be useful in this excel file?

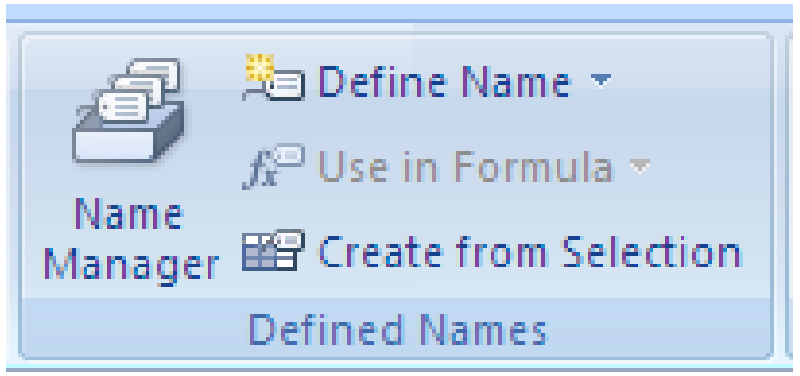


B13

	A	B	C	D
1	**Expenses**			
2	**Category Name**	**Jan**	**Feb**	**Mar**
3	Interest Exp	$ 2,183	$ 2,040	$ 1,717
4	Wages	$ 2,140	$ 2,000	$ 2,000
5	Postage / Delivery	$ 2,568	$ 2,400	$ 2,020
6	Rent - Office	$ 2,568	$ 2,400	$ 2,020
7	Office	$ 3,852	$ 3,600	$ 3,030
8	Insurance	$ 3,852	$ 3,600	$ 3,030
9	Meals & Entertn	$ 6,420	$ 6,000	$ 5,050
10	Printing / Reproduction	$ 6,420	$ 6,000	$ 5,050
11				
12				
13				
14				

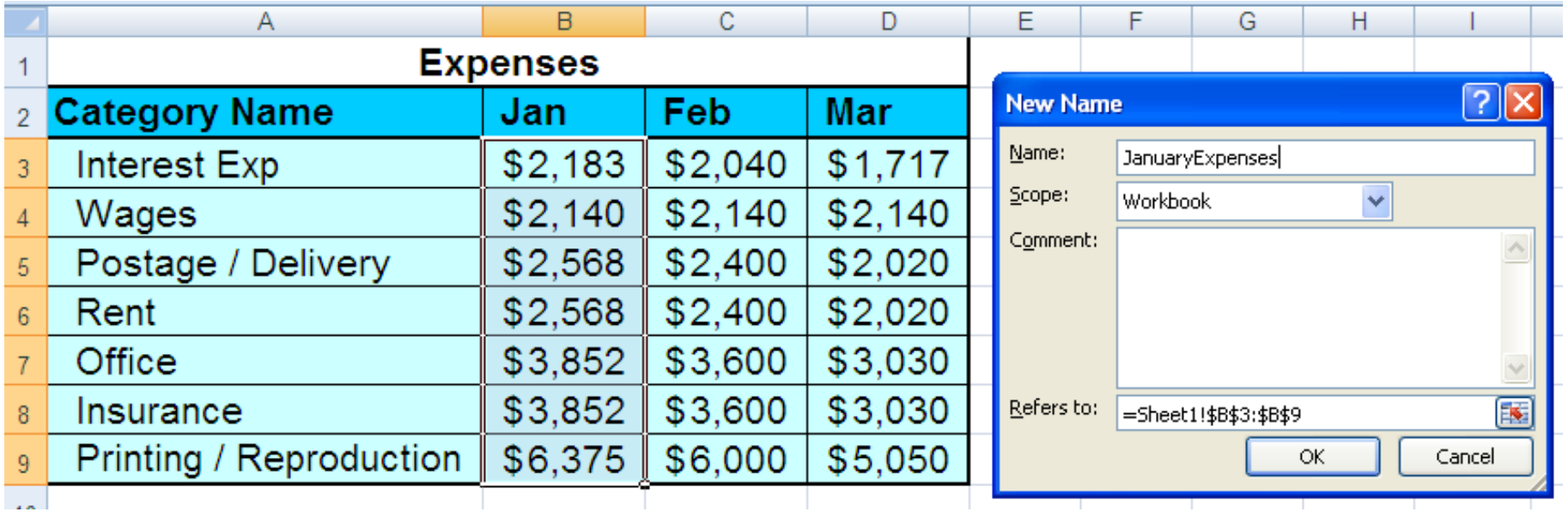
Excel: Naming a Cell or Range

- You can define a Name for a cell or range to make it easier to reference it in functions etc.
- You control Names from the **Defined Names** group on the **Formulas** tab:



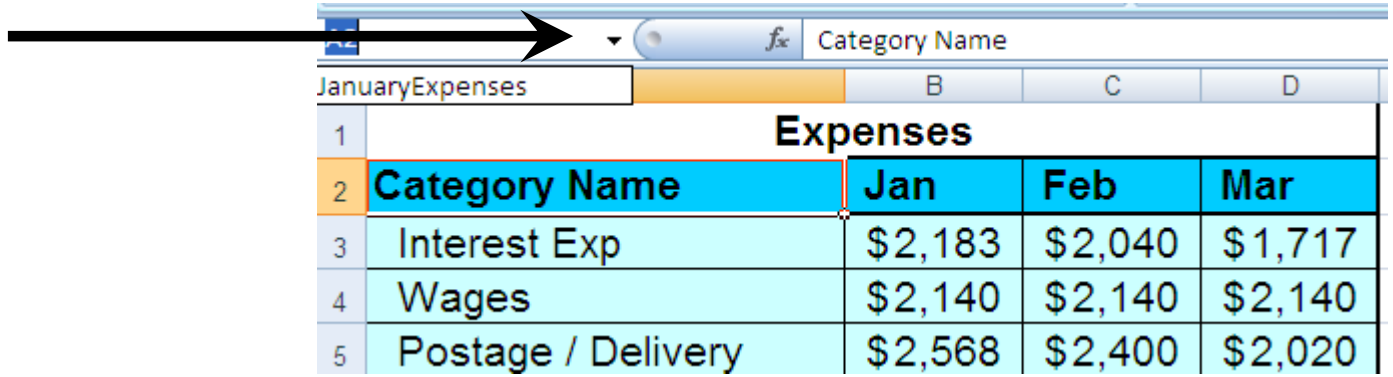
Excel: Naming a Cell or Range

- To name the range for the January expenses you would:
  1. Select the cells you want to name.
  2. Click on **Define Name**
  3. Enter the name



Excel: Naming a Cell or Range

- Once you have given a cell or range a name you can access the name in the dropdown from the Names section on the Formula bar



- Clicking on the name will select the cell or range

Summary

- Cell references are
    - ColumnRow
- Range References are
    - Starting Cell:Ending Cell
- Ranges do not have to be contiguous
- Use **Define Name** to give a name to a cell or a range of cells

Rest of today

- If you did not finish the cell formatting exercise from yesterday, it is on the website. Do not print it! You must show it to me to get credit
- Do the worksheet on cell references.

5 Excel: Basic Math Functions

Computer Information Technology
Section 6-5

Objectives

- The student will
  1. Define “formula” in Excel
  2. Understand the basic math functions available in Excel
  3. Know how create a basic formula

Excel - Formulas

- Excel Formula:
  - A set of instructions to perform calculations in a cell.

Excel - Formulas

- All formulas begin with an equal sign “=“
- All formulas have a number or cell reference and an operator
  - Examples:
    - =A1 + C2
    - =5 + 7
    - =A17 + 14
- When using a cell reference, the cell must contain a number!

Excel: Formulas

- Basic Operations:

Operator	Operation	Meaning
+	Addition	Adds the values
-	Subtraction	Subtracts the values
*	Multiplication	Multiplies the values
/	Division	Divides the values
%	Percentage	Calculates % of a value

Excel: Formulas

- Examples:

	A	B	C
1			
2	12	17	
3	5	10	
4	8	6	
5	X		
6			
7	Formula	Result	
8	=A2 + B2	29	
9	=B3 - B2	-7	
10	=A2 / B4	2	
11	=A4 * B4	48	
12	=B3 + 5	15	
13	=A5 + B4	#VALUE!	
14			

Summary

- Excel formulas must begin with =
  - There cannot be a space before the =
- Operators work on Cells or Numbers
  - Cells must contain numbers – if they don’t you get an error.

Rest of Today

- If you haven't finished Homework 6-1 and Homework 6-2, you need to finish those – Today's homework is based on Homework 6-2.
- Download and complete Homework 6-5
- Make sure you have shown me Homework 6-3 (Formatting Cells) and that you have finished the worksheet (Homework 6-4)

Excel: Functions

Computer Information Technology
Section 6-6

Some text and examples used with permission from:
http://www.jegsworks.com

Note: We are not endorsing or promoting religious doctrine, but simply taking advantage of this website for educational purposes.

Objectives

- The student will
  1. Know how to use a function in a cell
  2. Know what the following functions do:
     1. SUM()
     2. AVERAGE()
     3. MIN()
     4. MAX()

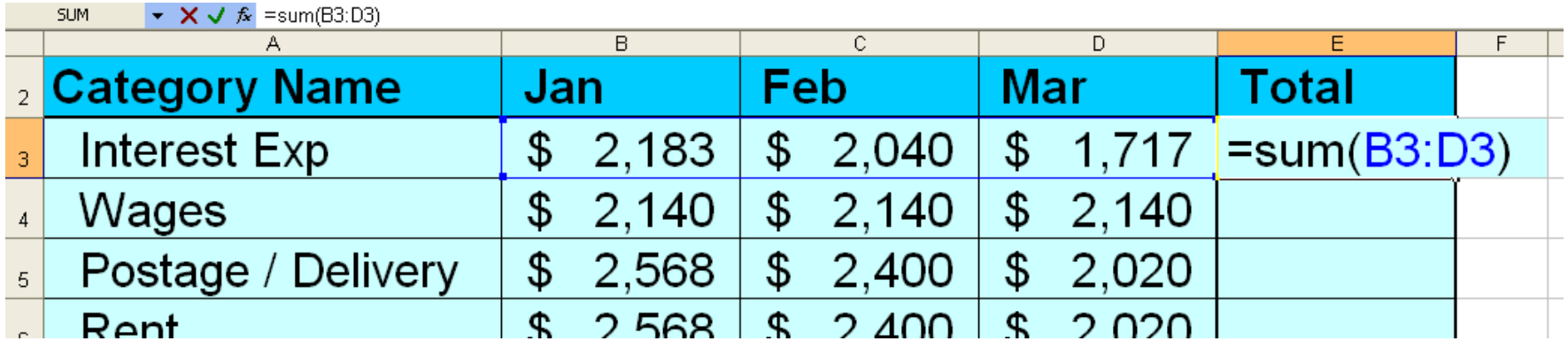
Excel: Functions

- Functions are predefined formulas that work on a range of data
- Functions perform formulas in a quick and easy way. You could type a formula to get the same result but it would be difficult to type and extremely difficult to maintain.

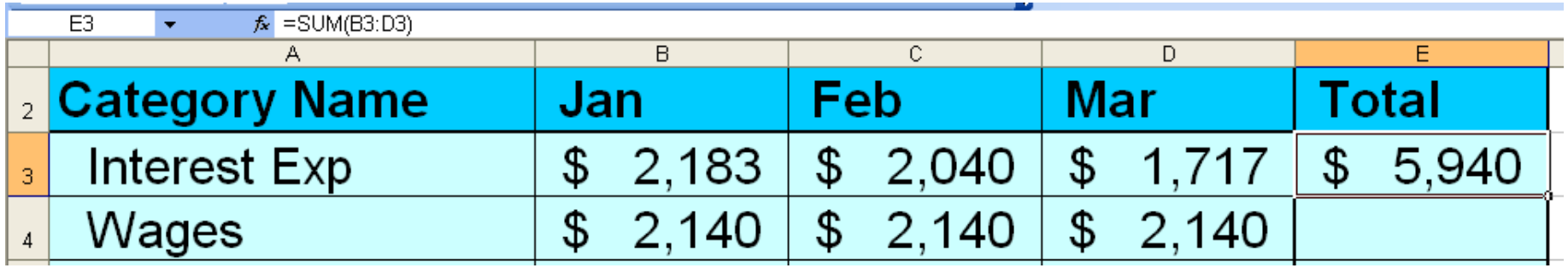
Excel: Common Functions

Function	Formula	Meaning
SUM	SUM(A2:F5)	Adds the cells from A2 though F5
AVERAGE	AVERAGE(A2:F5)	Finds the average of all the cells from A2 through F5
MIN	MIN(A2:F5)	Finds the smallest number in cells A2 through F5
MAX	MAX(A2:F5)	Finds the largest number in cells A2 through A5

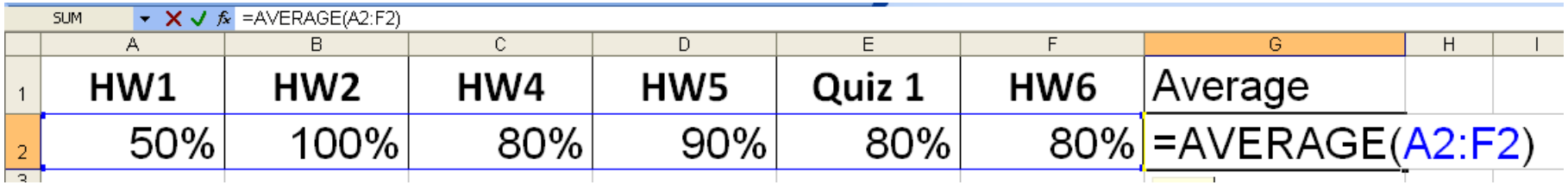
Excel: SUM



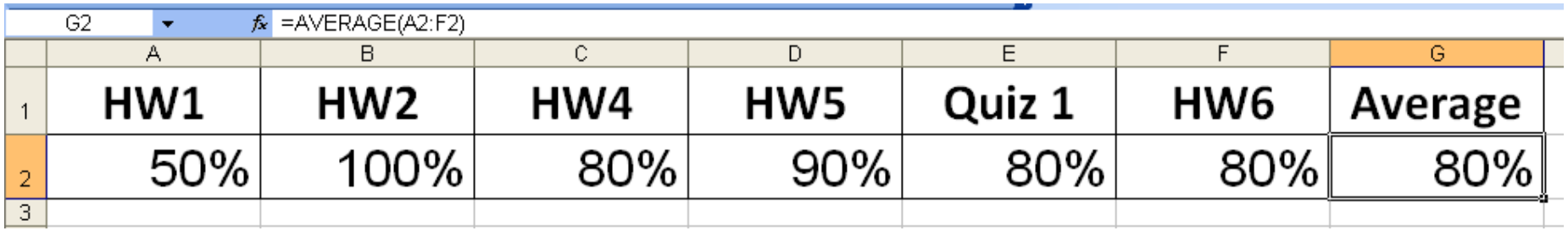
- Ranges for SUM can include cells that have text in them (unlike using the + where you get a #VALUE error). If a cell does not contain a number it is simply skipped.



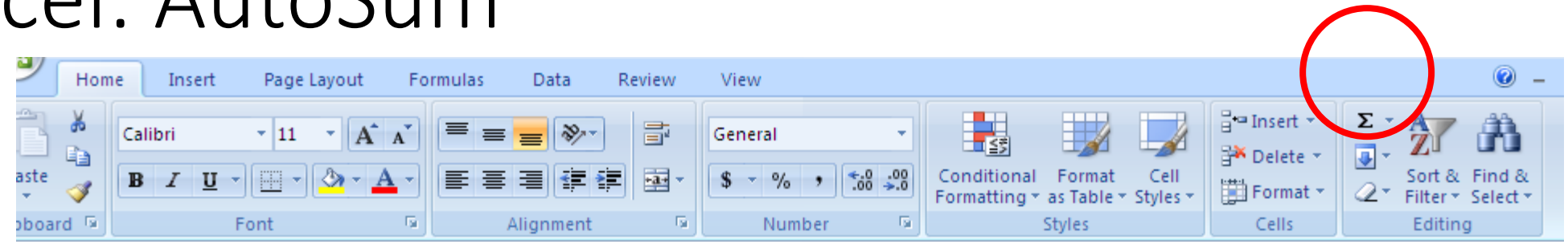
Excel: AVERAGE



- Like SUM the range can include non-numbers and those cells are skipped.



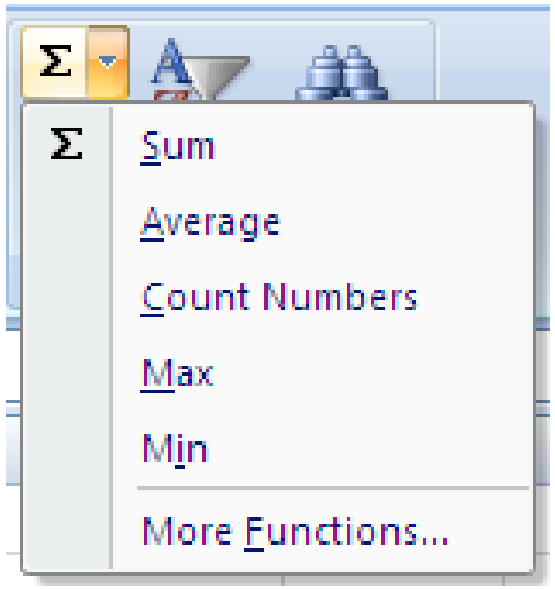
Excel: AutoSum



- **AutoSum** feature makes it easy to total columns or rows.
  - **AutoSum** is found in the **Editing** group on the **Home** tab or in the **Function Library** group on the **Formulas** tab
- Excel will guess what cells you want to add based on which cells are empty.

Excel: AutoSum

- If you click on the dropdown for AutoSum you can pick other functions:



Summary

- Use the built in functions to quickly perform calculations.
- Functions will automatically update if you add or delete data.
- Functions depend on ranges of data!

Rest of Today

- Do Homework 6-6

Excel: Relative and Absolute Cell References, Fill and AutoComplete

Computer Information Technology

Section 6-7

Some text and examples used with permission from:
http://www.jegsworks.com

Objectives

- The student will
  1. Know the difference between relative, mixed and absolute cell reference
  2. Know how to set up a reference that will:
     A. Change with the row and column
     B. Change with the row and not the column
     C. Change with the column and not the row
     D. Not change
  3. Know how cell references affect fill
  4. Understand AutoComplete

Excel: Relative and Absolute Cell References

- Formulas may have 3 types of cell references:
  - Relative
  - Mixed
  - Absolute
- The references used in Homework 6-6 were all relative

Excel: Relative References

- When you copy a formula with a relative reference and paste it in another location the cell references are adjusted automatically.
  - In Homework 6-6 pasting the formula adjusted the references to the new row.
- This works well when the formula depends on data in that row or column and needs to change to the next row or column

Excel: Absolute References

- Sometimes you want to reference to point to a specific cell even when the formula is copied to another location.
- An **absolute reference** always refers to the same location
- Absolute references have a $ in front of the column and the row: A1

Excel: Mixed References

- In a **mixed reference** only the column or the row is absolute but not both
  - A reference $A1 will change rows but not columns
  - A reference A$1 will change columns but not rows

Excel: AutoFill

- When you fill down a column or across a row the formulas will change in the same manner as copy-paste. Cell references will be updated based on relative, mixed or absolute references.
- You use AutoFill to:
    - **copy** data to other cells in the row or column
    - continue a **pattern** for data
- To use AutoFill, you just select a cell or cells and drag the fill handle in the bottom right corner of the selection across the cells you want to fill

Excel: AutoComplete

- Excel keeps a list of what you have already entered in each column. When you start entering data in a new cell, Excel may offer to complete your typing for you.
- To accept Excel suggestion, just make another cell active by doing one of these actions:
    - pressing ENTER
    - pressing TAB
    - pressing an arrow key
    - clicking in a different cell

Summary

- Use relative, mixed or absolute references depending on how you want the formulas to change when copied to a new location.
- AutoFill results also depend on cell references or patterns.
- Use AutoComplete to reduce typing.

Rest of Today

- Complete Homework 6-6 and complete the March sheet
- Complete Homework 6-7 Worksheet on cell references

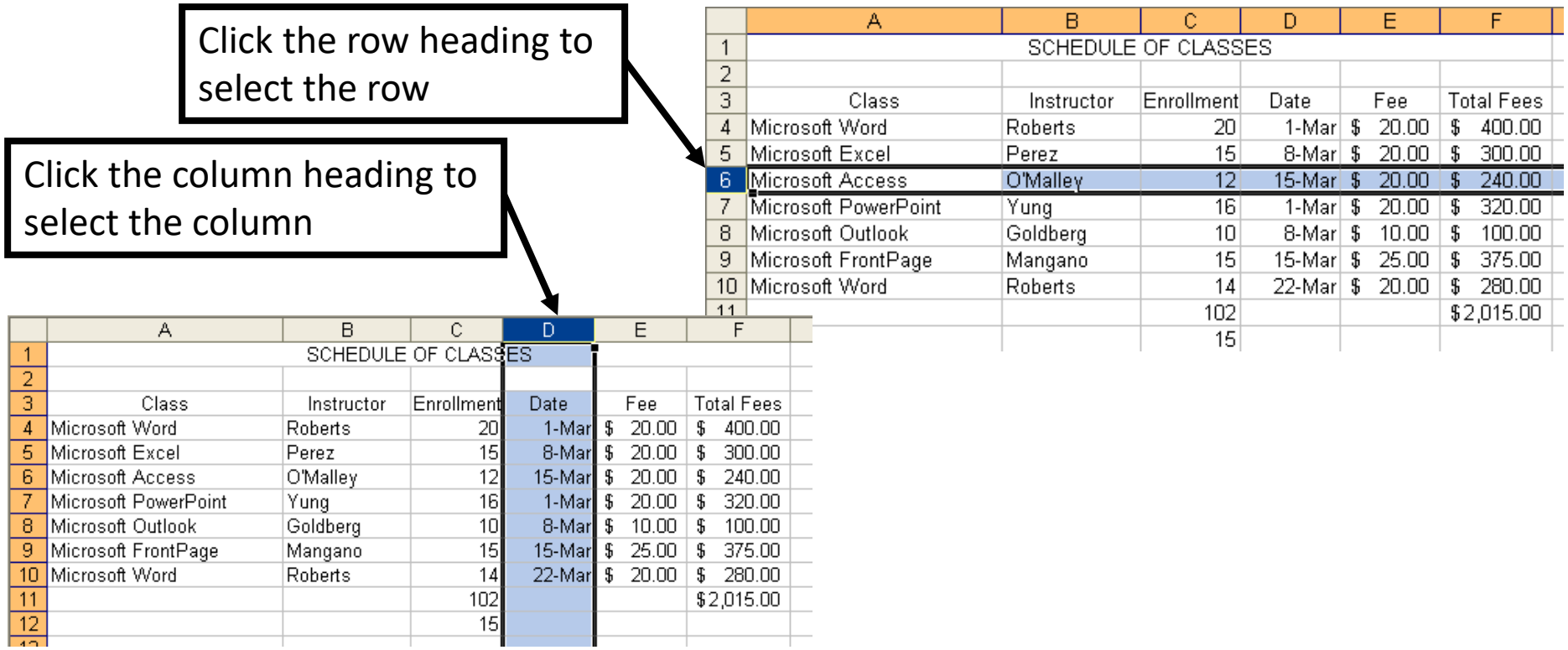
Excel: Deleting and Inserting Columns and Rows

Computer Information Technology

Section 6-8

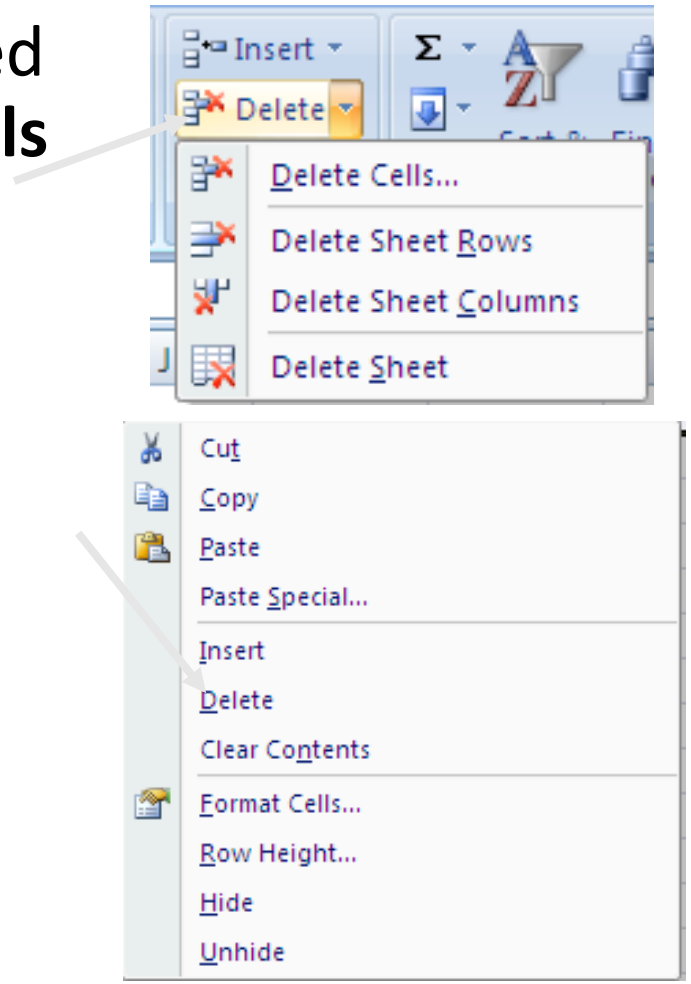
Excel: Deleting a row or column

- Select the row or column by clicking on the row or column header.



Excel: Deleting a row or column

- Once the row or column is selected either choose Delete from the **Cells** group on the **Home** tab
- Or right click and select Delete

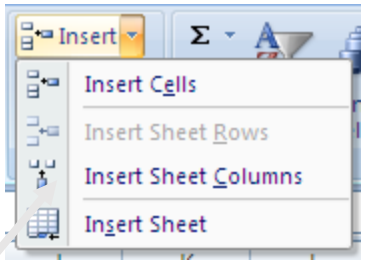


Excel: Inserting a column

- Select column to the right of where you want the new column to appear

	A	B	C	D	E	F
1	SCHEDULE OF CLASSES					
2						
3	Class	Instructor	Enrollment	Date	Fee	Total Fees
4	Microsoft Word	Roberts	20	1-Mar	$ 20.00	$ 400.00
5	Microsoft Excel	Perez	15	8-Mar	$ 20.00	$ 300.00
6	Microsoft Access	O'Malley	12	15-Mar	$ 20.00	$ 240.00
7	Microsoft PowerPoint	Yung	16	1-Mar	$ 20.00	$ 320.00
8	Microsoft Outlook	Goldberg	10	8-Mar	$ 10.00	$ 100.00
9	Microsoft FrontPage	Mangano	15	15-Mar	$ 25.00	$ 375.00
10	Microsoft Word	Roberts	14	22-Mar	$ 20.00	$ 280.00
11			102			$2,015.00
12			15			

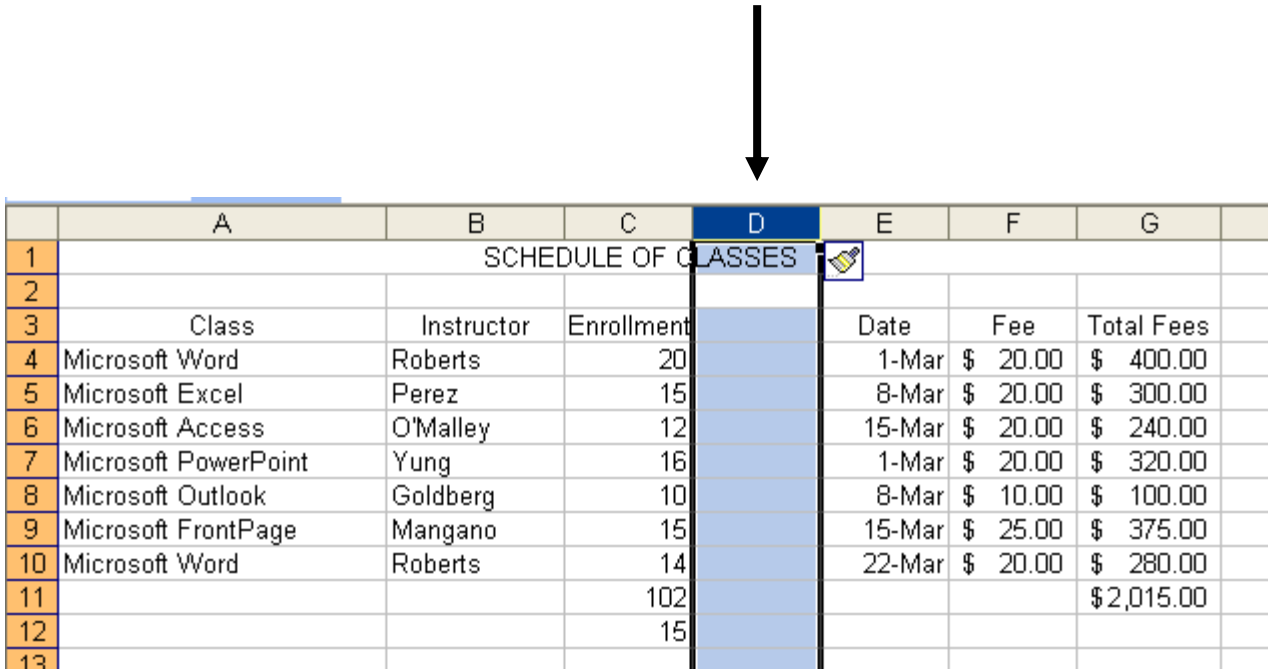
If you want to insert a column between Columns C and D, click the column heading for Column D



- Click **Insert Sheet Columns** in the **Cells** group on the **Home** tab

Excel: Inserting a column

- The result is a blank column



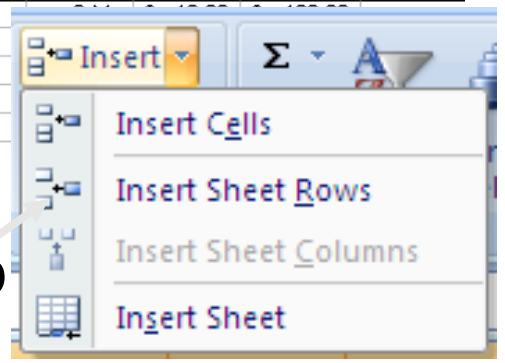
	A	B	C	D	E	F	G
1	SCHEDULE OF CLASSES						
2							
3	Class	Instructor	Enrollment		Date	Fee	Total Fees
4	Microsoft Word	Roberts	20		1-Mar	$ 20.00	$ 400.00
5	Microsoft Excel	Perez	15		8-Mar	$ 20.00	$ 300.00
6	Microsoft Access	O'Malley	12		15-Mar	$ 20.00	$ 240.00
7	Microsoft PowerPoint	Yung	16		1-Mar	$ 20.00	$ 320.00
8	Microsoft Outlook	Goldberg	10		8-Mar	$ 10.00	$ 100.00
9	Microsoft FrontPage	Mangano	15		15-Mar	$ 25.00	$ 375.00
10	Microsoft Word	Roberts	14		22-Mar	$ 20.00	$ 280.00
11			102				$2,015.00
12			15				
13							

Excel: Inserting a row

- Select row below where you want the new row to appear

If you want to insert a row between row 6 and 7, click the row heading for row 7

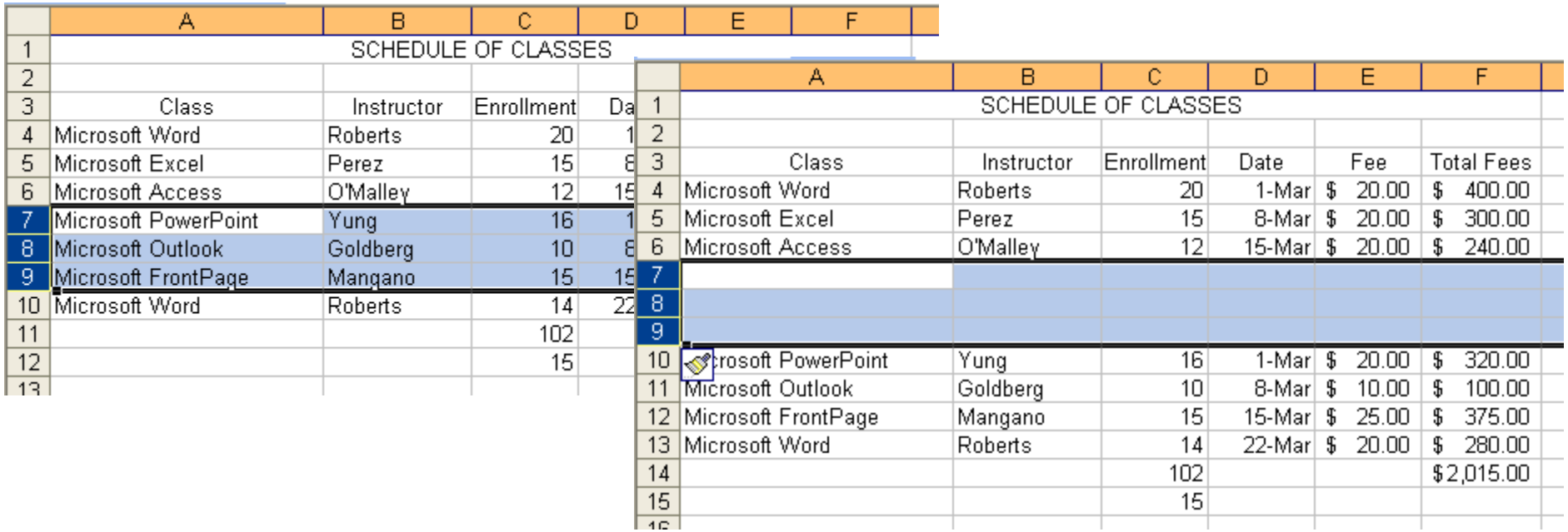
	A	B	C	D	E	F	G	H
1	SCHEDULE OF CLASSES							
2								
3	Class	Instructor	Enrollment		Date	Fee	Total Fees	
4	Microsoft Word	Roberts	20		1-Mar	$ 20.00	$ 400.00	
5	Microsoft Excel	Perez	15		8-Mar	$ 20.00	$ 300.00	
6	Microsoft Access	O'Malley	12		15-Mar	$ 20.00	$ 240.00	
7	Microsoft PowerPoint	Yung	16		1-Mar	$ 20.00	$ 320.00	
8	Microsoft Outlook	Goldberg	10					
9	Microsoft FrontPage	Mangano	15					
10	Microsoft Word	Roberts	14					
11			102					
12			15					



- Click **Insert Sheet Rows** in the **Cells** group o **Home** tab

Excel: Inserting multiple rows or columns

- To insert multiple rows or columns simply highlight the number of rows or columns and choose Insert.



	A	B	C	D
1	SCHEDULE OF CLASSES			
2				
3	Class	Instructor	Enrollment	Da
4	Microsoft Word	Roberts	20	1
5	Microsoft Excel	Perez	15	8
6	Microsoft Access	O'Malley	12	15
7	Microsoft PowerPoint	Yung	16	1
8	Microsoft Outlook	Goldberg	10	8
9	Microsoft FrontPage	Mangano	15	15
10	Microsoft Word	Roberts	14	22
11			102	
12			15	
13				

	A	B	C	D	E	F
1	SCHEDULE OF CLASSES					
2						
3	Class	Instructor	Enrollment	Date	Fee	Total Fees
4	Microsoft Word	Roberts	20	1-Mar	$ 20.00	$ 400.00
5	Microsoft Excel	Perez	15	8-Mar	$ 20.00	$ 300.00
6	Microsoft Access	O'Malley	12	15-Mar	$ 20.00	$ 240.00
7						
8						
9						
10	crosoft PowerPoint	Yung	16	1-Mar	$ 20.00	$ 320.00
11	Microsoft Outlook	Goldberg	10	8-Mar	$ 10.00	$ 100.00
12	Microsoft FrontPage	Mangano	15	15-Mar	$ 25.00	$ 375.00
13	Microsoft Word	Roberts	14	22-Mar	$ 20.00	$ 280.00
14			102			$2,015.00
15			15			

Rest of Today

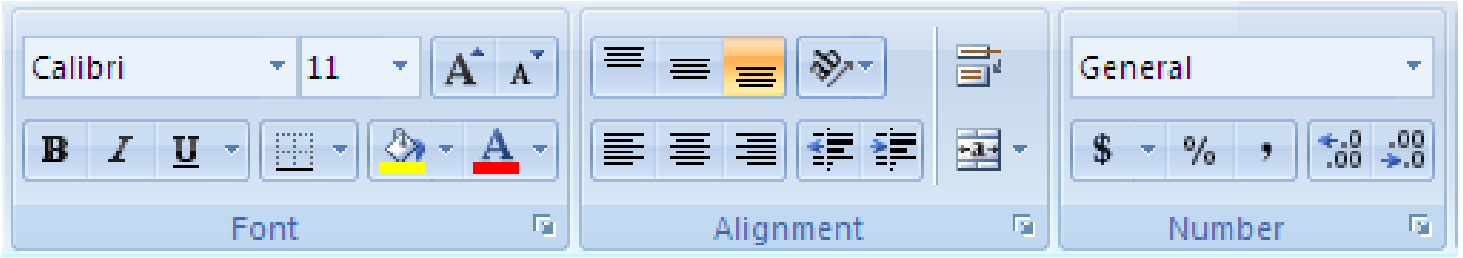
- Do Homework 6-8

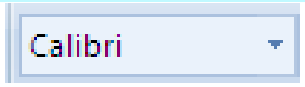
9. Excel: Formatting Cells , Changing Row Heights and Clearing cells

Objectives

- Review formatting of cells
- Understand how to set row heights to a specific value
- Understand the various options for clearing a cell

Cell Formatting





Font Style

Font Size

Bold, Italics, Underline

Borders

Cell Fill Color

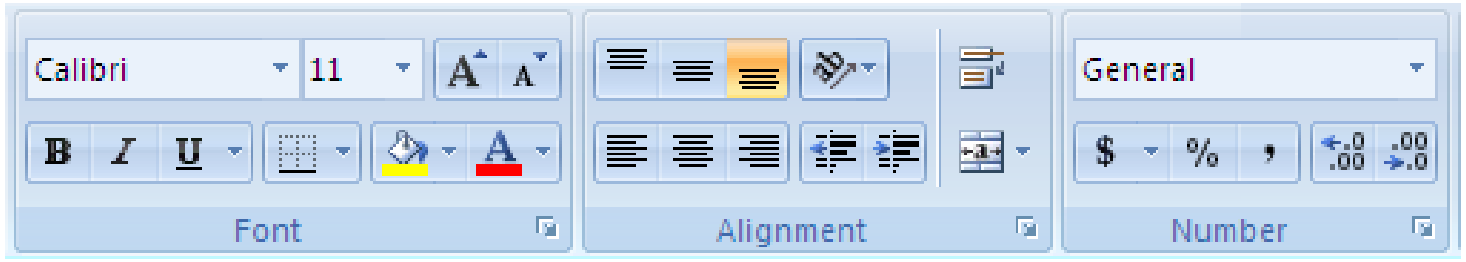
Font Color

Align top, center, bottom, left, center, right

Slant or Rotate text

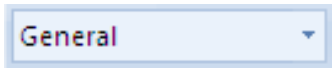
Increase and Decrease Indent

Cell Formatting



Wrap Text

Merge and Center



Set Number Style

Currency, Percent, Comma Style

Increase and Decrease Decimal

Setting Row Height

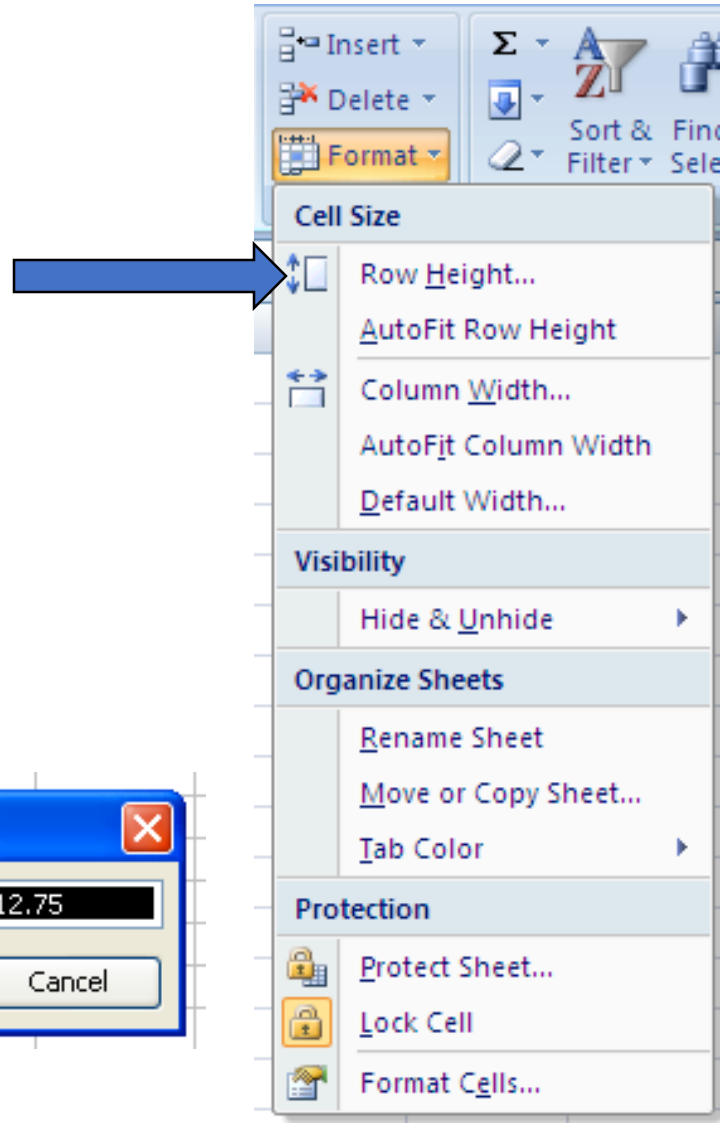
- Four ways to adjust row height:

1. Row height should adjust automatically depending on the font size
2. Double clicking on the bottom border of the row heading will automatically set the row height to fit the data
3. Dragging the top or bottom border on the row heading
4. Using the Row Height dialog box

Row Height Dialog Box

- Choose **Row Height** from the **Format** menu in the **Cells** group on the **Home** tab

- Enter a number for the row height

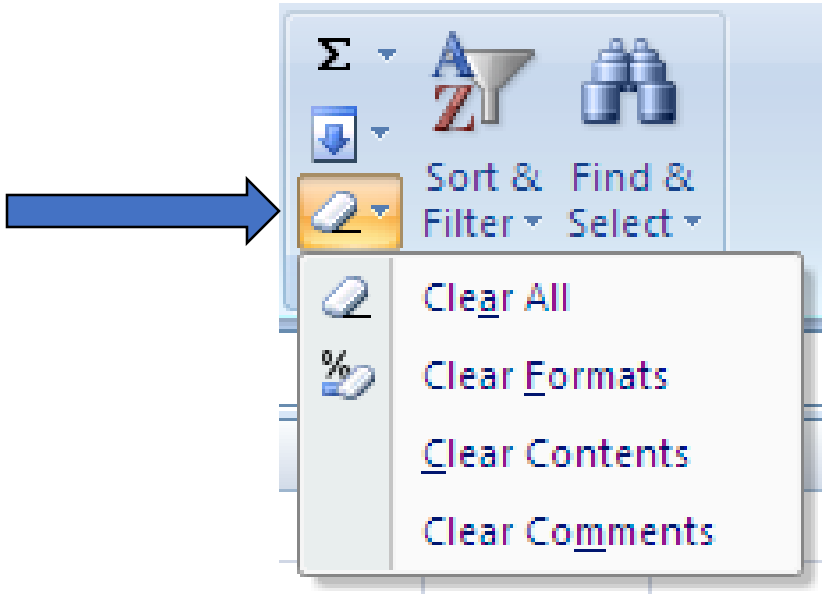


Clearing Cells

- Choosing **Delete Cell** from the **Delete** menu in the **Cells** group on the **Home** tab will remove the cell from the spreadsheet
  - You must choose what happens to the remaining cells
- Hitting the Delete key clears the contents of the cell but does not remove the cell. The contents will be cleared for **all** selected cells
- Backspace also clears the contents of a cell but only for the active cell.

Edit | Clear

- Hitting the Delete key will clear the contents of a cell but will not clear the formatting or comments in the cell.
- You can choose what you want to clear from the **Clear** menu in the **Editing** group on the **Home** tab



Rest of Today

- Complete Homework 6-8
- Complete Homework 6-9

Excel: Fill and Fill Series

Computer Information Technology

Section 6-10

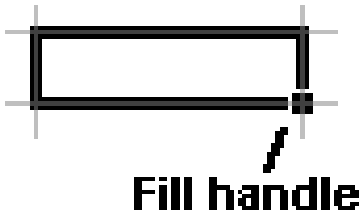
Some text and examples used with permission from:
http://www.jegsworks.com
Note: We are not endorsing or promoting religious doctrine, but simply taking advantage of this website for educational purposes.

Objectives

- The student will:
  1. Understand how to use the fill handle
  2. Understand how fill works on the following:
     - Values
     - Formulas
     - Series

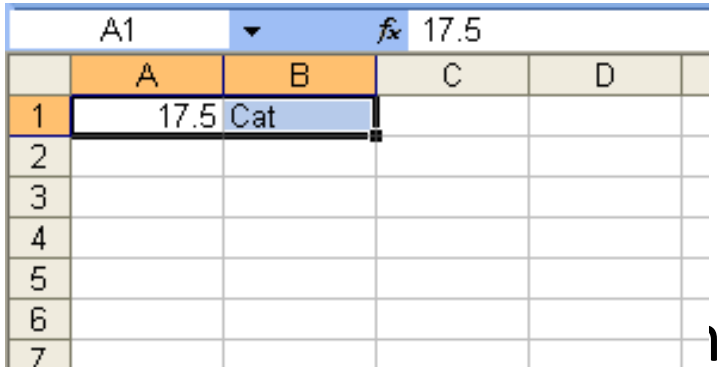
Excel: Fill

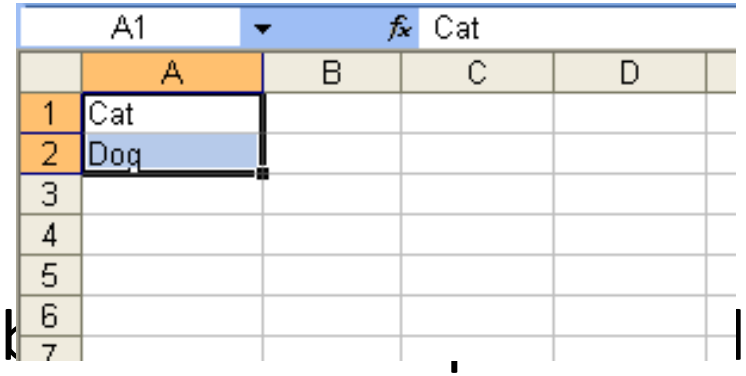
- Fill is a way to:
  - **copy** data to other cells in the row or column
  - continue a **pattern** for data
- To use AutoFill, you just select a cell or cells and drag the fill handle in the bottom right corner of the selection across the cells you want to fill.



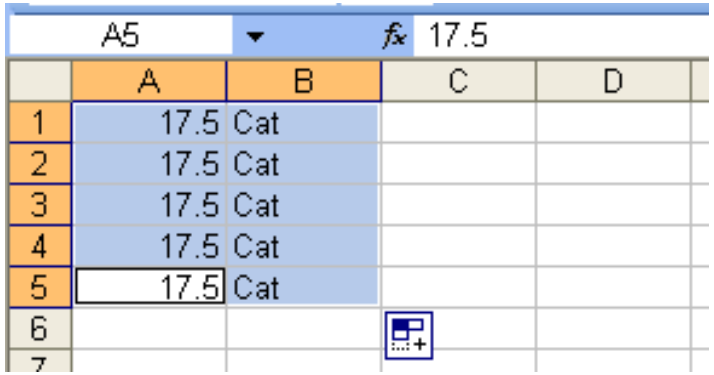
Excel: Fill Results

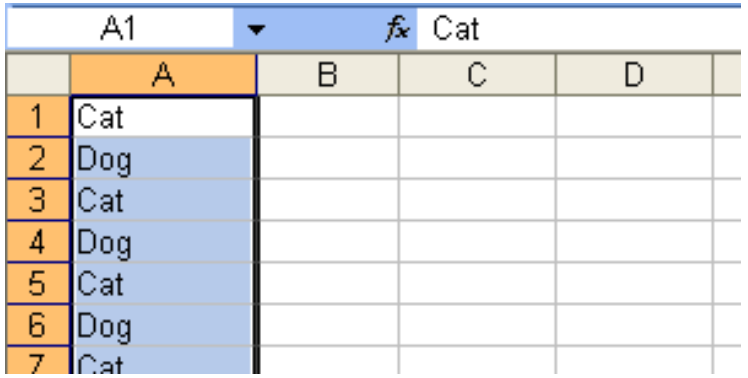
- If you fill from a cell that has a number or just text in it:





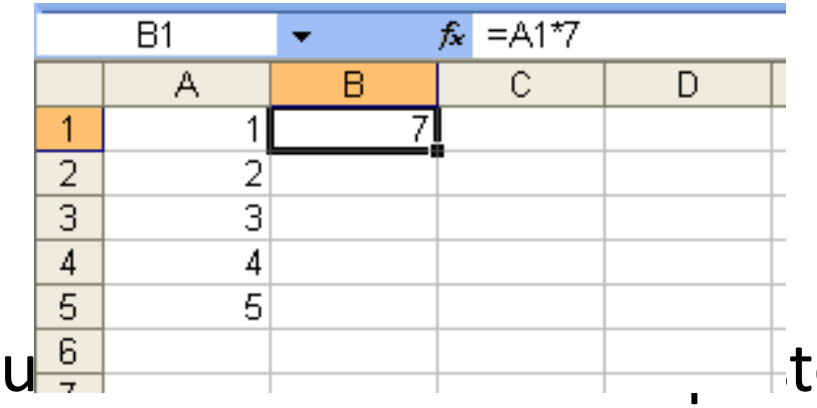
- numb l the cells or repeated:



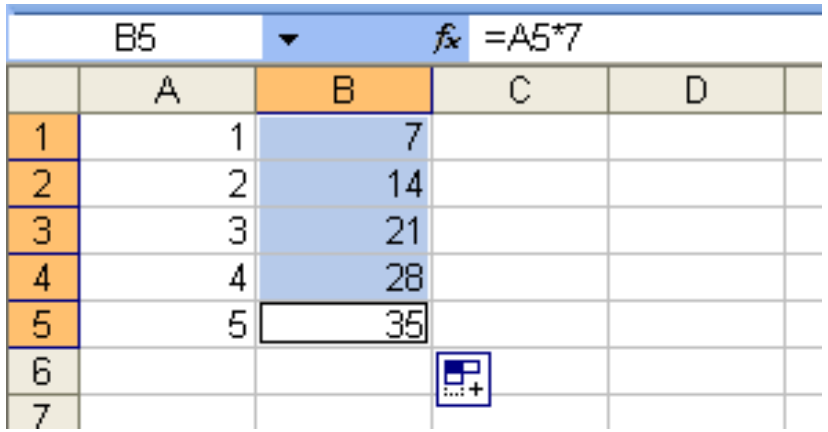


Excel: Fill Results

- If the original cell has a formula in it:

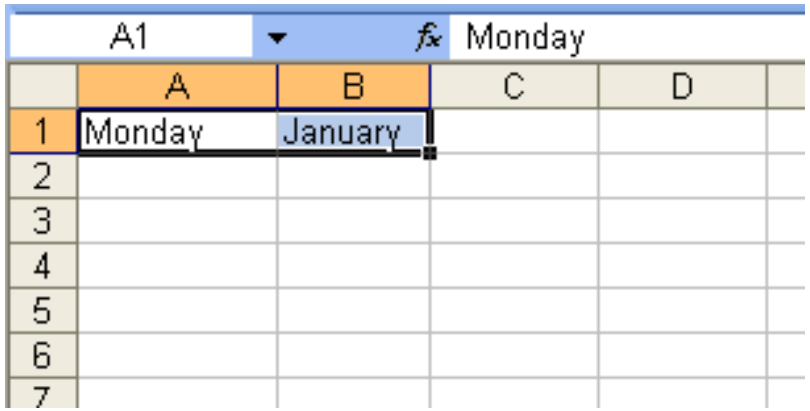


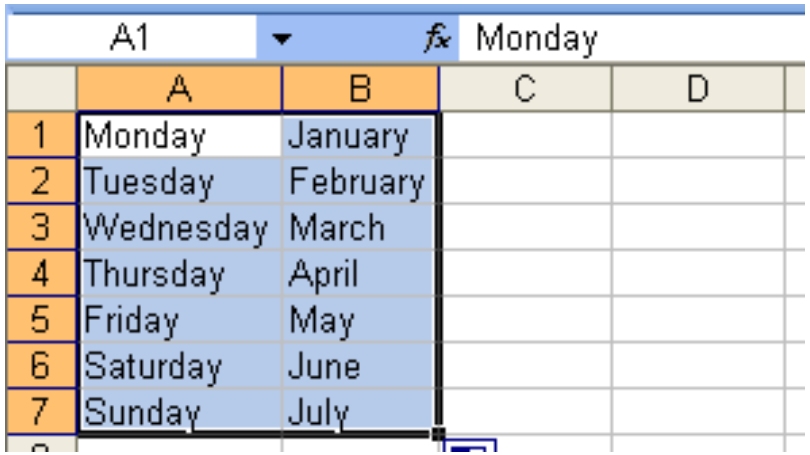
- Then the resu ted in the cells (with references updated!):



Excel: Fill Results

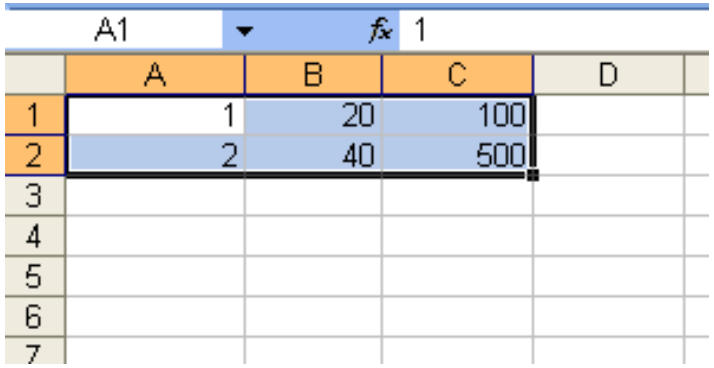
- Excel recognizes days of the week and months and will Autofill those:

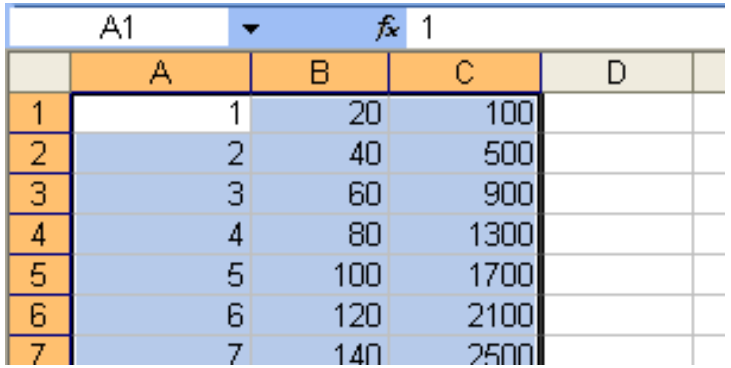




Excel: Fill Results

- Excel will also try and figure out if you want it to complete a series for you:





Excel: Fill

- Summary:
  - Fill is a quick and easy way to copy cells across columns or down the rows.
  - The results of the fill depend on the source cells

Rest of Today

- Do Homework 6-10.

Excel: Printing and Headers & Footers

Computer Information Technology

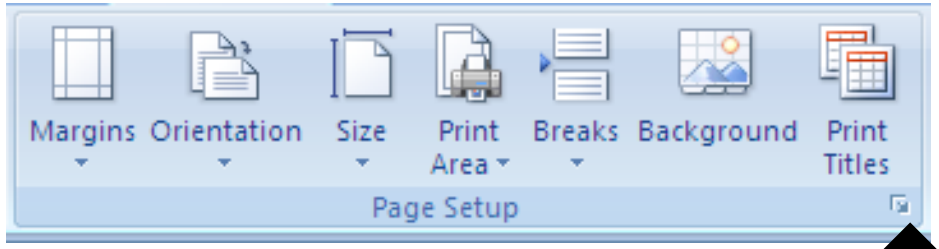
Section 6-11

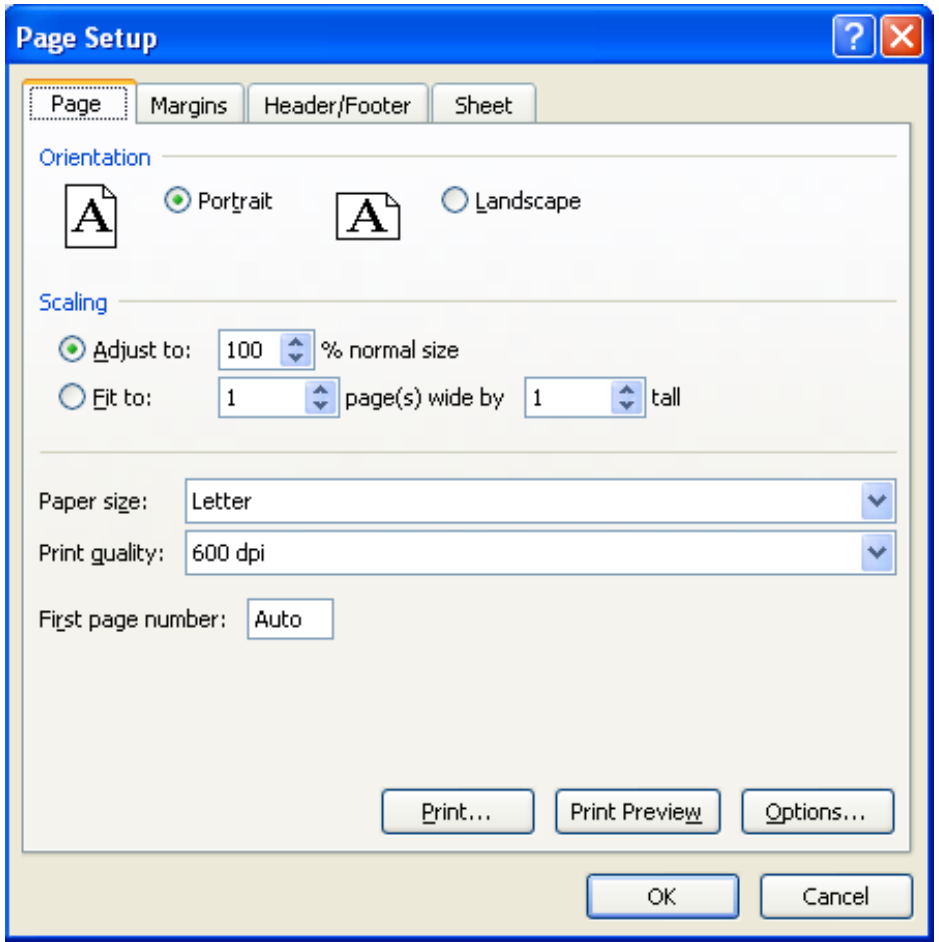
Objectives

- The student will:
  1. Understand how set print options to print a spreadsheet
  2. Know how to set a header or footer

Excel: Print Options

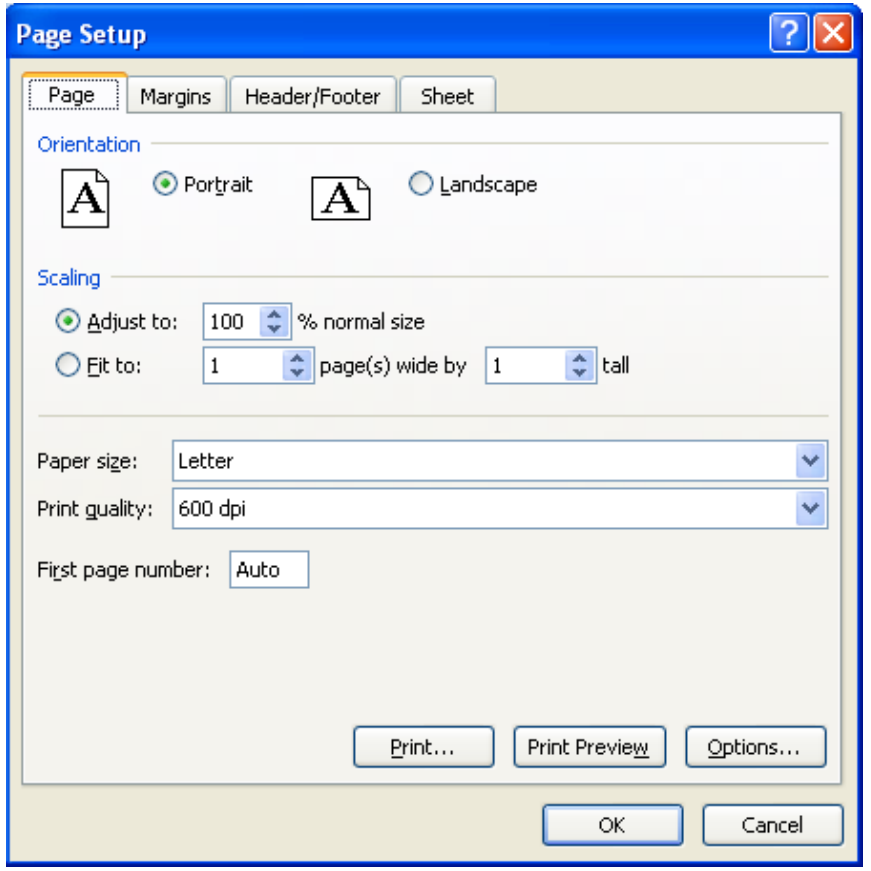
- Most options for printing are found under Page Setup… on the **Page Setup** group in the **Page Layout** tab:





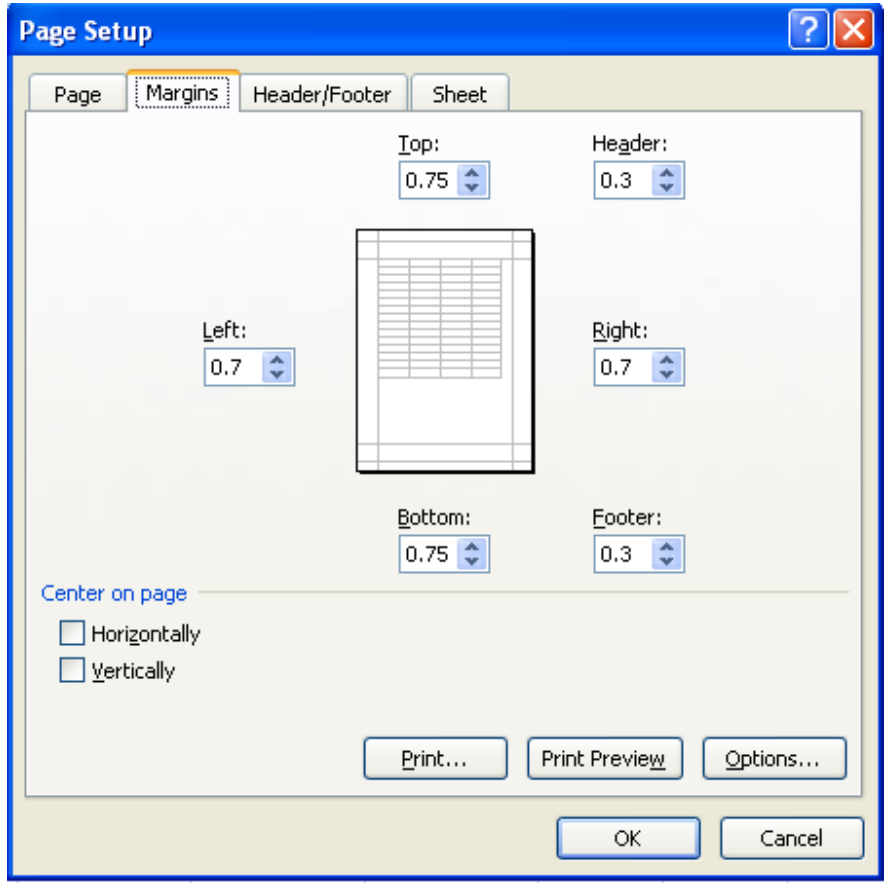
Page Setup: Page Tab

- The Page tab allows you to set:
  - Orientation – Portrait or Landscape
  - Scaling – How to size the worksheet on the page
    - Enlarge or Shrink the page
    - Set how many pages the worksheet should print on
  - Printer Settings…



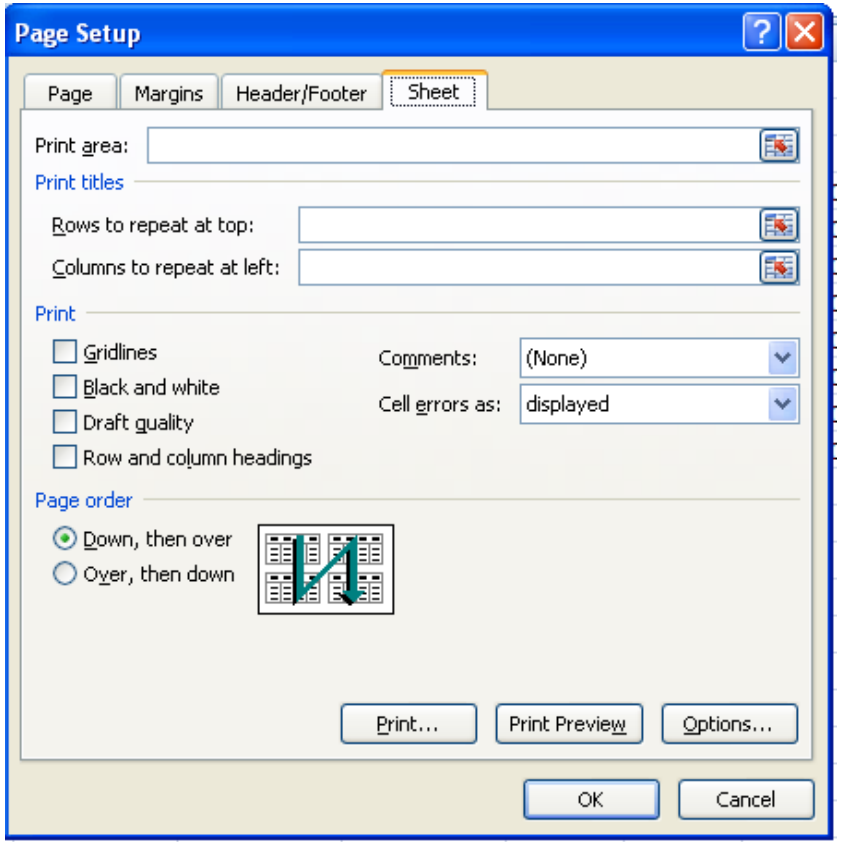
Page Setup: Margins Tab

- The Margins tab allows you to set:
  - Top, Bottom, Right and Left Margins
  - Space for the header or footer on the page.
  - Also allows you to center the output vertically or horizontally on the page.



Page Setup: Sheet Tab

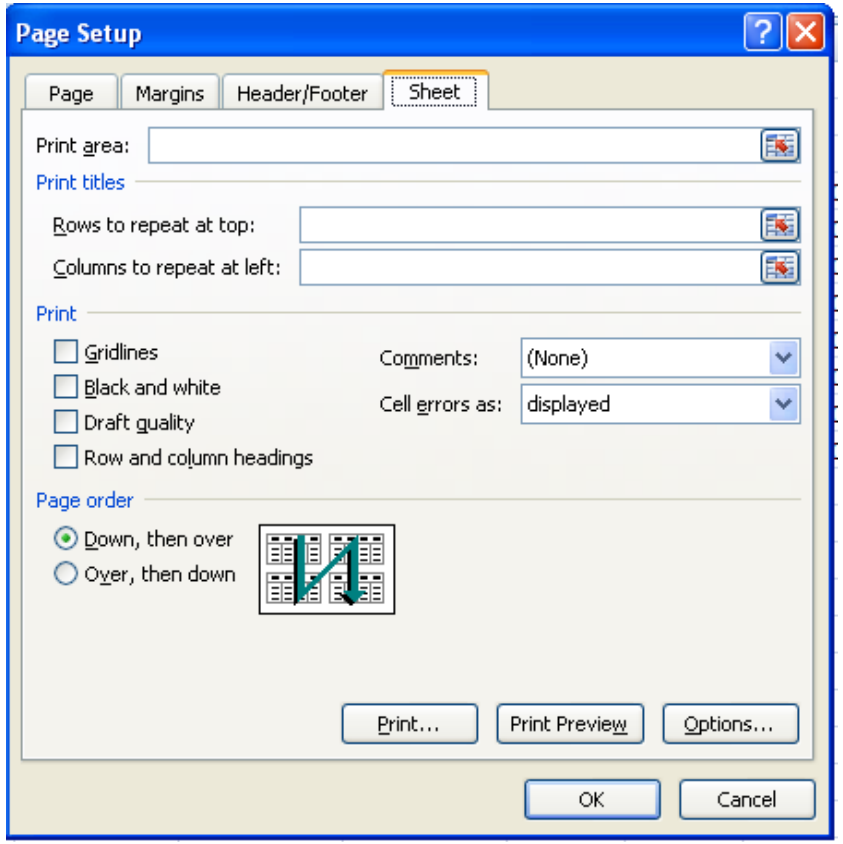
- The Sheet tab allows you to set:
  - Print Area: What part(s) of the worksheet to print
    - Defined as a range of cells
  - Rows or Columns to repeat



- **If the worksheet prints on more than 1 page, do you want a header row or header column to repeat on each page.**

Page Setup: Sheet Tab

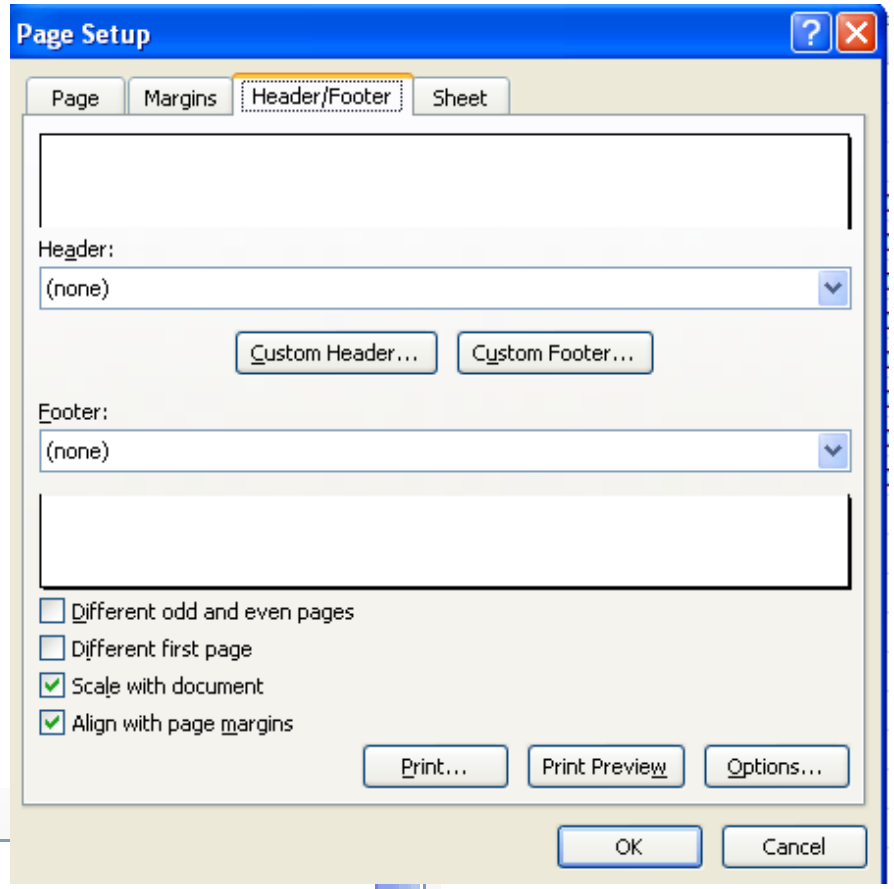
- Gridlines: Show the gridlines whether you set borders or not.
- Row and Columns Headings: Show the row and/or column headings
- Comments: Hide, Display on Sheet or Display at the end of the sheet

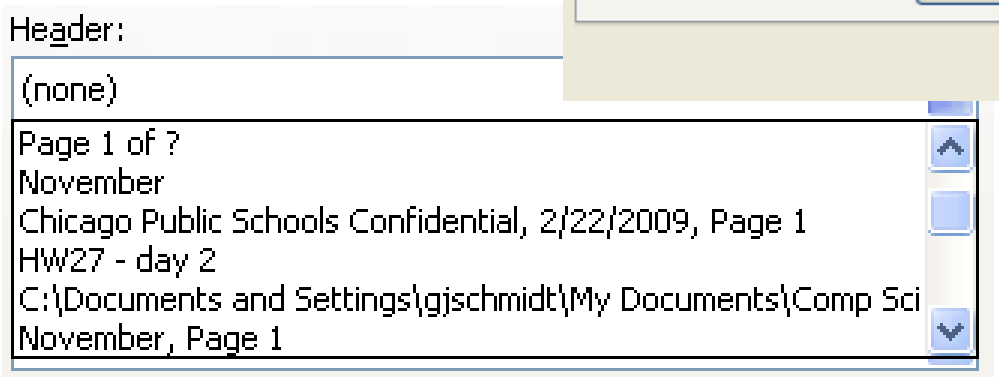


- **Page Order: If the worksheet covers multiple pages in what order should the pages print.**

Page Setup: Page Tab

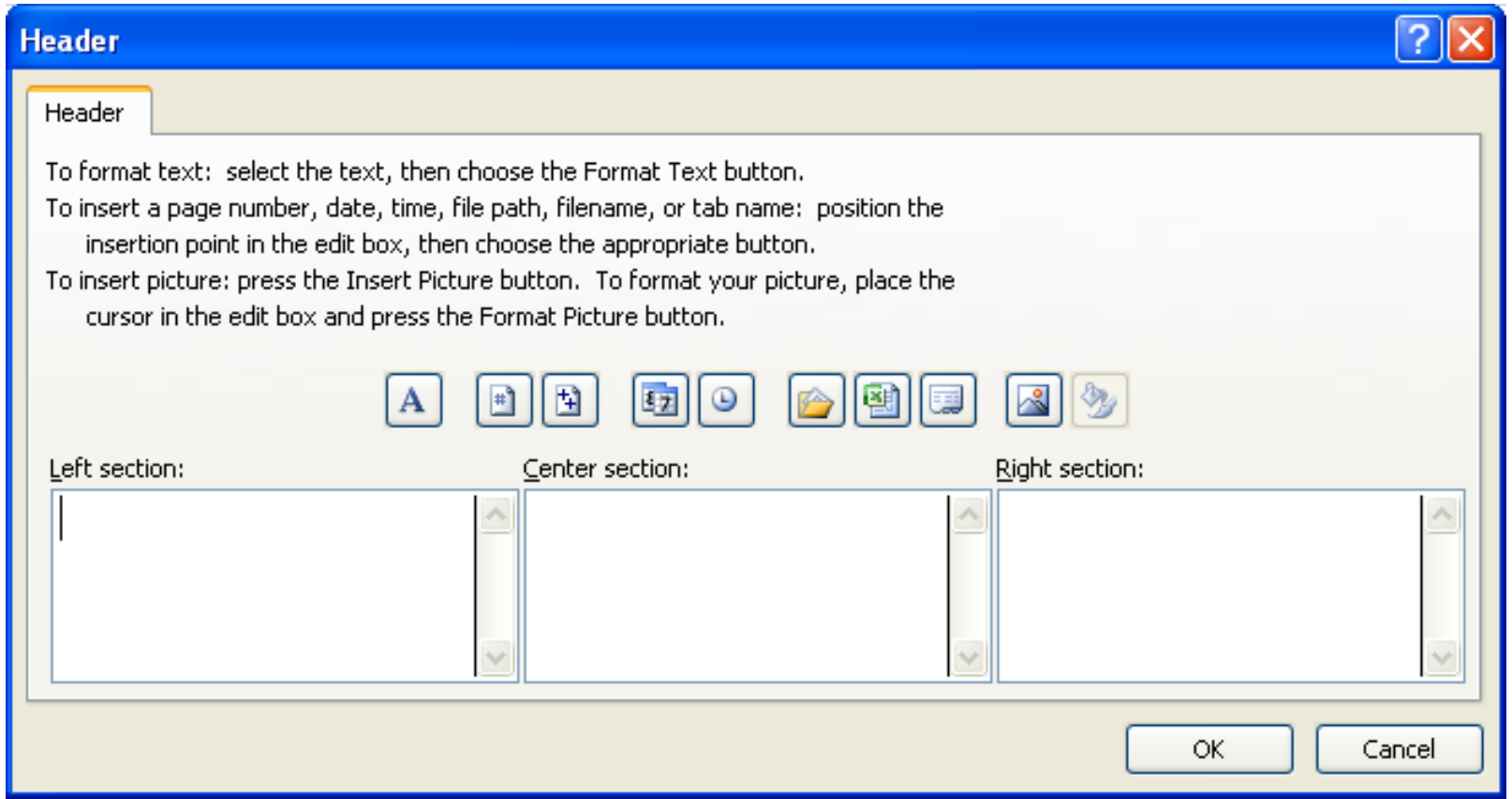
- The Header/Footer tab allows you to set the header or footer information.
- There are a number of built-in headers or footers:





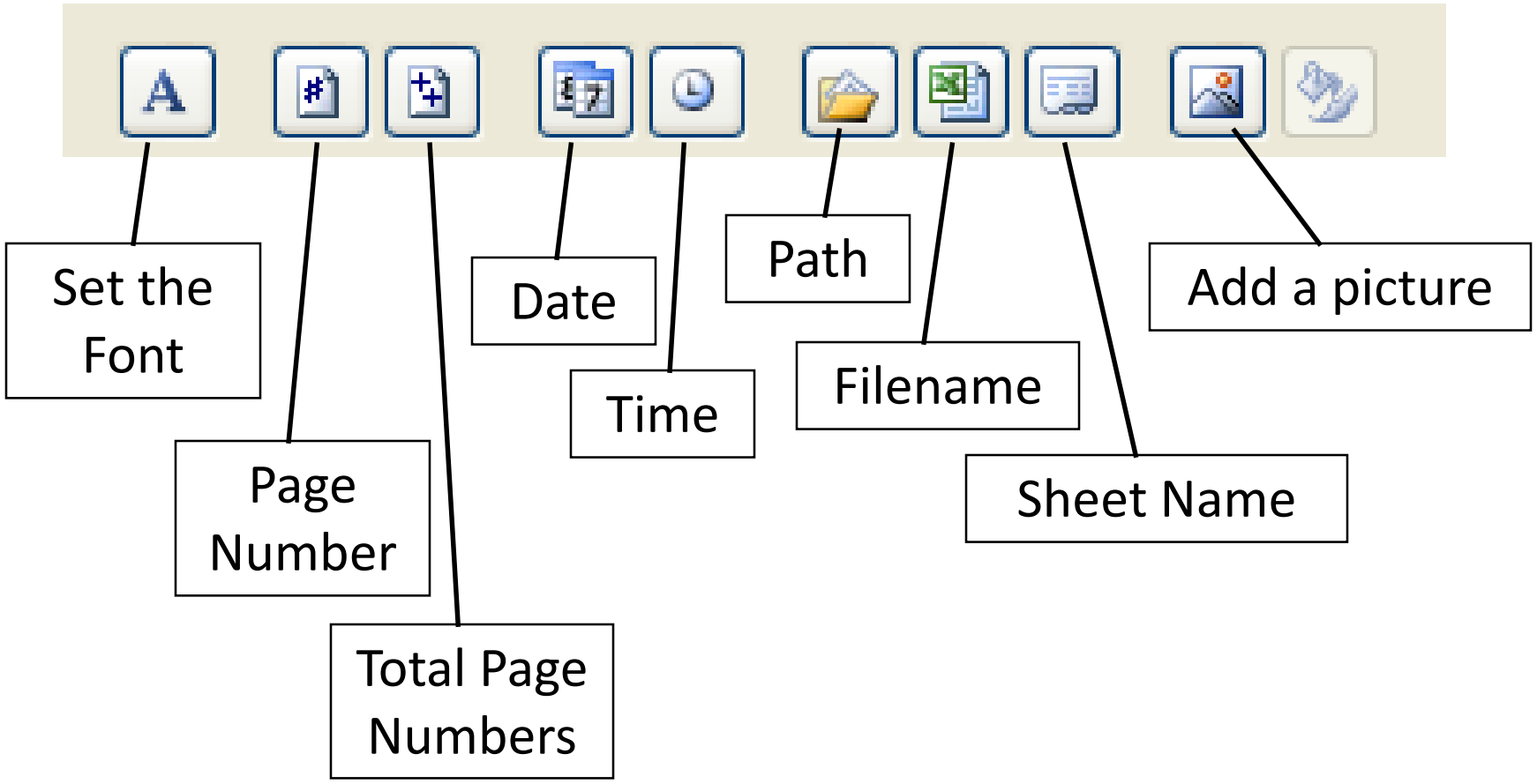
Page Setup: Page Tab

- You can also customize your own header and footer – Simply type the text you want to appear



Page Setup: Page Tab

- Buttons to add items to header/footer



Excel: Print Settings and Header/Footer

- Summary:
  - Unlike Word or PowerPoint you don’t know how a worksheet will print.
  - Many options control how the worksheet is printed.
  - There are a number of built-in headers/footers but you can also customize them.

Rest of Today

- Print out and turn in Homework 6-10 from Friday.. (Unit Sales)
- Complete Homework 6-11 (Petty Cash)

Excel Charts – Created based on Microsoft Tutorial

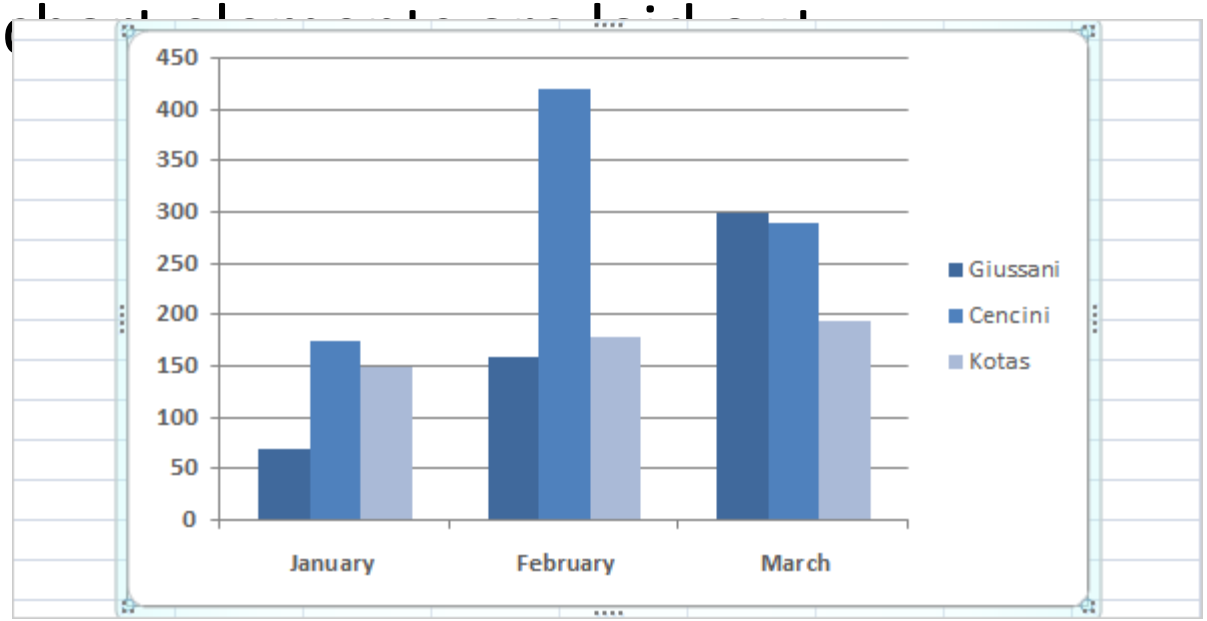
Section 6-13

Objectives

- The student will:
  1. Know how to create a simple chart based on the data in an Excel spreadsheet.
  2. Know how customize portions of the chart.

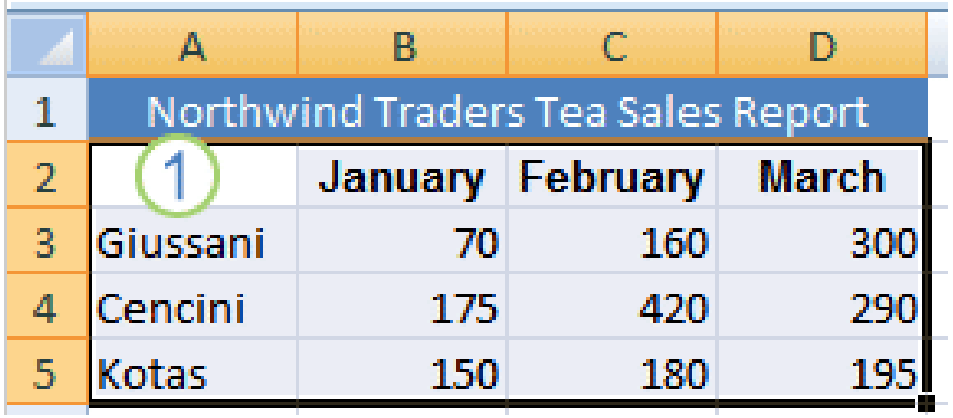
A basic chart in Excel

- In Excel 2010 you can make a chart in about 10 seconds,
- After you create a chart, you can easily add new elements to it. For example, you can add chart titles to add more information to the chart, or change how



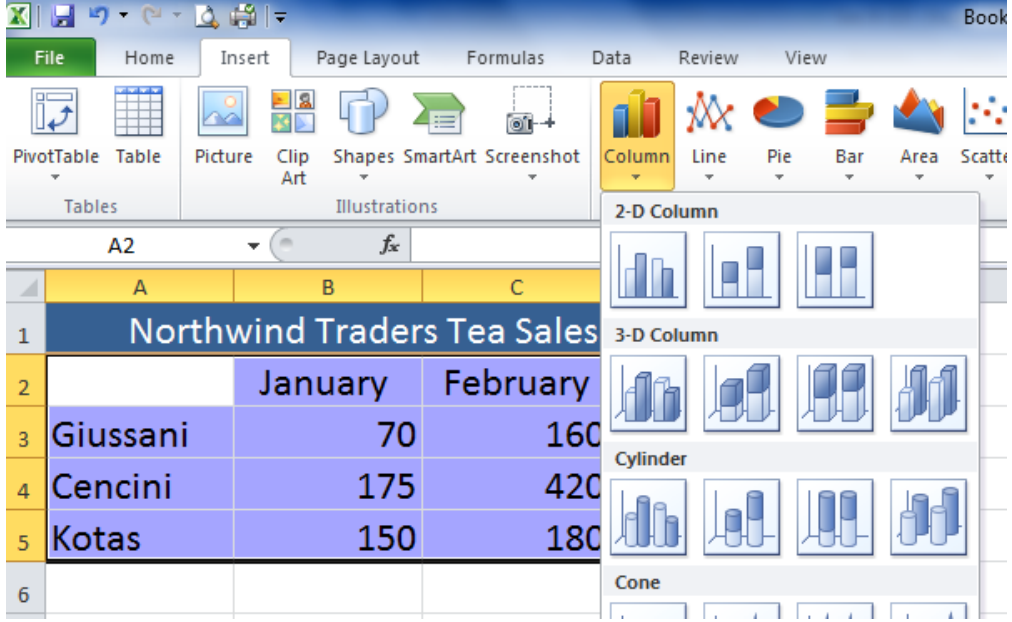
Create your chart

- Here's a worksheet that shows how many cases of Northwind Traders Tea were sold by each of three salespeople in each of three months. You need a chart that shows how each salesperson compares against the others, month by month for the first quarter of the year.



	A	B	C	D
1	Northwind Traders Tea Sales Report			
2	1	January	February	March
3	Giussani	70	160	300
4	Cencini	175	420	290
5	Kotas	150	180	195

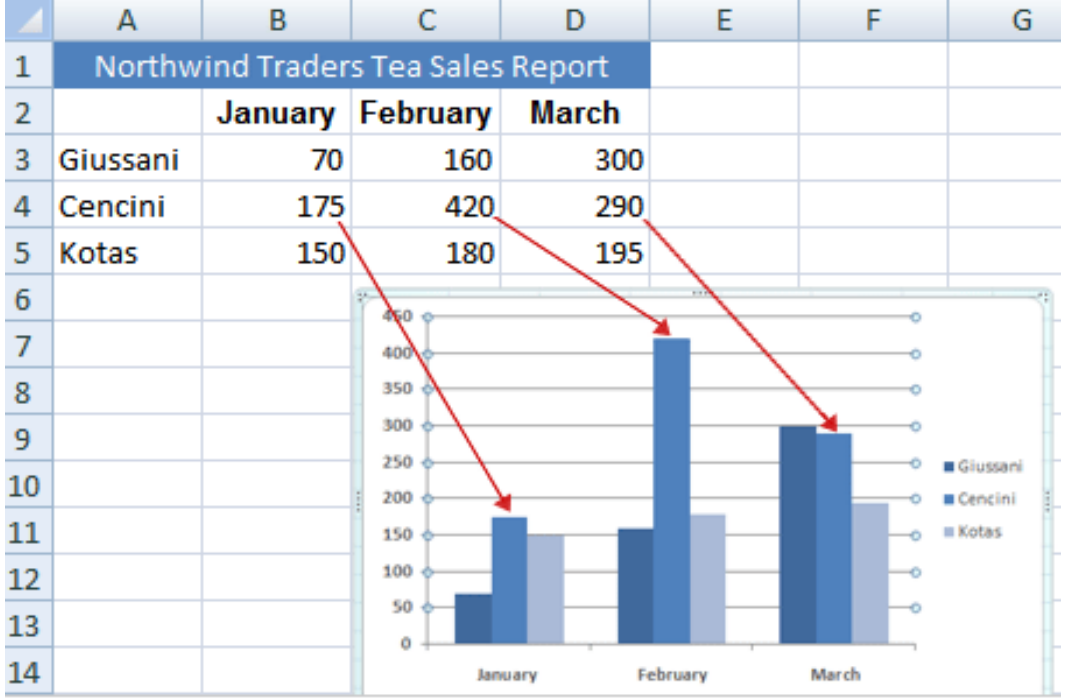
Create your chart



1. Select the data that you want to chart, including the column titles (January, February, March) and the row labels (the salesperson names).
2. Then click the **Insert** tab, and in the **Charts** group, click the **Column** button.
3. After you click **Column**, you'll see a number of column chart types to choose from. Click **Clustered Column**, the first column chart in the **2-D Column** list.

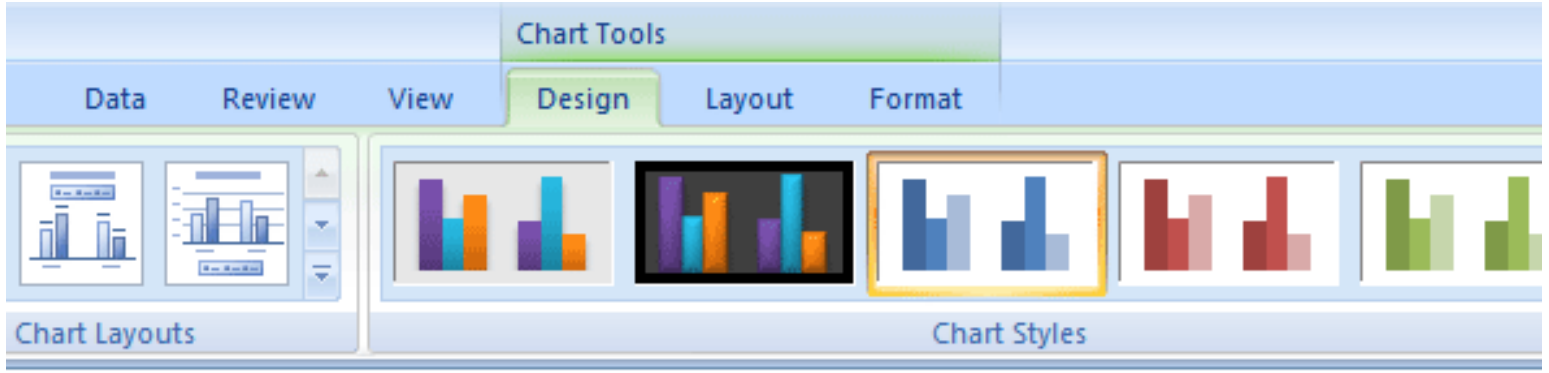
- That's it, you've created a chart in about 10 seconds.

How worksheet data appears in the chart



- Data for each salesperson appears in three separate columns, one for each month. The height of each chart is proportional to the value in the cell that it represents.
- Each row of salesperson data has a different color in the chart. The chart legend, created from the row titles in the worksheet (the salesperson names), tells which color represents the data for each salesperson. Giussani data, for example, is the darkest blue, and is the left-most column for each month.
- The column titles from the worksheet, January, February, and March, are now at the bottom of the chart. On the left side of the chart, Excel has created a scale of numbers to help you to interpret the column heights.

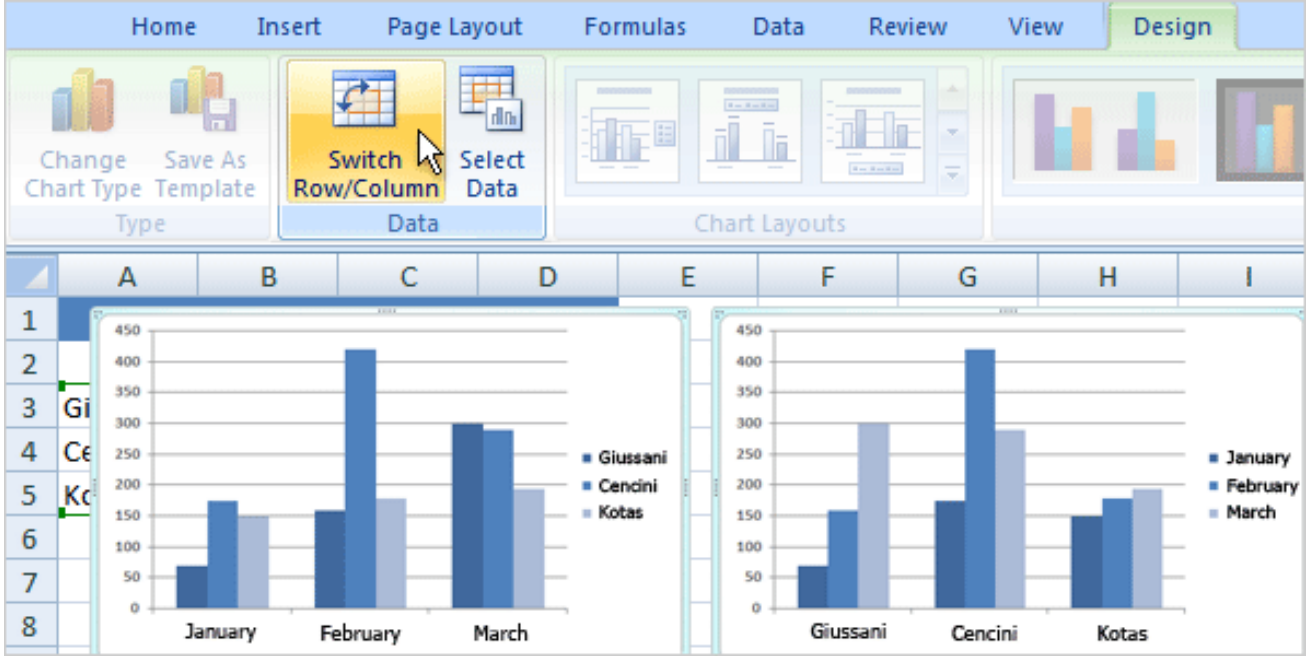
Chart Tools



- After the chart is inserted on the worksheet, the **Chart Tools** appear, with three tabs: **Design**, **Layout**, and **Format**. On these tabs you'll find the commands you need to work with charts.
- When you complete the chart, click outside it. The **Chart Tools** go away. To get them back, click inside the chart. Then the tabs reappear.

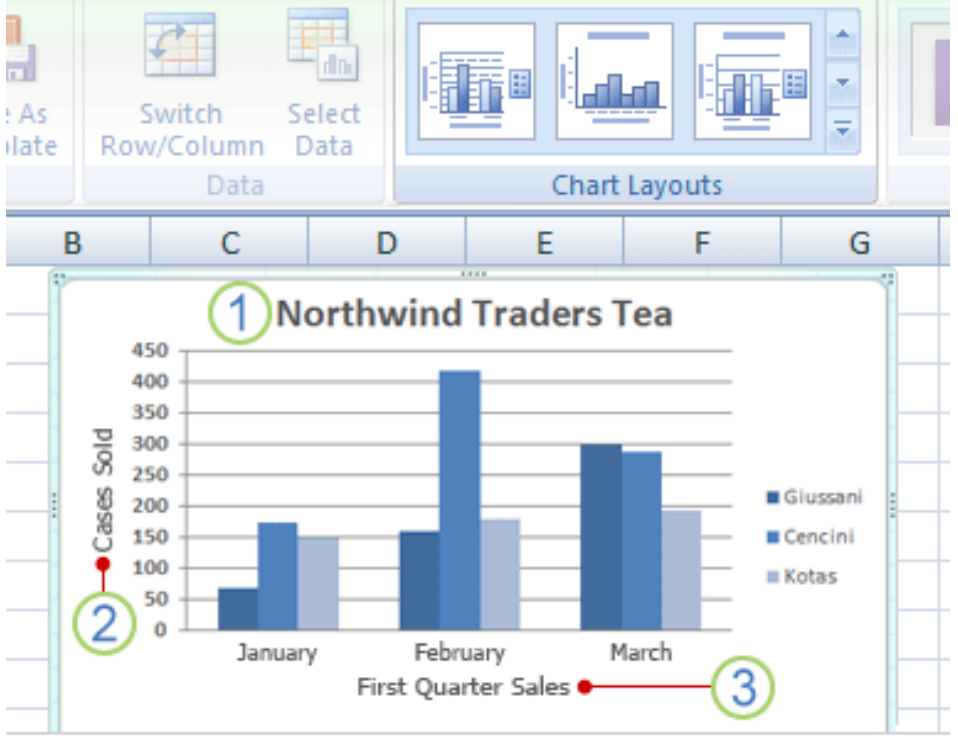
Changing the Chart View

- You can make your chart compare data another way by clicking a button to switch the chart view from one view to another.



- The chart you created compares salespeople to each other. Excel grouped data by worksheet columns and compared worksheet rows to show how each salesperson compares against the others. This is shown in the chart on the left in the picture.
- But another way to look at the data is to compare sales for each salesperson, month over month. To create this view of the chart, click **Switch Row/Column** in the **Data** group on the **Design** tab. In the chart on the right, data is grouped by rows and compares worksheet columns. Now the chart says something different: It shows how each salesperson did, month by month compared against themselves.

Chart Titles



- It's a good idea to add descriptive titles to your chart, so that readers don't have to guess what the chart is about. You can give a title to the chart itself, as well as to the chart axes

- A quick way to add chart titles is to click the chart to select it and then go to the Chart Layouts group on the Design tab. Click the More button to see all the layouts. Each option shows different layouts that change the way chart elements are laid out.
- The picture shows Layout 9, which adds placeholders for a chart title and axes titles. You type the titles directly in the chart.

1. The title for this chart is Northwind Traders Tea, the name of the product.
2. The title for the vertical axis on the left is Cases Sold.
3. The title for the horizontal axis at the bottom is First Quarter Sales

Summary

- You can create a basic chart in Excel in 10 seconds with a few mouse click.
- You need to consider what data you want to show and what data you want to compare when preparing a chart.
- Chart tools are available when you have a chart selected.

Quiz Time

1. You've created a chart. Now you need to compare data another way. To do this, you must create a second chart.
   - True.
   - False.

2. What must you do to refresh a chart when you revise the worksheet data that the chart displays?
   - Press SHIFT+CTRL.
   - Nothing.
   - Press F6.

Quiz Time

3. You create a chart. But later on you don't see the Chart Tools. What do you do to get them back?
   - Create another chart.
   - Click the **Insert** tab.
   - Click inside the chart.

4. You can't change the chart type after you create a chart.
   - True.
   - False.

Rest of Today

- Complete Homework 6-13

Excel Charts – Created based on Microsoft Tutorial

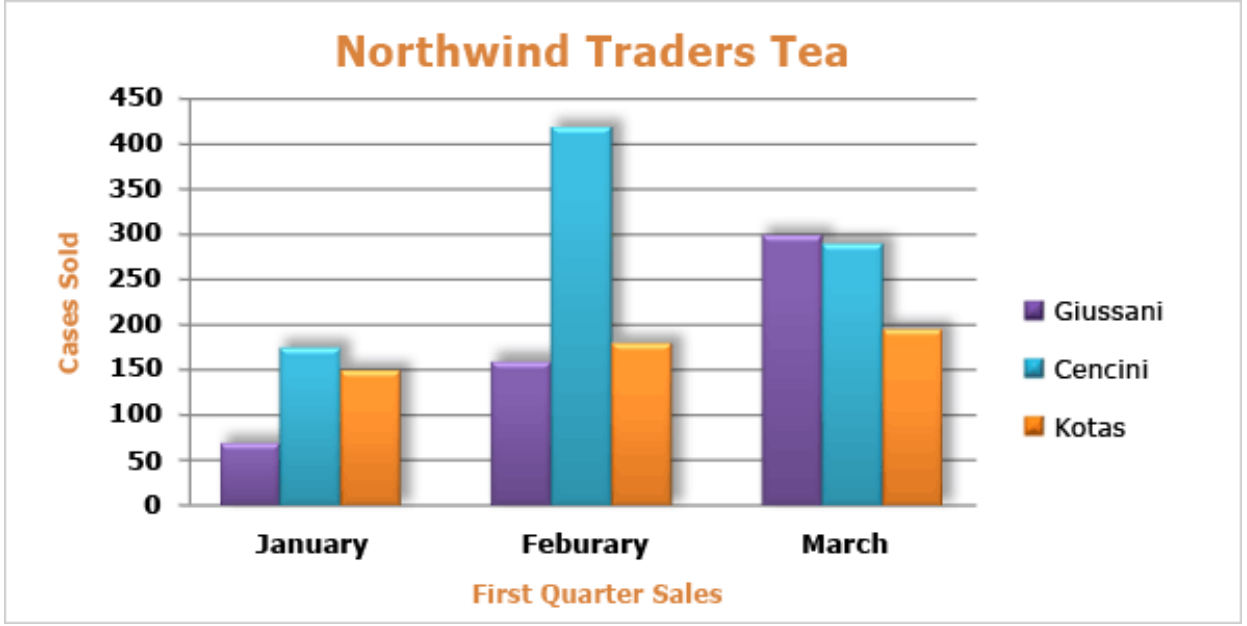
Section 6-14

Objectives

- The student will:
  1. Know some of the options to customize a chart.

Customizing Charts

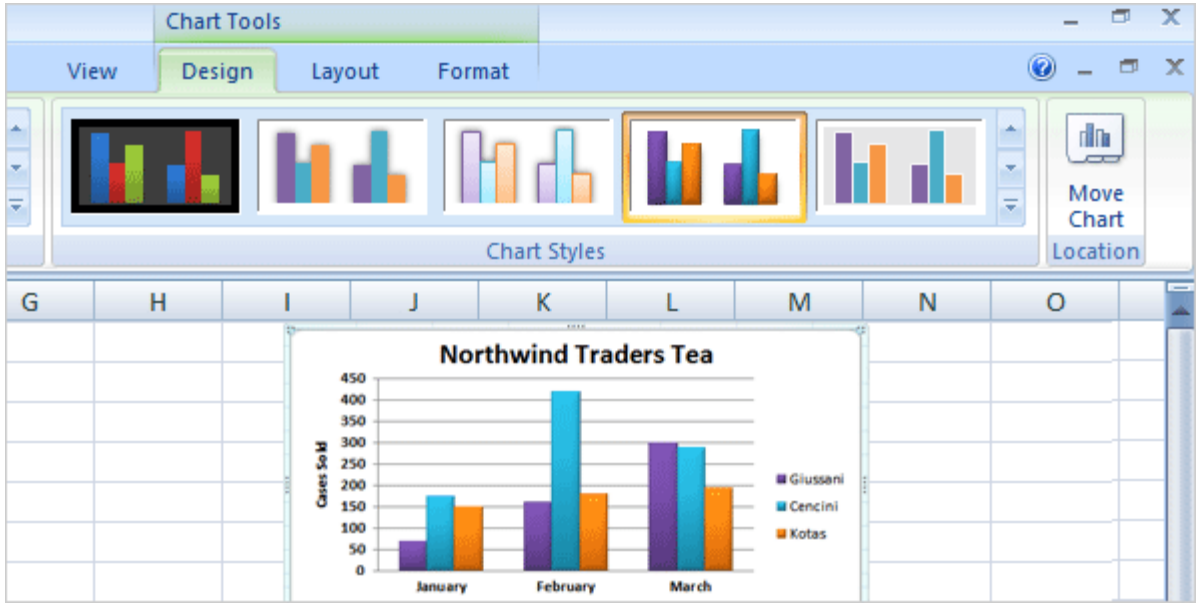
- After you create your chart, you can customize it to give it a more professional design.



- You can change the look of your chart by selecting a new chart style, which quickly changes the chart colors.
- You can format chart titles to change them from plain to fancy.
- There are many different formatting options you can apply to individual columns to make them stand out.

Chart Styles

- When you first create your chart, it's in a standard color. By using a chart style, you can apply different colors to a chart in just seconds.



- Click in the chart, then on the **Design** tab, in the **Chart Styles** group, click the **More** button to see all the choices, and then click the style you want.
  - Some of the styles change just the color of the columns. Others change the color and add an outline around the columns, while other styles add color to the plot area (the area bounded by the chart axes), and some styles add color to the chart area (the entire chart).

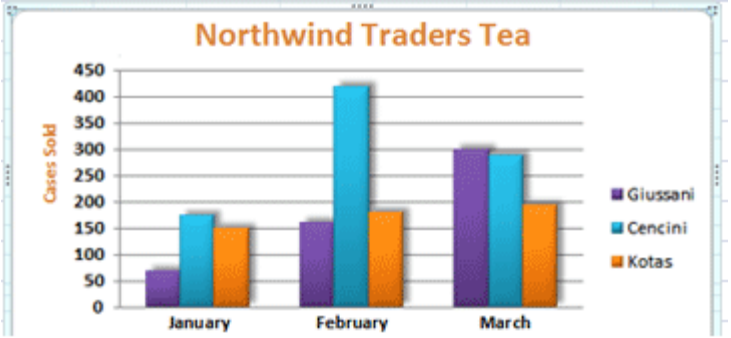
Themes

- If you don't see what you want in the **Chart Styles** group, you can get other color choices by selecting a different **Theme**. Click the **Page Layout** tab and then click **Colors** in the **Themes** group.
  - When you rest the pointer over a color, the color is shown in a temporary preview on the chart, which is different from what happens when you look at a chart style. You see the color's effect before you apply it, saving you the step of undoing it if you don't like it. Click the one you like to apply it to the chart.
  - **Important** - Unlike a chart style, the colors from a theme will be applied to other elements you might add to the worksheet. For example a table, or a cell style such as a heading, will take on the colors of the theme applied to the chart.

Customizing the Titles

- Ways to change the titles on your slide using WordArt:
  - On the **Format** tab, in the **WordArt Styles** group, there are many ways to work with the titles.
  - To use a text fill, first click in a title area to select it. Then click the arrow on **Text Fill** in the **WordArt Styles** group. Rest the pointer over any of the colors to see the changes in the title. When you see a color you like, select it. **Text Fill** also includes options to apply a gradient or a texture to a title.
  - Other options in the **WordArt Styles** group include **Text Outline** and **Text Effects**, which include **Shadow**, **Reflection**, and **Glow** effects.
- To make font changes, such as making the font larger or smaller, or to change the font face, click **Home**, and then go to the **Font** group.

Shape Styles



- In the picture, a shadow effect has been added to each of the columns (an offset diagonal shadow is behind each column).
- To do this, you click on one of Giussani's columns. That will select all three columns for Giussani (known as a series).
- On the **Format** tab, in the **Shape Styles** group, you click the arrow on **Shape Effects**, point to **Shadow**, and then rest the pointer on the different shadow styles in the list.
- Do the same for the other 2 series.

Shape Styles

- There are more options in **Shape Styles** that you can choose from. For example:
  - Click **Shape Fill**, where you can add a gradient or a texture to the columns.
  - Click **Shape Outline** to add an outline around the columns.
  - **Shape Effects** offers more than shadows. For example you can add bevel effects and soft edges to columns, or even make columns glow.

- You can also apply effects to other areas of the chart, such as the plot area (the area bounded by the axes).

Summary

- Styles and Themes set colors, etc for the chart (or the entire worksheet).
  - Works the same as Word or PowerPoint
- There are many options on the **Format** tab in the **Chart Tools.**

Rest of Today

- Complete Homework 6-14
  - There are 2 parts to this assignment. Complete both parts.

Excel: Sorting

Computer Information Technology

Section 6-15

Some text and examples used with permission from:
http://www.jegsworks.com
Note: We are not endorsing or promoting religious doctrine, but simply taking advantage of this website for educational purposes.

Objectives

- The student will:
  1. Understand how Excel can sort data
  2. Understand the “dangers” of sorting data
  3. Know how to select the data to sort

Excel: Sorting

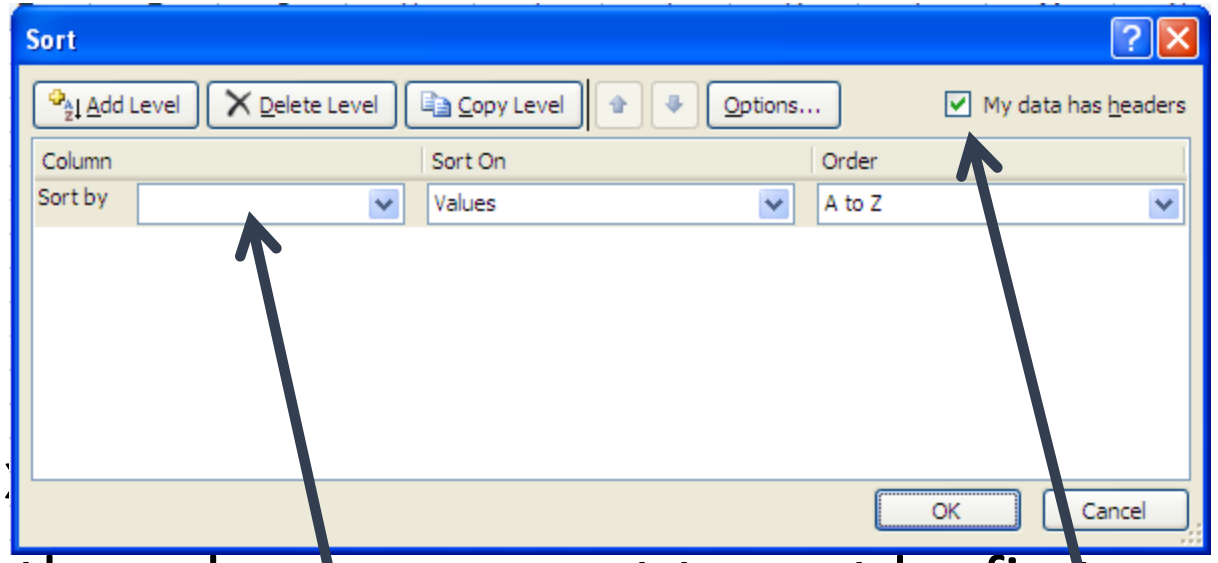
- One of the most powerful things Excel can do is to provide differing views of the same data.
- Sorting is one of the quickest and easiest ways to change the view of data.

Excel: Sorting

- How to sort…
  1. Select the data you wish to sort and click either the Sort Ascending button  or the Sort Descending button  s will sort on the first column selected. These ar und in the **Sort & Filter** group in the **Data** tab.
  2. Click on on the Data tab. This will bring up a dialog box for sorting.

Excel: Sort Dialog Box

- The sort dialog box allows you to customize your sort.



- First tell E
- Then pick the column you want to sort by first and how it should be sorted.
  - Add more levels to sort on by clicking **Add Level**.

Excel: Sorting - Example

- Look at this grade data:
- To sort by Last Name all I need to do is to highlight the data and click
- I now have a list sorted by last name.

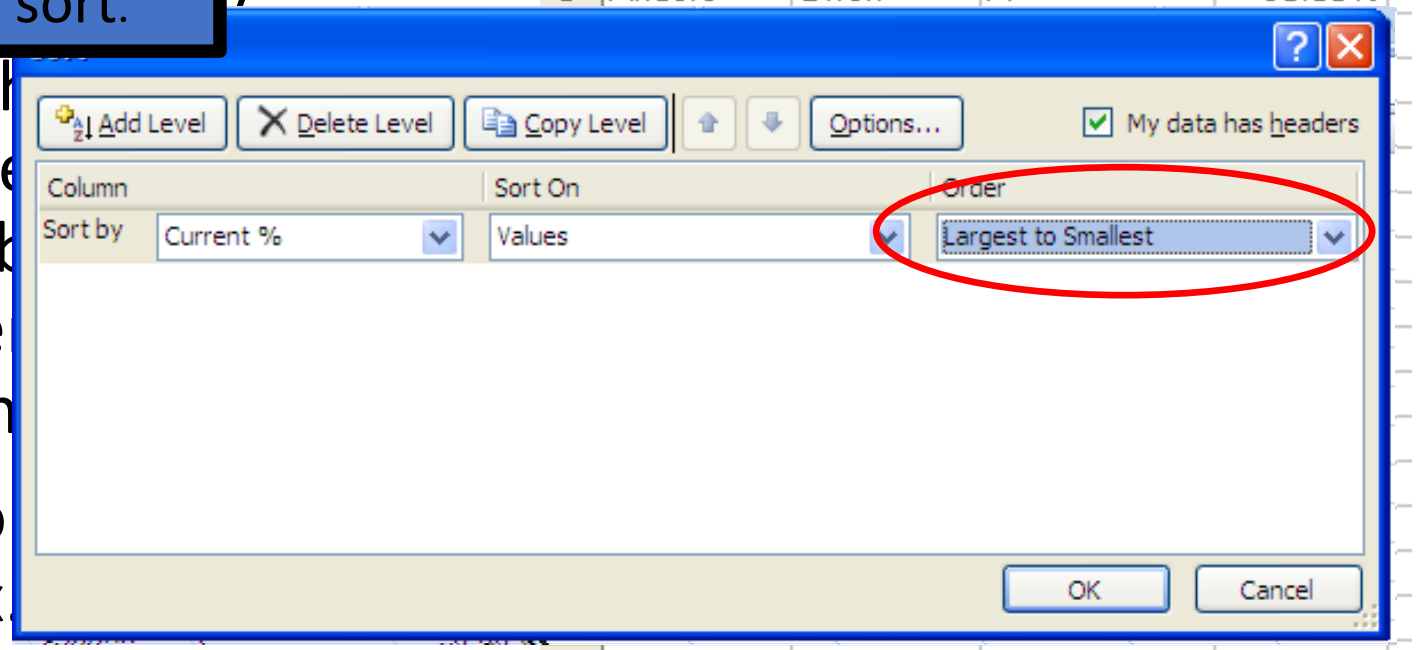
	A	B	C	D
1	Last Name	First Name	Current Grade	Current %
2	Abel	Joshua	F	39.08%
3	Anders	Swen	A	95.80%
4	Garcia	Jesus	A	90.06%
5	Garland	Thomas	B	88.05%
6	Green	Sandra	A	90.98%
7	Hernandez	Jorge	D	67.53%
8	Hollenbeck	George	A	92.59%
9	Jones	Holly	C	72.24%
10	Julius	Foy	B	85.29%
11	Kitamura	Tokata	A	98.22%
12	Krantz	Peter	F	29.83%
13	Lane	Sanders	F	0.00%
14	Lillet	Lily	D	59.20%
15	Luntz	Libby	D	63.51%
16	Murray	Barnabus	A	95.29%
17	Patel	Julius	A	96.44%
18	Patterson	Paul	C	74.48%
19	Sanderson	Joseph	C	77.01%
20	Slate	Benjamin	B	85.29%
21	Smith	Georgia	F	6.78%
22	Swenson	Fredrick	A	90.00%
23	Tsong	Theo	F	54.94%
24	Walker	Chadwick	B	88.79%
25	Wang	Xia	B	84.60%
26	Wyatt	Wayne	C	75.34%

Excel: Sorting - Example

First select all the cells you wish to include in the sort.

grade (high
lowest) the
would be b
sort desce
the Curren

- I do that o
dialog box.



	A	B	C	D
1	Last Name	First Name	Current Grade	Current %
2	Abel	Joshua	F	39.08%
3	Anders	Swen	A	95.80%
18	Patterson	Paul	C	74.48%
19	Sanderson	Joseph	C	77.01%
20	Slate	Benjamin	B	85.29%
21	Smith	Georgia	F	6.78%
22	Swenson	Fredrick	A	90.00%
23	Tsong	Theo	F	54.94%
24	Walker	Chadwick	B	88.79%
25	Wang	Xia	B	84.60%
26	Wyatt	Wayne	C	75.34%

Excel: Dangers of Sorting

- **Separating Data:** If you have related data in rows and you sort just some cells, you may separate parts that belong together. Mr. Green's phone number may wind up by Miss Featherstone's name! Mr. Cartwright's Amount Due might wind up as part of Mr. Garcia's bill.

- **Changing Formulas:** When you move cells around, formulas that use those cells will change to match. That's good. If you move the cell with the formula in it, the formula will change, too. It will no longer do what you expect it to do. You can only sort data with formulas if the formulas refer only to cells on that row.

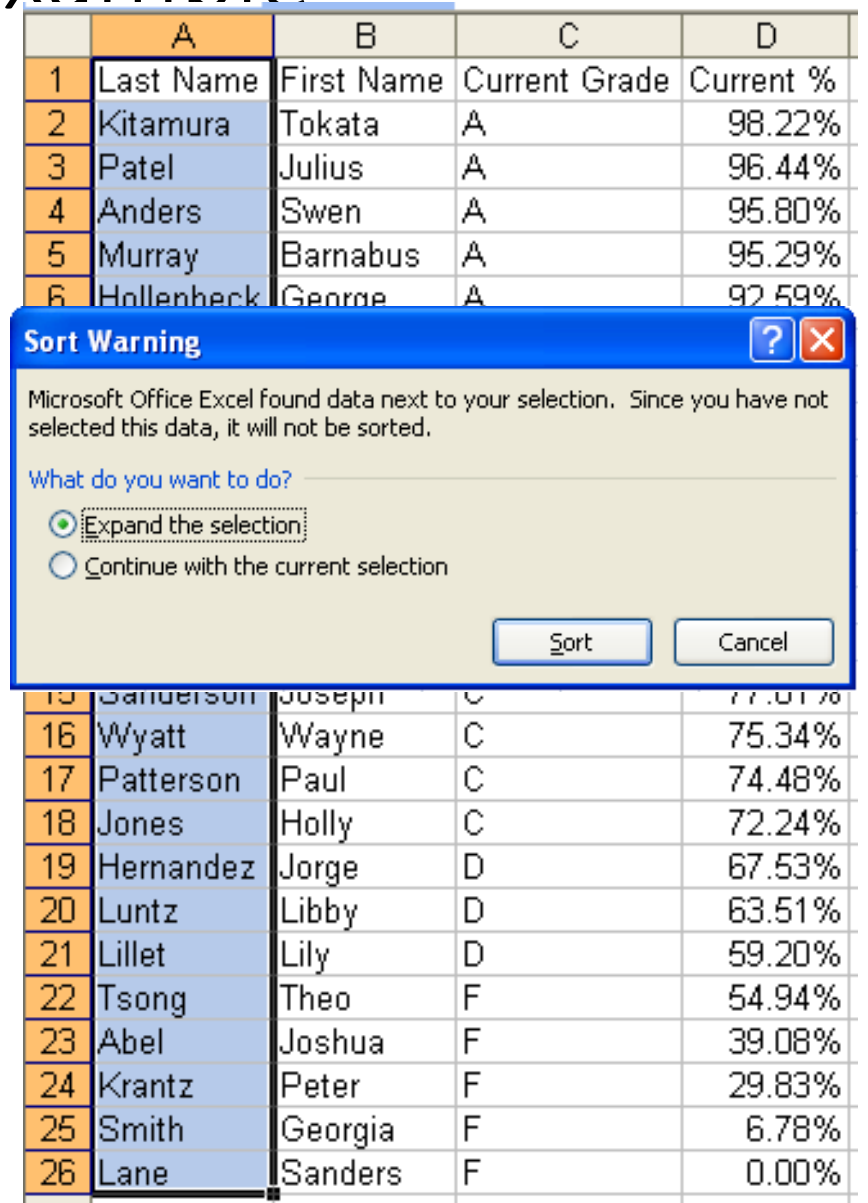
Excel: Dangers of Sorting - Example

- If I only select the Last Name column and sort, Excel will simply sort that column and nothing else
- The result is that the last names no longer match up with the first names or the grades. The file is now useless.

	A	B	C	D
1	Abel	First Name	Current Grade	Current %
2	Anders	Tokata	A	98.22%
3	Garcia	Julius	A	96.44%
4	Garland	Swen	A	95.80%
5	Green	Barnabus	A	95.29%
6	Hernandez	George	A	92.59%
7	Hollenbeck	Sandra	A	90.98%
8	Jones	Jesus	A	90.06%
9	Julius	Fredrick	A	90.00%
10	Kitamura	Chadwick	B	88.79%
11	Krantz	Thomas	B	88.05%
12	Lane	Foy	B	85.29%
13	Last Name	Benjamin	B	85.29%
14	Lillet	Xia	B	84.60%
15	Luntz	Joseph	C	77.01%
16	Murray	Wayne	C	75.34%
17	Patel	Paul	C	74.48%
18	Patterson	Holly	C	72.24%
19	Sanderson	Jorge	D	67.53%
20	Slate	Libby	D	63.51%
21	Smith	Lily	D	59.20%
22	Swenson	Theo	F	54.94%
23	Tsong	Joshua	F	39.08%
24	Walker	Peter	F	29.83%
25	Wang	Georgia	F	6.78%
26	Wyatt	Sanders	F	0.00%

Excel: Dangers of Sorting - Example

- Fortunately in most cases Excel will give you a warning
- If you select “expand the selection” Excel will select all the data it finds and complete the sort properly.



	A	B	C	D
1	Last Name	First Name	Current Grade	Current %
2	Kitamura	Tokata	A	98.22%
3	Patel	Julius	A	96.44%
4	Anders	Swen	A	95.80%
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16	Wyatt	Wayne	C	75.34%
17	Patterson	Paul	C	74.48%
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23	Abel	Joshua	F	39.08%
24	Krantz	Peter	F	29.83%
25	Smith	Georgia	F	6.78%
26	Lane	Sanders	F	0.00%

Summary

- Sort is one of the most useful functions in Excel.
- 2 ways to sort: the buttons on the Data tab and the Sort dialog from the Data tab.
- Sort dialog allows you to customize your sort (which columns and ascending or descending)
- You need to be careful in selecting the range to sort. If you don’t sort on all the data the file will useless.

Rest of Today

- Download 6-15 and the file “names”
- Do homework 6-15

Excel: Subtotals and Totals

Computer Information Technology

Section 6-16

Some text and examples used with permission from:
http://www.jegsworks.com
Note: We are not endorsing or promoting religious doctrine, but simply taking advantage of this website for educational purposes.

Objectives

- The student will:
  1. Understand how to add Subtotals to an Excel File.
  2. Understand how to display the summary levels in a file with subtotals

Excel: Subtotals

- **Subtotals** quickly summarize data within a list.
- Based upon the data you select, Excel can automatically calculate both subtotals and grand totals.
- Subtotals are based on organized, **sorted** groups of data.

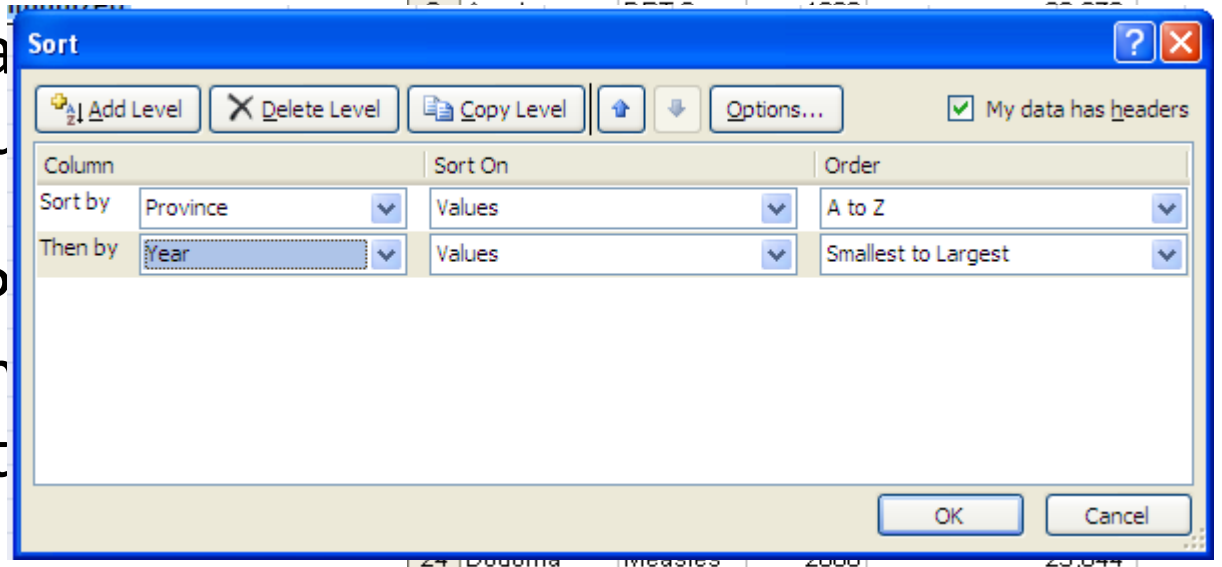
Excel: Subtotals

- Before using subtotals, the data to analyze *must* be sorted in some fashion.
- This is necessary because the subtotals feature of Excel calculates summary data (i.e., subtotals) based on groups of contiguous rows.
- The subtotals are added to the file where some data changes.
- You can find Subtotals… on **Data** tab.

Excel: Creating Subtotals

- The first step in creating subtotals is to ensure that the file is sorted
- If I have this data
  want to create su
  of "Children
  Immunized" by P
  and by Year, ther
  to sort the data t
  way

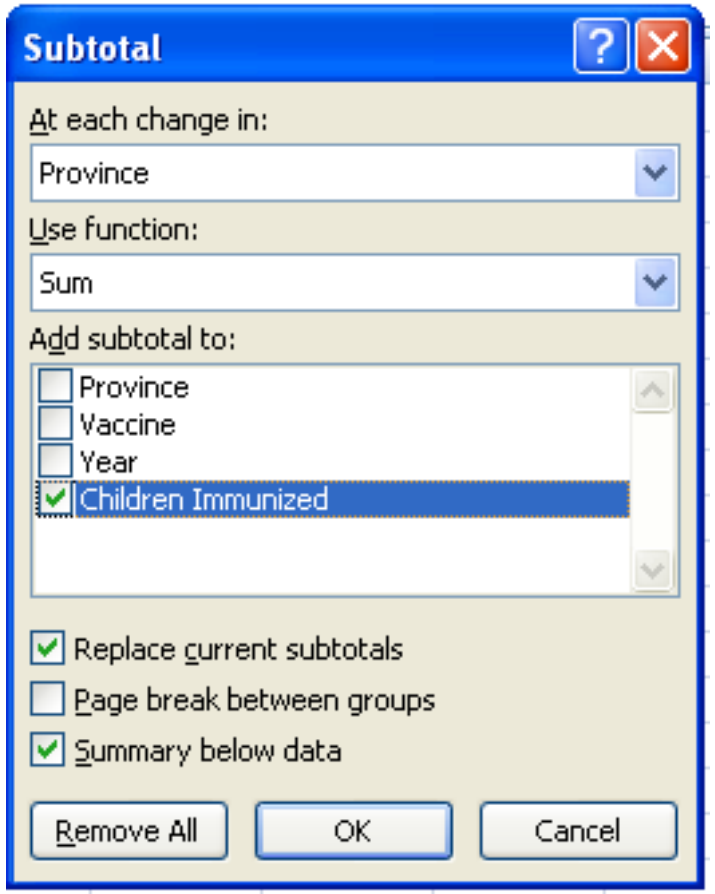
	A	B	C	D
1	**Province**	**Vaccine**	**Year**	**Children Immunised**
2	Arusha	BCG	1999	50,744
3	Arusha	BCG	2000	16,541
4	Arusha	BCG	2001	23,689
5	Dodoma	BCG	1999	37,140
6	Dodoma	BCG	2000	10,222
7	Dodoma	BCG	2001	5,721
25	Dodoma	Measles	2001	39,209
26	Arusha	OPV	1999	4,963
27	Arusha	OPV	2000	9,824
28	Arusha	OPV	2001	58,168
29	Dodoma	OPV	1999	22,161
30	Dodoma	OPV	2000	4,435
31	Dodoma	OPV	2001	18,735



Excel: Creating Subtotals

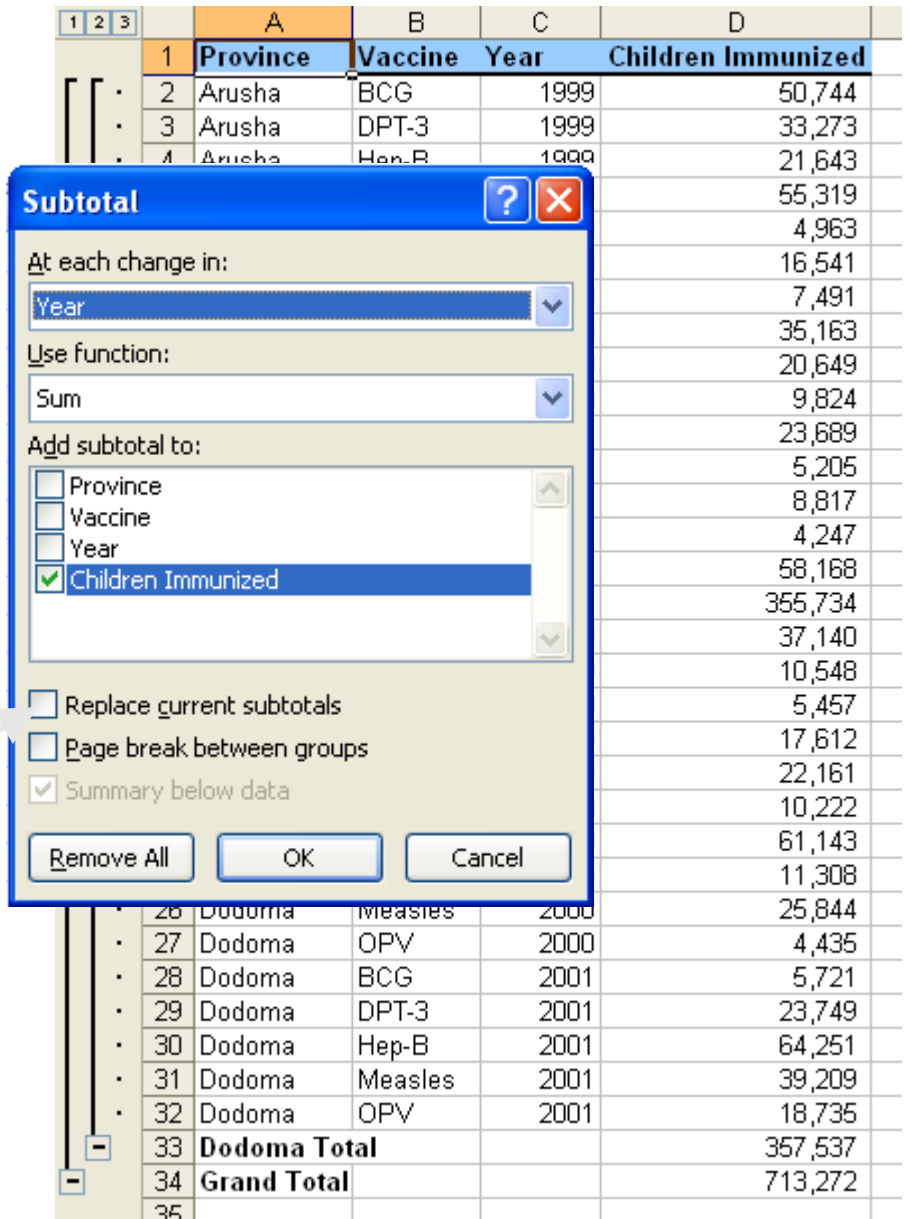
- The first step is to add a subtotal for the Provinces.

1. Select **Subtotals** in the **Outline** group on the **Data** tab.
2. Set “At each change in:” to Province
3. Set “Use function:” to Sum
4. Set “Add subtotal to:” to Children Immunized



Excel: Creating Subtotals

- The file now includes Subtotals for each Province.
- To add another subtotal for year follow the same process.
- This time clear “Replace current subtotals”



	Province	Vaccine	Year	Children Immunized
2	Arusha	BCG	1999	50,744
3	Arusha	DPT-3	1999	33,273
4	Arusha	Hep-B	1999	21,643
				55,319
				4,963
				16,541
				7,491
				35,163
				20,649
				9,824
				23,689
				5,205
				8,817
				4,247
				58,168
				355,734
				37,140
				10,548
				5,457
				17,612
				22,161
				10,222
				61,143
				11,308
26	Dodoma	Measles	2000	25,844
27	Dodoma	OPV	2000	4,435
28	Dodoma	BCG	2001	5,721
29	Dodoma	DPT-3	2001	23,749
30	Dodoma	Hep-B	2001	64,251
31	Dodoma	Measles	2001	39,209
32	Dodoma	OPV	2001	18,735
33	**Dodoma Total**			357,537
34	**Grand Total**			713,272

Excel: Creating Subtotals

- The results is subtotals by year

  and by Province

	A	B	C	D
1	**Province**	**Vaccine**	**Year**	**Children Immunized**
2	Arusha	BCG	1999	50,744
3	Arusha	DPT-3	1999	33,273
4	Arusha	Hep-B	1999	21,643
5	Arusha	Measles	1999	55,319
6	Arusha	OPV	1999	4,963
7			**1999 Total**	165,941
8	Arusha	BCG	2000	16,541
9	Arusha	DPT-3	2000	7,491
10	Arusha	Hep-B	2000	35,163
11	Arusha	Measles	2000	20,649
12	Arusha	OPV	2000	9,824
13			**2000 Total**	89,668
14	Arusha	BCG	2001	23,689
15	Arusha	DPT-3	2001	5,205
16	Arusha	Hep-B	2001	8,817
17	Arusha	Measles	2001	4,247
18	Arusha	OPV	2001	58,168
19			**2001 Total**	100,126
20	**Arusha Total**			355,734
21	Dodoma	BCG	1999	37,140
22	Dodoma	DPT-3	1999	10,548
23	Dodoma	Hep-B	1999	5,457
24	Dodoma	Measles	1999	17,612
25	Dodoma	OPV	1999	22,161
26			**1999 Total**	92,919
27	Dodoma	BCG	2000	10,222

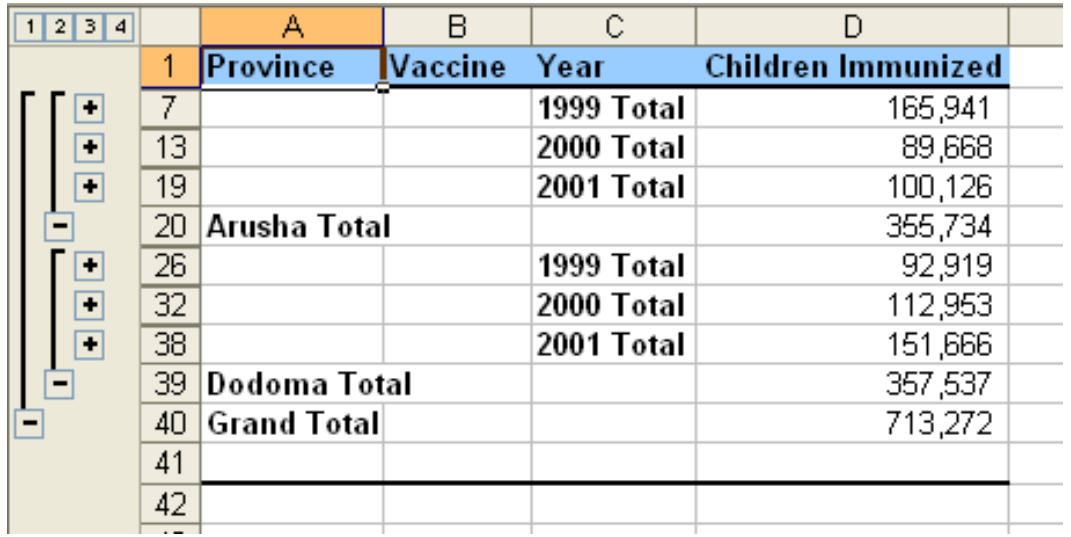
Excel: Summary Reports

- **Create summary reports:** When you add subtotals to a list, the list is outlined so that you can see its structure. You can create a summary report by clicking the outline symbols , x , and to hide the details and show only the totals.

- sh w totals various levels.

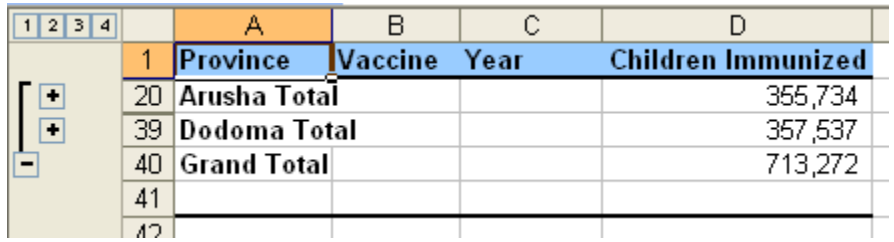
Excel: Summary Reports

- Clicking on 3 will give you this summary:



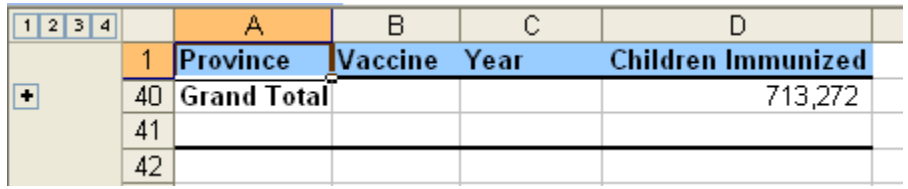
	A	B	C	D
1	Province	Vaccine	Year	Children Immunized
7			1999 Total	165,941
13			2000 Total	89,668
19			2001 Total	100,126
20	Arusha Total			355,734
26			1999 Total	92,919
32			2000 Total	112,953
38			2001 Total	151,666
39	Dodoma Total			357,537
40	Grand Total			713,272
41				
42				

- Clicking on 2 this:



	A	B	C	D
1	Province	Vaccine	Year	Children Immunized
20	Arusha Total			355,734
39	Dodoma Total			357,537
40	Grand Total			713,272
41				
42				

- And 1 this:



	A	B	C	D
1	Province	Vaccine	Year	Children Immunized
40	Grand Total			713,272
41				
42				

Summary

- **Subtotals** quickly summarize data
- **Subtotals** rely on the data being sorted
- You can quickly get only summary data by clicking on the outline numbers.

Rest of Today

- Download the Homework 6-16 and the Sales_data file.
- Complete Homework 6-16.

17 Excel: Logical Tests

Objectives

- The student will
  1. Understand conditional expressions and how they are used.
  2. Know the format for the “IF” function in Excel.
  3. Understand the logical operators.
  4. Understand how to set conditional formatting in a cell

Excel: Logical Tests

- Some functions do not calculate *values* but instead do **logical tests** using **logical comparisons** like =, < , and > or the combinations <=, >=, <>.
- Such a test allows you to do one thing when the comparison is TRUE and something different when it is FALSE.

Excel: The IF function

- The **IF function** is the logical test that is used the most. It has three **arguments** inside parentheses which are separated by commas:
  - the comparison statement
  - the cell value to use when the comparison is true
  - the cell value to use when the comparison is false.
- This is also know as IF – THEN – ELSE
  - If it is true then do this, else do that

Excel: The IF function

- The general form of an IF function is:

  =IF(logical comparison, value if TRUE, value if FALSE)

- A **value** can be a number, text within double quotes, a cell reference, a formula, or another logical test.

Excel: Logical Operators

Logical Operator	Meaning	Example
=	Equal to	=IF(E8=C8,"Equal","Not equal") When the two cells are equal, the word "Equal" is shown. When the two cells are not equal, the phrase "Not equal" shows.
<	Less than	=IF(F4<E4,E4-F4, F4-E4) If F4 is less than E4, subtract F4 from E4. Otherwise do the subtraction the other way. This makes sure you have a positive number for the difference of the two numbers.
>	Greater then	=IF(C6>100,C6,100) If C6 is greater than 100, show C6. Otherwise show 100.

Excel: Logical Operators

Logical Operator	Meaning	Example
<=	Less than or equal to	=IF(B5<=10,B5,"Maximum") If B5 is less than or equal to 10, show B5. Otherwise show the word "Maximum".
>=	Greater than or equal to	=IF(MAX(B4:E8)>=SUM(B4:E8)/2,MAX(B4:E8), SUM(B4:E8)/2) If the largest value in the range is larger than or equal to half of the sum of the range, then show the largest value. Otherwise show half the sum of the range.
<>	Not equal to	=IF(B8<>D6,IF(B8<10,10,B8),D6) If B8 is not equal to D6, check to see if B8 is less than 10. Show 10 if it is and B8 if it isn't. Otherwise show D6, which would be equal to B8 in this case.

Excel: Nesting Statements

- You can nest up to 7 If statements to create complex tests. For example, to calculate your letter grade based on your percent score I use the following statement:

  =IF(F4>0.895,"A",IF(F4>0.795,"B",IF(F4>0.695,"C",IF(F4>0.595,"D","F"))))

Conditional Formatting

- **Conditional formatting:** uses a logical test to apply one format for a cell when the test is true and a different format when it is false.
  - For example, you could format positive amounts with a green cell fill and negative amounts with a red fill.

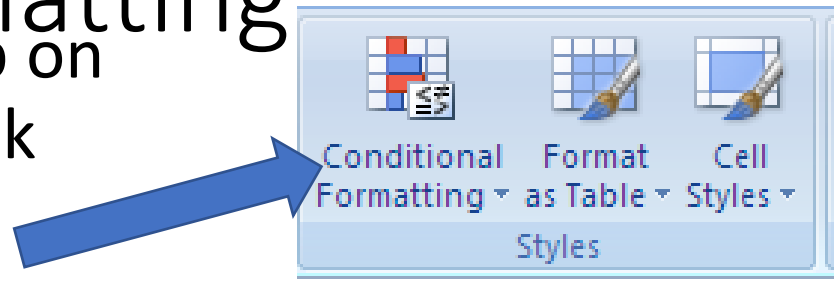
Excel: Conditional Formatting

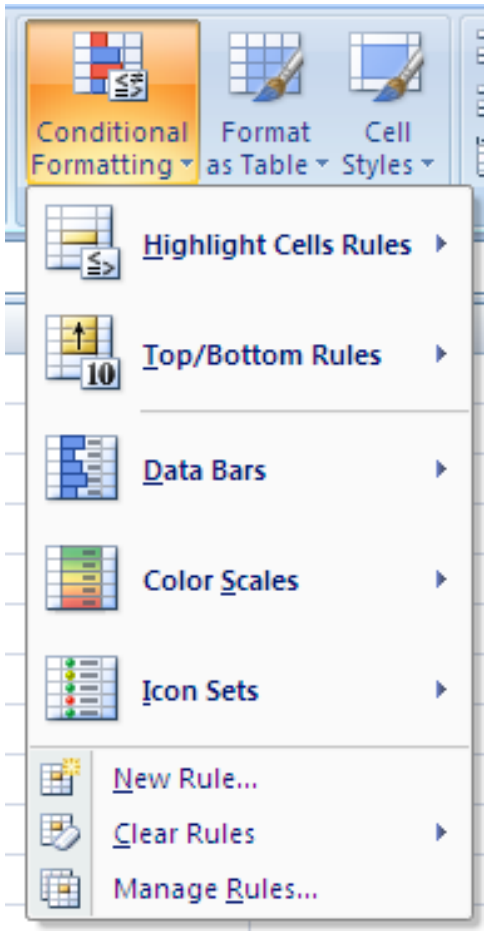
- If I want to automatically put a red fill in all cells for students who are failing my first period class.
- First step is to select the cells containing the grades

	A	B	C
1	Student Name	Grade	%
2	Student 1	F	45.53%
3	Student 2	A	92.24%
4	Student 3	F	29.74%
5	Student 4	B	85.68%
6	Student 5	D	64.32%
7	Student 6	B	80.66%
8	Student 7	A	97.45%
9	Student 8	A	91.07%
10	Student 9	B	88.50%
11	Student 10	B	81.41%
12	Student 11	C	76.73%
13	Student 12	A	96.23%
14	Student 13	A	103.50%
15	Student 14	C	75.18%
16	Student 15	F	31.30%
17	Student 16	C	69.98%
18	Student 17	B	85.77%
19	Student 18	C	78.23%
20	Student 19	F	58.58%
21	Student 20	B	79.93%

Excel: Conditional Formatting

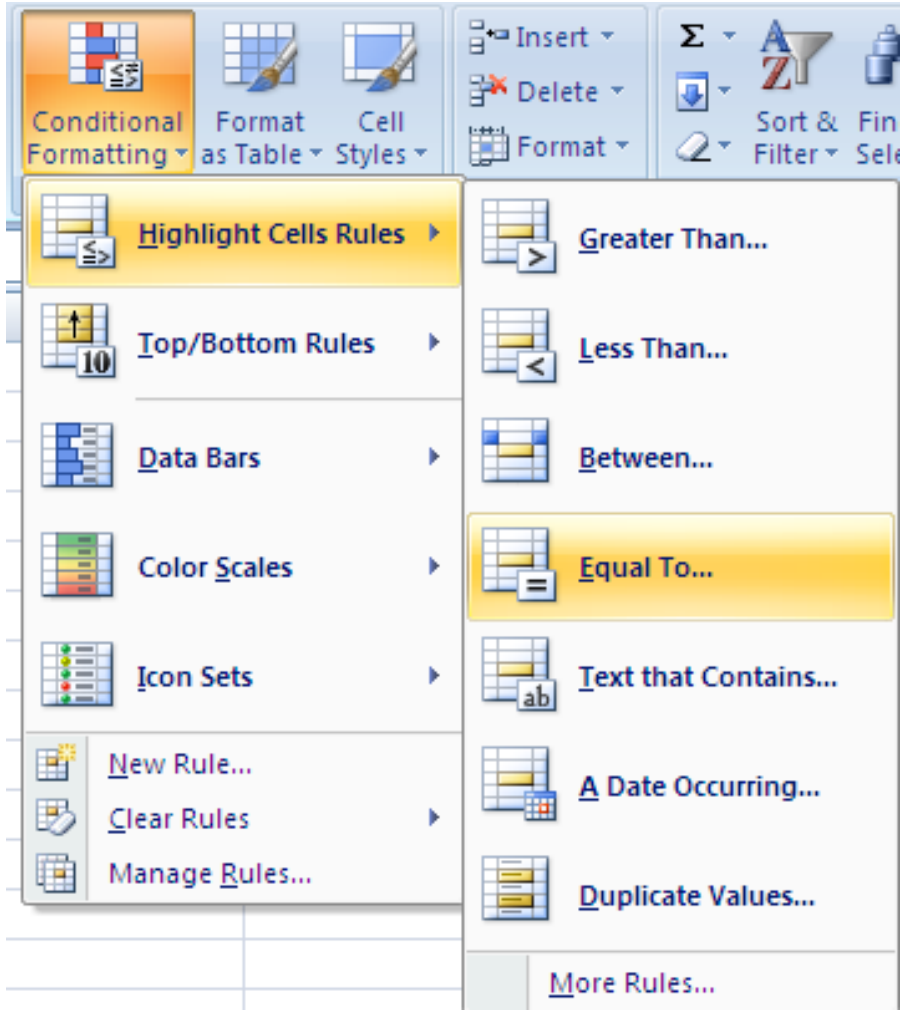
- In the **Style** group on the **Home** tab click **Condition Formatting**
- This brings up the conditional formatting menu:



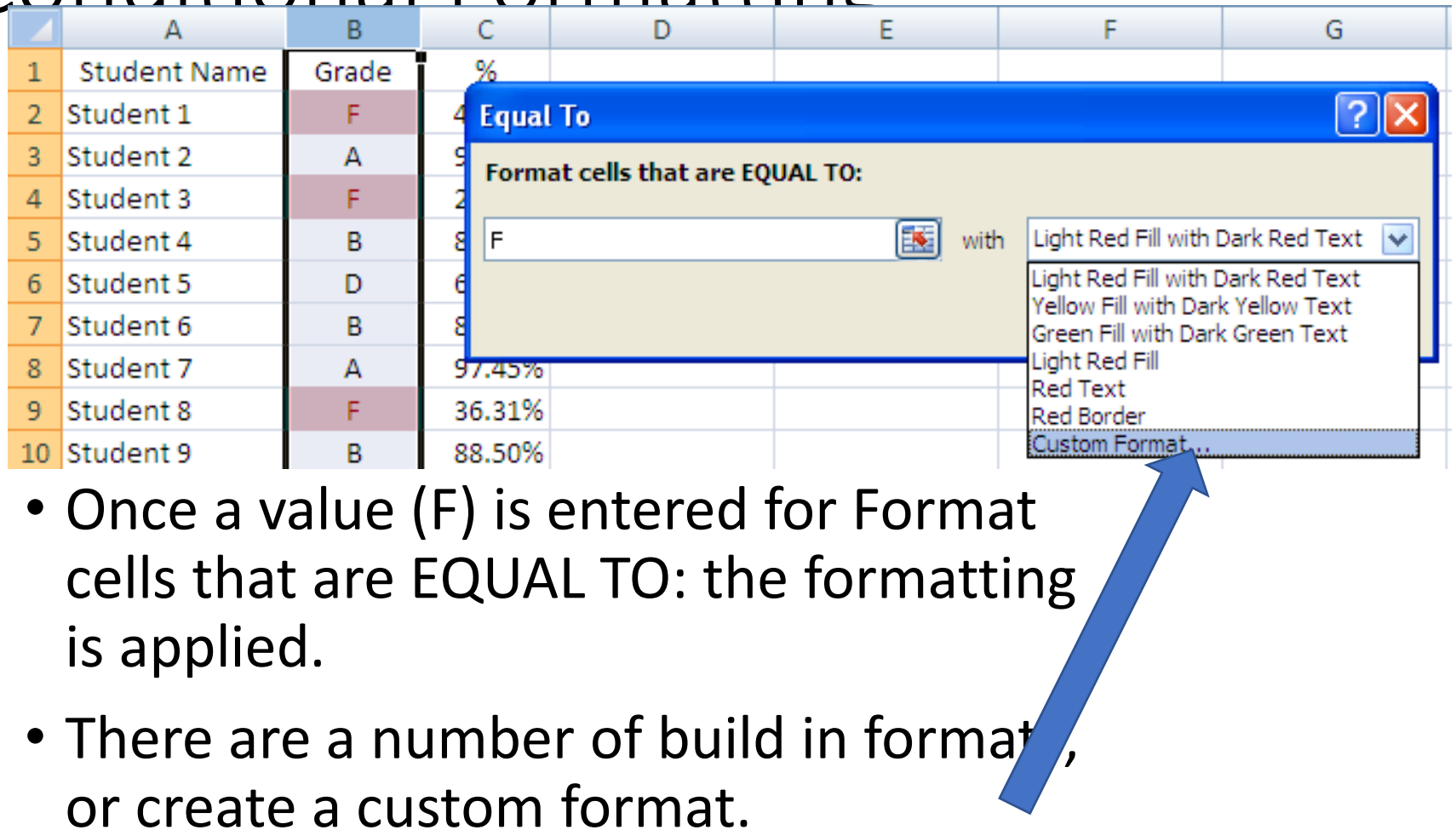


Excel: Conditional Formatting

- In this case we want to highlight the cells with a certain value.
  - Choose **Highlight Cells Rules**
  - Choose **Equal to**

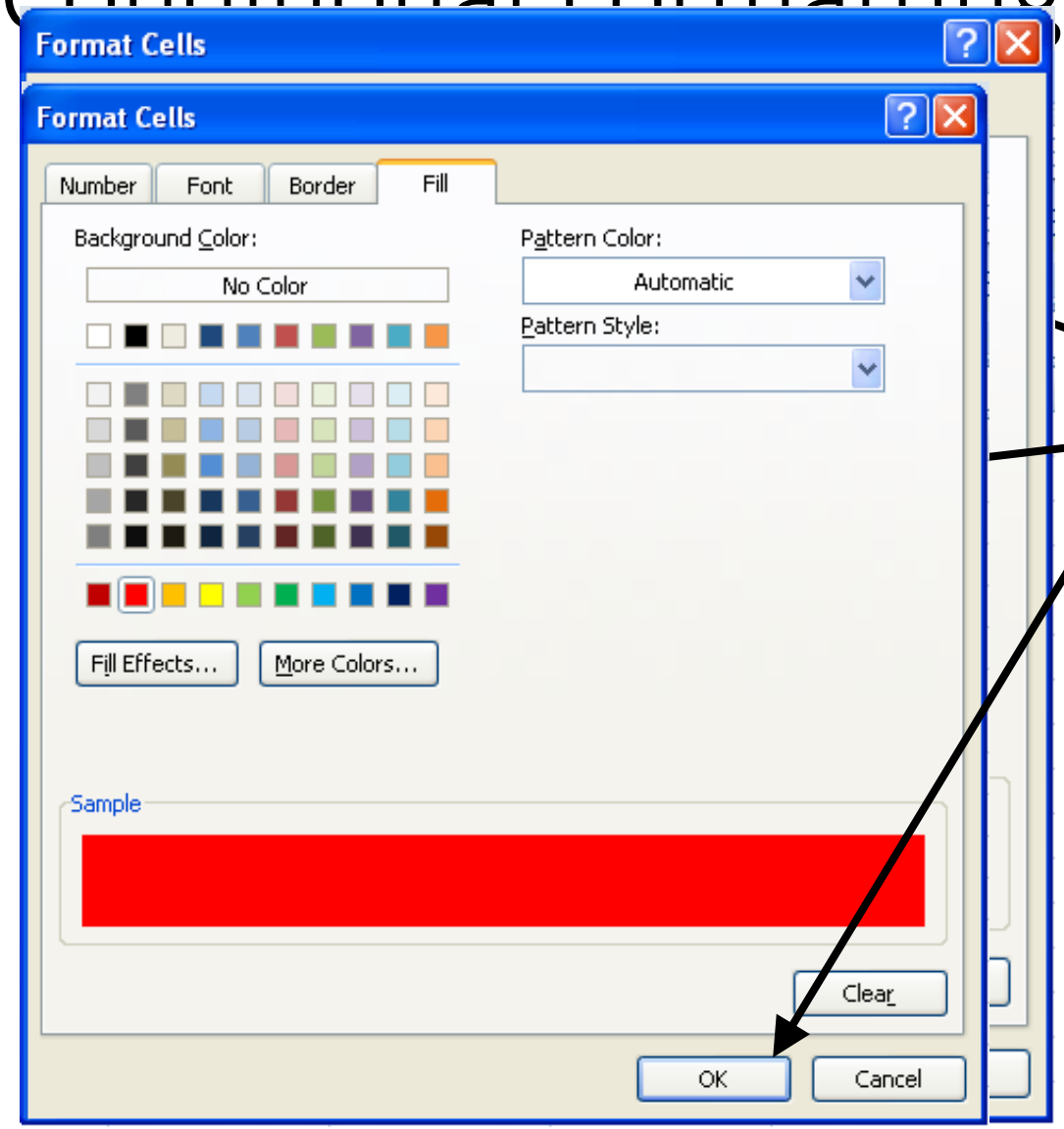


Excel: Conditional Formatting



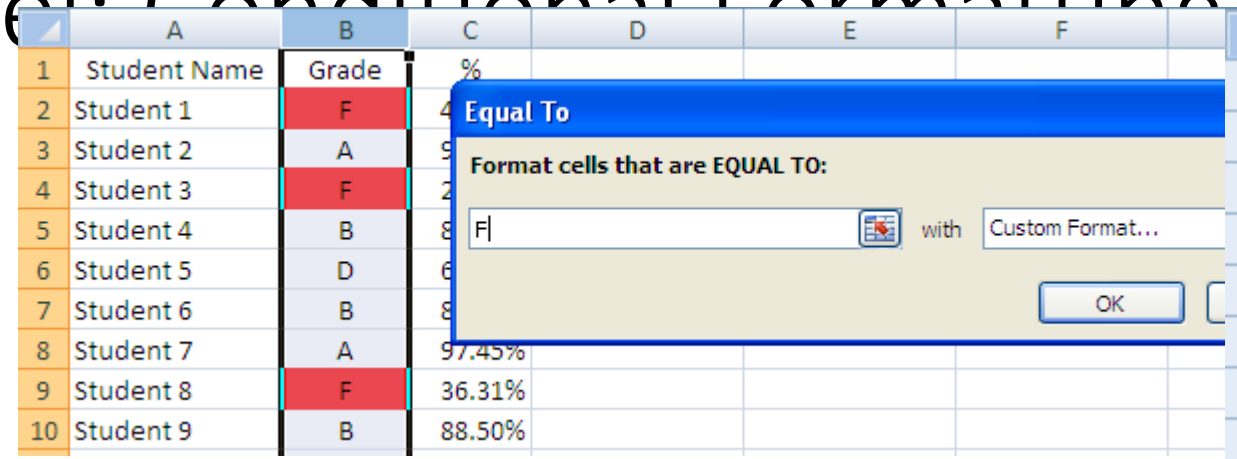
- Once a value (F) is entered for Format cells that are EQUAL TO: the formatting is applied.
- There are a number of build in format, or create a custom format.
- I want a bright red background

Excel: Conditional Formatting



- Formatting Dialog box pops up
- Click on *Fill*
- Choose Red
- Click OK

Excel: Conditional Formatting



	A	B	C
1	Student Name	Grade	%
2	Student 1	F	4
3	Student 2	A	9
4	Student 3	F	2
5	Student 4	B	8
6	Student 5	D	6
7	Student 6	B	8
8	Student 7	A	97.45%
9	Student 8	F	36.31%
10	Student 9	B	88.50%

- Click OK
- All Fs will now be red

	A	B	C
1	Student Name	Grade	%
2	Student 1	F	45.53%
3	Student 2	A	92.24%
4	Student 3	F	29.74%
5	Student 4	B	85.68%
6	Student 5	D	64.32%
7	Student 6	B	80.66%
8	Student 7	A	97.45%
9	Student 8	A	91.07%
10	Student 9	B	88.50%
11	Student 10	B	81.41%
12	Student 11	C	76.73%
13	Student 12	A	96.23%
14	Student 13	A	103.50%
15	Student 14	C	75.18%
16	Student 15	F	31.30%
17	Student 16	C	69.98%
18	Student 17	B	85.77%
19	Student 18	C	78.23%
20	Student 19	F	58.58%
21	Student 20	B	79.93%

Excel: Conditional Formatting

- You can add other formatting conditions.
- I can shade all As green putting in second condition using the same steps.
- The file now looks like this

	A	B	C
1	Student Name	Grade	%
2	Student 1	F	45.53%
3	Student 2	A	92.24%
4	Student 3	F	29.74%
5	Student 4	B	85.68%
6	Student 5	D	64.32%
7	Student 6	B	80.66%
8	Student 7	A	97.45%
9	Student 8	A	91.07%
10	Student 9	B	88.50%
11	Student 10	B	81.41%
12	Student 11	C	76.73%
13	Student 12	A	96.23%
14	Student 13	A	103.50%
15	Student 14	C	75.18%
16	Student 15	F	31.30%
17	Student 16	C	69.98%
18	Student 17	B	85.77%
19	Student 18	C	78.23%
20	Student 19	F	58.58%
21	Student 20	B	79.93%

Summary

- The IF function is used to set values or formulas based on conditions
- The format for the IF function is:

=IF(logical comparison, value if TRUE, value if FALSE)

- Conditional formatting is used to set the formatting based on a certain condition.

Rest of today

Call attention to the good or the bad.xls

Homework 6-17

- Do Exercises 1 and 2 in Homework 6-17 – Save the file as Homework 6-17

Excel: Pivot Tables

Computer Information Technology

Section 6-18

Objectives

- The student will
  1. Understand what pivot tables are used for.
  2. Know how to create a basic pivot table
  3. Know how to add a calculation into a pivot table.

Pivot Tables

- Pivot Tables in Excel are one of the most powerful tools
- A pivot table is a great tool for sorting and summarizing the data in a worksheet or database file.
- Pivot tables can automatically sort, count, and total spreadsheet data and then create a second table to display the summarized data.
- Forget Filters and Subtotal, Pivot Tables can do both of these and more in a few seconds.

Excel: Pivot Tables

- What if we wanted to SUM the number of viewers by program, going down the rows, then by Region going across the columns and only show Q1?

	A	B	C	D
1	**Program**	**Region**	**Period**	**Viewers**
2	Bat Man	North	Q1	91
3	Bat Man	South	Q1	87
4	Bat Man	West	Q1	99
5	Bat Man	East	Q1	102
6	Ben Ten	South	Q1	125
7	Ben Ten	West	Q1	140
8	Ben Ten	East	Q1	107
9	Ben Ten	North	Q1	133
10	Bob The Builder	West	Q1	79
11	Bob The Builder	South	Q1	85
12	Bob The Builder	East	Q1	91
13	Bob The Builder	North	Q1	73
14	Mr Maker	East	Q1	49
15	Mr Maker	North	Q1	50
16	Mr Maker	West	Q1	51
17	Mr Maker	South	Q1	59

Excel: Pivot Tables

- I could sort, and use subtotals and get:

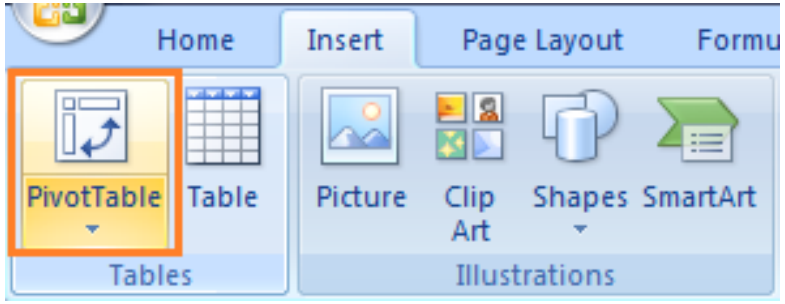
	A	B	C	D
1	**Program**	**Region**	**Period**	**Viewers**
2	Bat Man	East	Q1	102
3	Bat Man	North	Q1	91
4	Bat Man	South	Q1	87
5	Bat Man	West	Q1	99
6	**Bat Man Total**			379
27	Spider Man	East	Q1	206
28	Spider Man	North	Q1	138
29	Spider Man	South	Q1	172
30	Spider Man	West	Q1	240
31	**Spider Man Total**			756
32	Wiggles	East	Q1	72
33	Wiggles	North	Q1	86
34	Wiggles	South	Q1	83
35	Wiggles	West	Q1	95
36	**Wiggles Total**			336
37			**Q1 Total**	2,683
38	Bat Man	East	Q2	97
39	Bat Man	North	Q2	136
40	Bat Man	South	Q2	81

“ But what I want is this:

	A	B	C	D	E	F
1	Period	Q1				
2						
3	**Sum of Viewers**	**Column Labels**				
4	**Row Labels**	**East**	**North**	**South**	**West**	**Grand Total**
5	Bat Man	102	91	87	99	379
6	Ben Ten	107	133	125	140	505
7	Bob The Builder	91	73	85	79	328
8	Mr Maker	49	50	59	51	209
9	Night Garden	57	44	37	32	170
10	Spider Man	206	138	172	240	756
11	Wiggles	72	86	83	95	336
12	**Grand Total**	**684**	**615**	**648**	**736**	**2683**

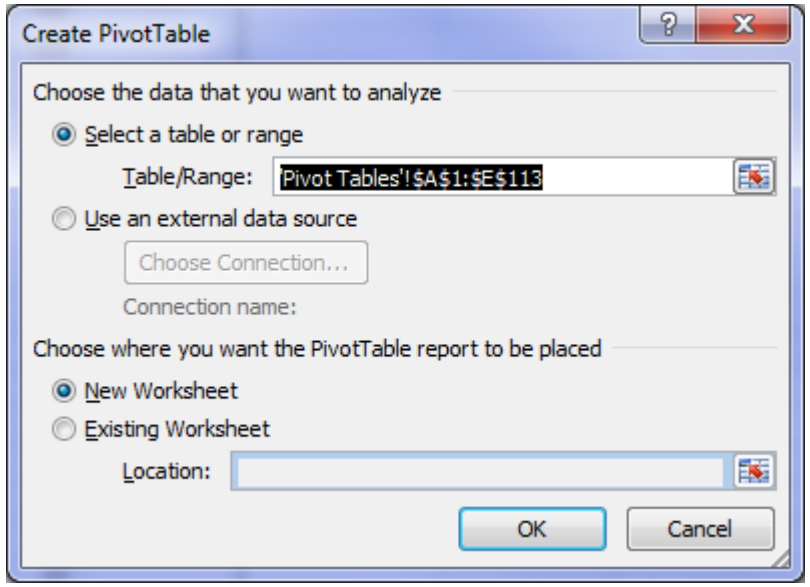
Excel: Creating a Pivot Table

- 1) Click anywhere in your data
- 2) On the ‘Insert’ tab click the ‘PivotTable’ button and select ‘PivotTable’.



Excel: Creating a Pivot Table

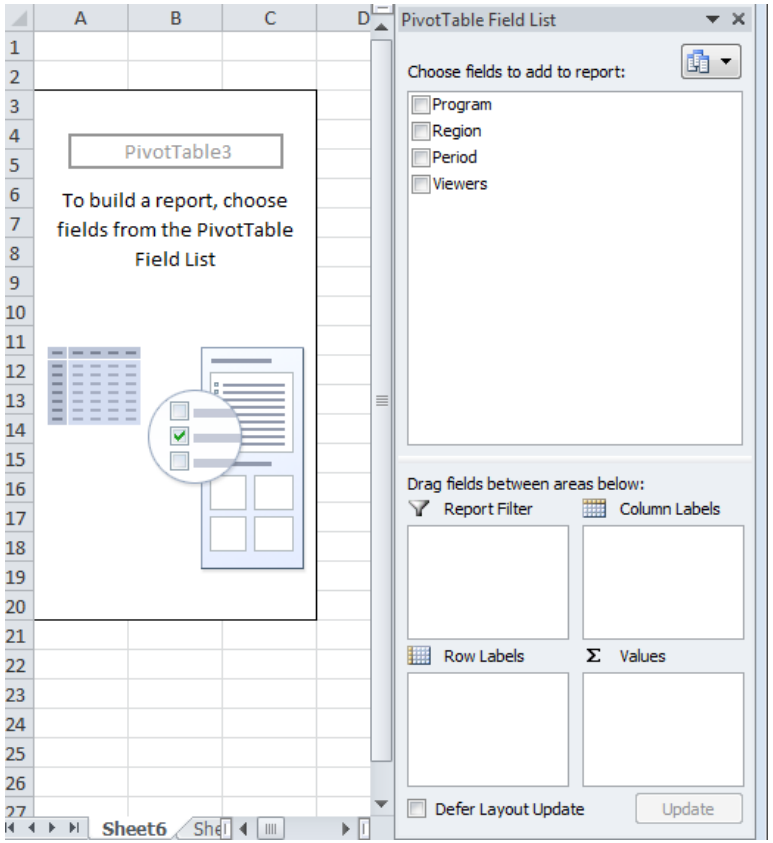
- 3) The Create PivotTable dialog box will open.



- Check the range of data
- Decide if you want the pivot table in a New Worksheet or the existing worksheet

Excel: Creating a Pivot Table

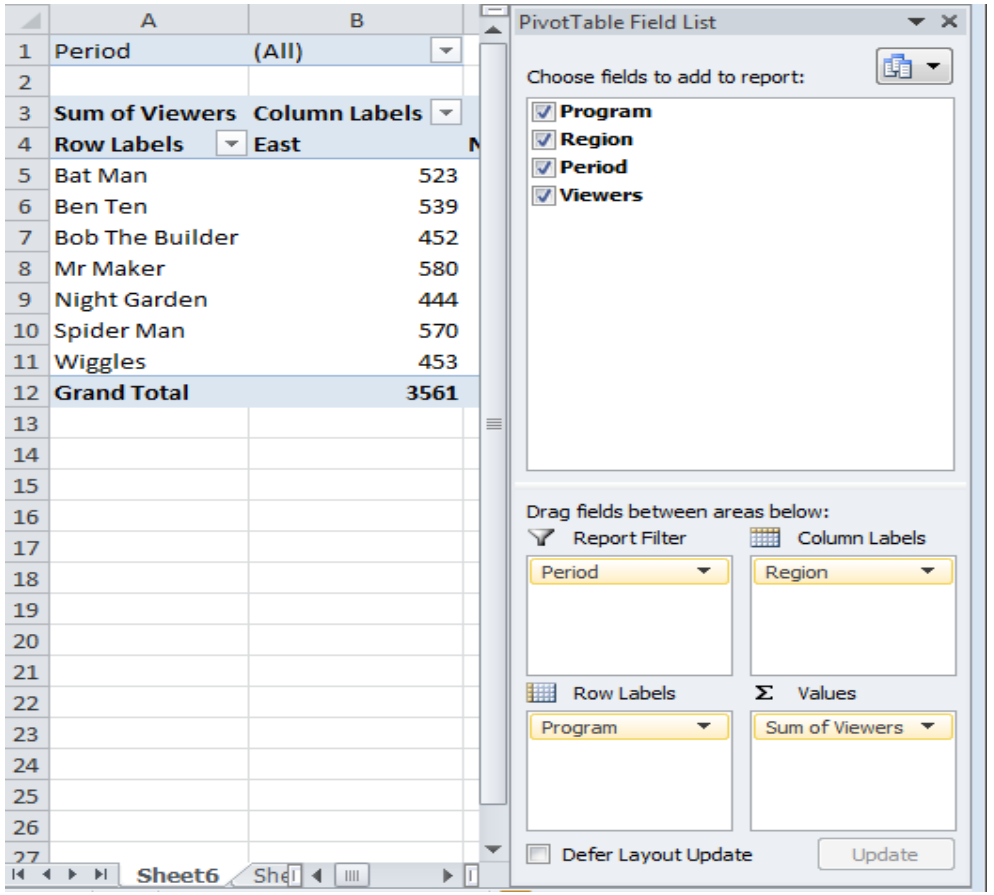
- New sheet will look like this:



Excel: Creating a Pivot Table

- Click and drag the fields you want into the areas at the bottom

	A	B	C	D	E	F
1	Period	Q1				
2						
3	**Sum of Viewers**	**Column Labels**				
4	**Row Labels**	**East**	**North**	**South**	**West**	**Grand Total**
5	Bat Man	102	91	87	99	379
6	Ben Ten	107	133	125	140	505
7	Bob The Builder	91	73	85	79	328
8	Mr Maker	49	50	59	51	209
9	Night Garden	57	44	37	32	170
10	Spider Man	206	138	172	240	756
11	Wiggles	72	86	83	95	336
12	**Grand Total**	**684**	**615**	**648**	**736**	**2683**



Excel: Creating a Pivot Table

- With a few clicks I can clean up the table:

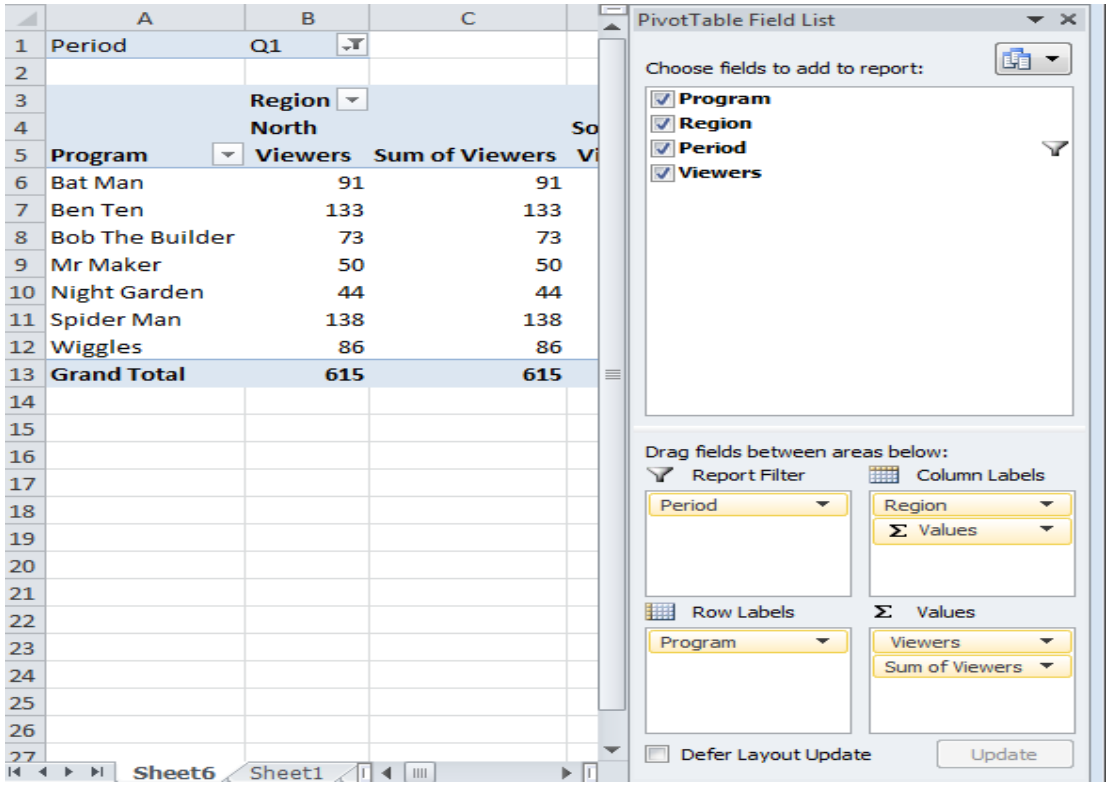
	A	B	C	D	E	F
1	Period	Q1				
2						
3	**Viewers**	**Region**				
4	**Program**	**North**	**South**	**East**	**West**	**Grand Total**
5	Bat Man	91	87	102	99	379
6	Ben Ten	133	125	107	140	505
7	Bob The Builder	73	85	91	79	328
8	Mr Maker	50	59	49	51	209
9	Night Garden	44	37	57	32	170
10	Spider Man	138	172	206	240	756
11	Wiggles	86	83	72	95	336
12	**Grand Total**	**615**	**648**	**684**	**736**	**2683**
13						
14						

Excel: Adding a Calculated Field

- With a field you can also add a predefined calculation…
- In this case I want to know the % of the viewers for each program.

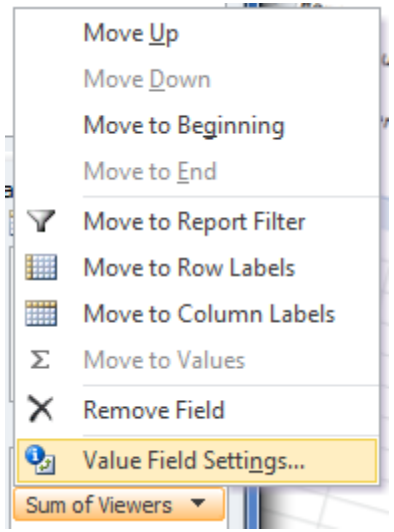
Excel: Adding a Calculated Field

- First I need to add the field. In this case I add the sum of viewers again



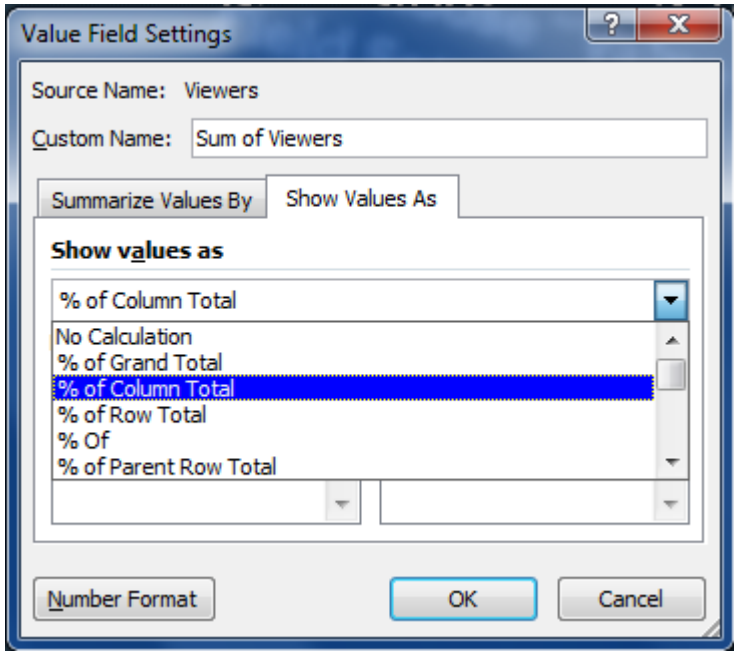
Excel: Adding a Calculated Field

- Click on the new field and choose “Value Field Setting…”



Excel: Adding a Calculated Field

- Click on “Show Values As”
- In the dropdown menu choose the calculation you want.
  - In this case “% of Column Total”
  - You can also set the Number Format



Excel: Adding a Calculated Field

- My pivot table now looks like:

	A	B	C	D	E	F	G	H	I	J	K
1	Period	Q1									
2											
3		Region									
4		North		South		East		West		Total Viewers	Total Sum of Viewers
5	Program	Viewers	Sum of Viewers	Viewers	Sum of Viewers	Viewers	Sum of Viewers	Viewers	Sum of Viewers		
6	Bat Man	91	15%	87	13%	102	15%	99	13%	379	14%
7	Ben Ten	133	22%	125	19%	107	16%	140	19%	505	19%
8	Bob The Builder	73	12%	85	13%	91	13%	79	11%	328	12%
9	Mr Maker	50	8%	59	9%	49	7%	51	7%	209	8%
10	Night Garden	44	7%	37	6%	57	8%	32	4%	170	6%
11	Spider Man	138	22%	172	27%	206	30%	240	33%	756	28%
12	Wiggles	86	14%	83	13%	72	11%	95	13%	336	13%
13	**Grand Total**	**615**	**100%**	**648**	**100%**	**684**	**100%**	**736**	**100%**	**2683**	**100%**

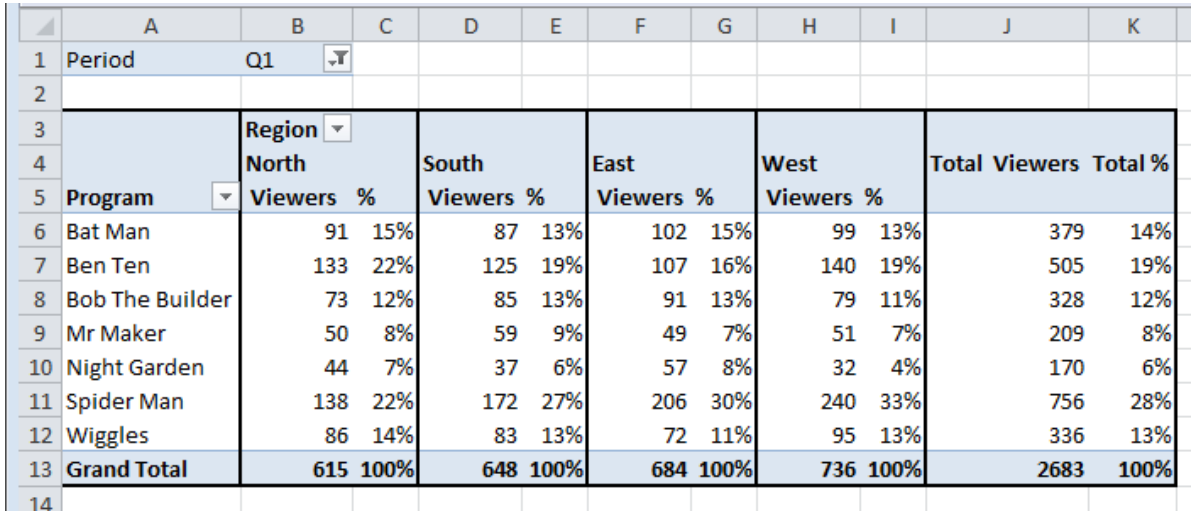
Excel: Adding a Calculated Field

- My pivot table now looks like:

	A	B	C	D	E	F	G	H	I	J	K
1	Period	Q1									
2											
3		Region									
4		North		South		East		West		Total Viewers	Total Sum of Viewers
5	Program	Viewers	Sum of Viewers	Viewers	Sum of Viewers	Viewers	Sum of Viewers	Viewers	Sum of Viewers		
6	Bat Man	91	15%	87	13%	102	15%	99	13%	379	14%
7	Ben Ten	133	22%	125	19%	107	16%	140	19%	505	19%
8	Bob The Builder	73	12%	85	13%	91	13%	79	11%	328	12%
9	Mr Maker	50	8%	59	9%	49	7%	51	7%	209	8%
10	Night Garden	44	7%	37	6%	57	8%	32	4%	170	6%
11	Spider Man	138	22%	172	27%	206	30%	240	33%	756	28%
12	Wiggles	86	14%	83	13%	72	11%	95	13%	336	13%
13	**Grand Total**	**615**	**100%**	**648**	**100%**	**684**	**100%**	**736**	**100%**	**2683**	**100%**

Excel: Adding a Calculated Field

- Fix the headings, add a few borders and it's done



	A	B	C	D	E	F	G	H	I	J	K
1	Period	Q1									
2											
3		Region									
4		North		South		East		West		Total Viewers	Total %
5	Program	Viewers	%	Viewers	%	Viewers	%	Viewers	%		
6	Bat Man	91	15%	87	13%	102	15%	99	13%	379	14%
7	Ben Ten	133	22%	125	19%	107	16%	140	19%	505	19%
8	Bob The Builder	73	12%	85	13%	91	13%	79	11%	328	12%
9	Mr Maker	50	8%	59	9%	49	7%	51	7%	209	8%
10	Night Garden	44	7%	37	6%	57	8%	32	4%	170	6%
11	Spider Man	138	22%	172	27%	206	30%	240	33%	756	28%
12	Wiggles	86	14%	83	13%	72	11%	95	13%	336	13%
13	**Grand Total**	**615**	**100%**	**648**	**100%**	**684**	**100%**	**736**	**100%**	**2683**	**100%**
14											

Other formulas 1

Using Formulas

- Important formulas
  - AVERAGE—gives the average of a set of reference cells
  - ABS—gives the absolute values of cells
  - LCM—returns the least common multiple of a number
  - STDEV(P)A-returns the standard deviation of sample or entire population
  - LOG-returns the log of a value
  - MEDIAN—returns the median of a sample
  - SUM—returns the sum of a sample
  - COUNT(A)—counts the number of cells that have numbers/not empty
  - NPV—returns the net present value given a rate, and original value
  - IF—checks whether a condition is met and returns a value based on the test.
  - PMT—calculates the payment for a loan based on constant payments and an interest rate.

COUNT

- COUNT counts the number of cells that contain numbers & numbers within the list of arguments.

- Value 1, 2,…, are 1 to 30 arguments that can contain or refer to a variety of different types of data, but only numbers are counted.

- Ex., If cells A1:A17 contain some data, then

  =COUNT(A1:A17) equals 17

  =COUNT(A6:A17) equals 12

COUNTA function

- The **COUNTA** function counts the number of cells that are not empty in a range.
- **Syntax**
  - COUNTA(value1, [value2], ...)
- The COUNTA function syntax has the following arguments:
- **value1** Required. The first argument representing the values that you want to count.
- **value2, ...** Optional. Additional arguments representing the values that you want to count, up to a maximum of 255 arguments.

Example

=COUNTA(A2:A7): Counts the number of nonblank cells in cells A2 through A7.

- The **COUNTA** function counts cells containing any type of information, including error values and empty text (""). For example, if the range contains a formula that returns an empty string, the **COUNTA** function counts that value. The **COUNTA** function does not count empty cells.
- If you do not need to count logical values, text, or error values (in other words, if you want to count only cells that contain numbers), use the **COUNT** function.
- If you want to count only cells that meet certain criteria, use the **COUNTIF** function or the **COUNTIFS** function.

COUNTIF(range,criteria)

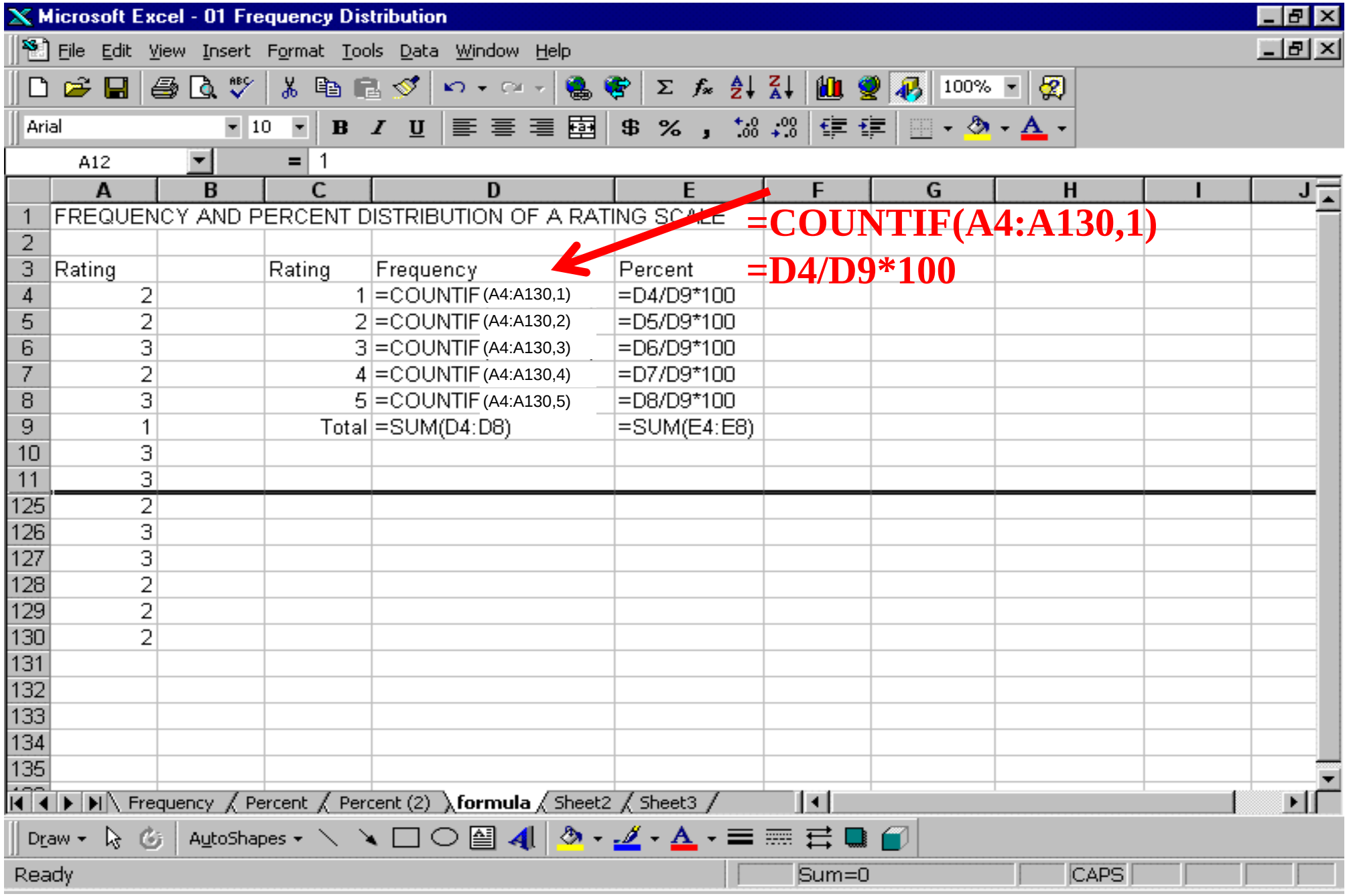
Counts the number of cells within a range that meet the given criteria.

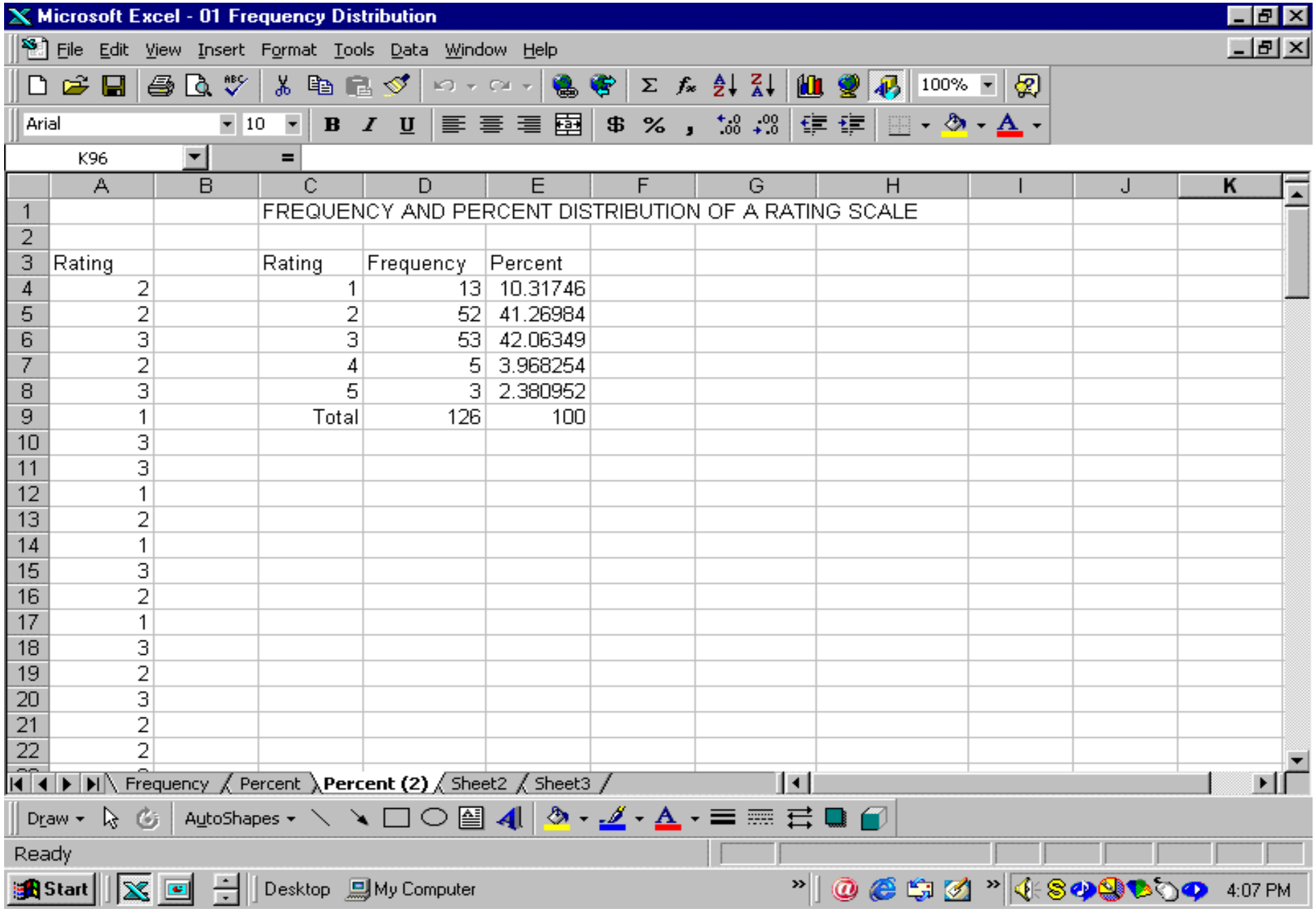
Suppose A3:A6 contain "apples", "oranges", "peaches", "apples", respectively:

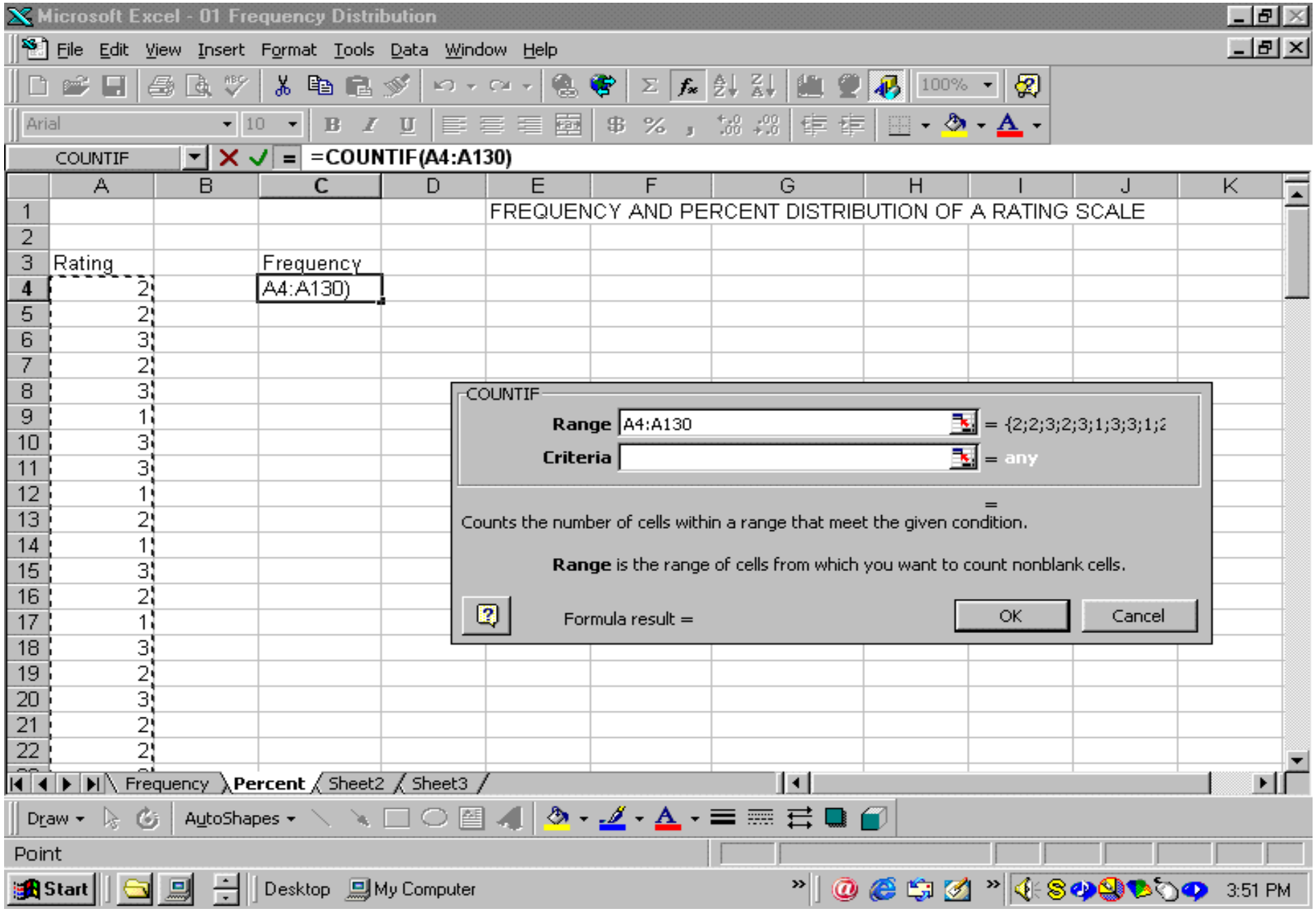
COUNTIF(A3:A6,"apples") equals 2

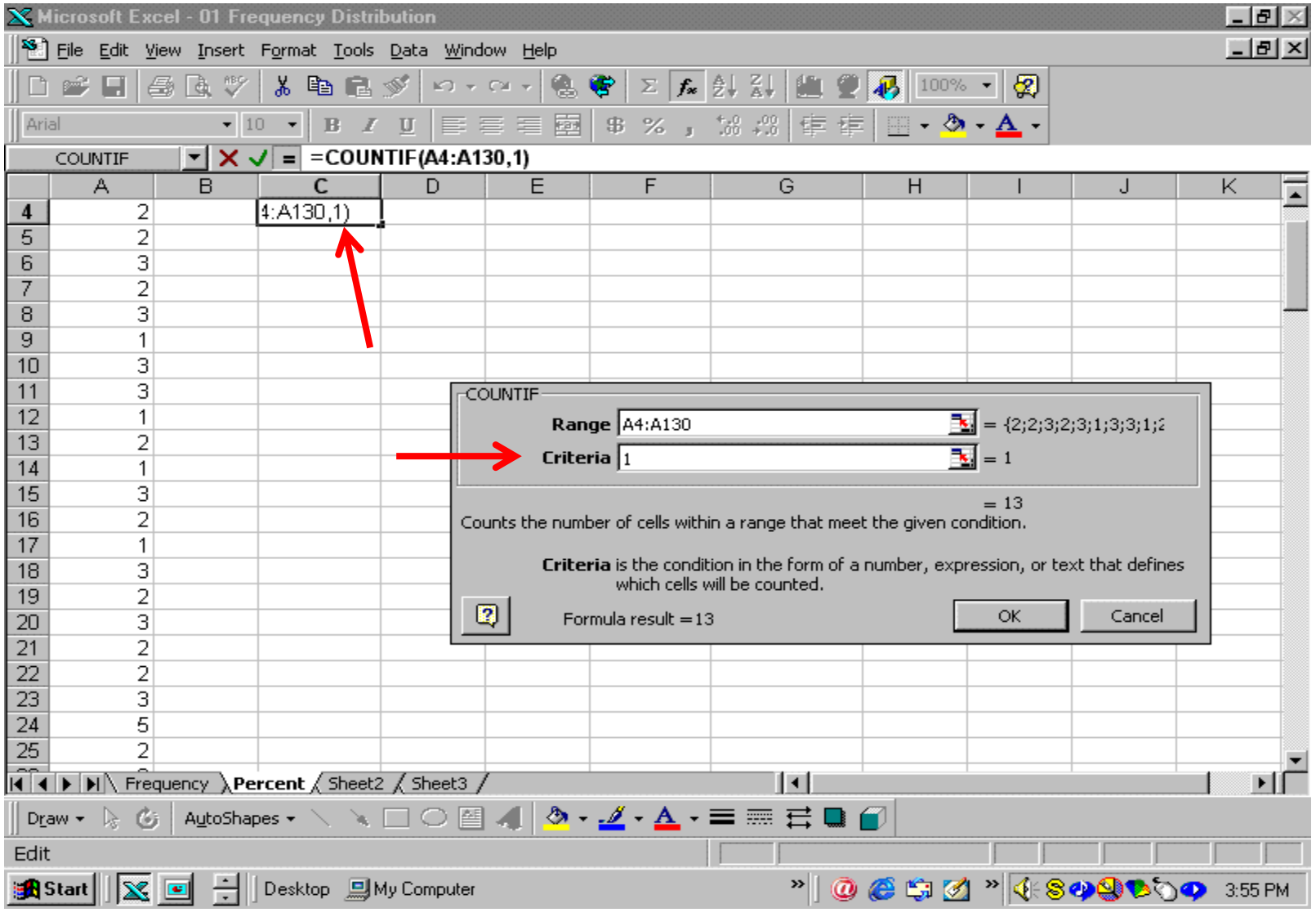
Suppose B3:B6 contain 32, 54, 75, 86, respectively:

COUNTIF(B3:B6,">55") equals 2


Microsoft Excel - 01 Frequency Distribution
File Edit View Insert Format Tools Data Window Help
Arial 10
A12 = 1
FREQUENCY AND PERCENT DISTRIBUTION OF A RATING SCALE
Rating Rating Frequency Percent
2 1 =COUNTIF(A4:A130,1) =D4/D9*100
2 2 =COUNTIF(A4:A130,2) =D5/D9*100
3 3 =COUNTIF(A4:A130,3) =D6/D9*100
2 4 =COUNTIF(A4:A130,4) =D7/D9*100
3 5 =COUNTIF(A4:A130,5) =D8/D9*100
1 Total =SUM(D4:D8) =SUM(E4:E8)
3
3
2
3
3
2
2
2
=COUNTIF(A4:A130,1)
=D4/D9*100
Frequency Percent Percent (2) formula Sheet2 Sheet3
Draw AutoShapes
Ready
Sum=0
CAPS


Microsoft Excel - 01 Frequency Distribution
File Edit View Insert Format Tools Data Window Help
Arial 10
K96
FREQUENCY AND PERCENT DISTRIBUTION OF A RATING SCALE
Rating Rating Frequency Percent
2 1 13 10.31746
2 2 52 41.26984
3 3 53 42.06349
2 4 5 3.968254
3 5 3 2.380952
1 Total 126 100
3
3
1
2
1
3
2
1
3
2
3
2
2
Frequency Percent Percent (2) Sheet2 Sheet3
Draw AutoShapes
Ready
Start Desktop My Computer 4:07 PM


Microsoft Excel - 01 Frequency Distribution
File Edit View Insert Format Tools Data Window Help
COUNTIF
=COUNTIF(A4:A130)
FREQUENCY AND PERCENT DISTRIBUTION OF A RATING SCALE
Rating
Frequency
A4:A130)
COUNTIF
Range A4:A130 = {2;2;3;2;3;1;3;3;1;2
Criteria = any
Counts the number of cells within a range that meet the given condition.
Range is the range of cells from which you want to count nonblank cells.
Formula result =
OK
Cancel
Frequency
Percent
Sheet2
Sheet3
Draw
AutoShapes
Point
Start
Desktop
My Computer
3:51 PM


Microsoft Excel - 01 Frequency Distribution
File Edit View Insert Format Tools Data Window Help
COUNTIF
=COUNTIF(A4:A130,1)
4:A130,1)
COUNTIF
Range A4:A130 = {2;2;3;2;3;1;3;3;1;2
Criteria 1 = 1
= 13
Counts the number of cells within a range that meet the given condition.
Criteria is the condition in the form of a number, expression, or text that defines which cells will be counted.
Formula result = 13
OK
Cancel
Frequency
Percent
Sheet2
Sheet3
Draw
AutoShapes
Edit
Start
Desktop
My Computer
3:55 PM