

Computers Fundamental Lab
Lab No. 3
MS Excel

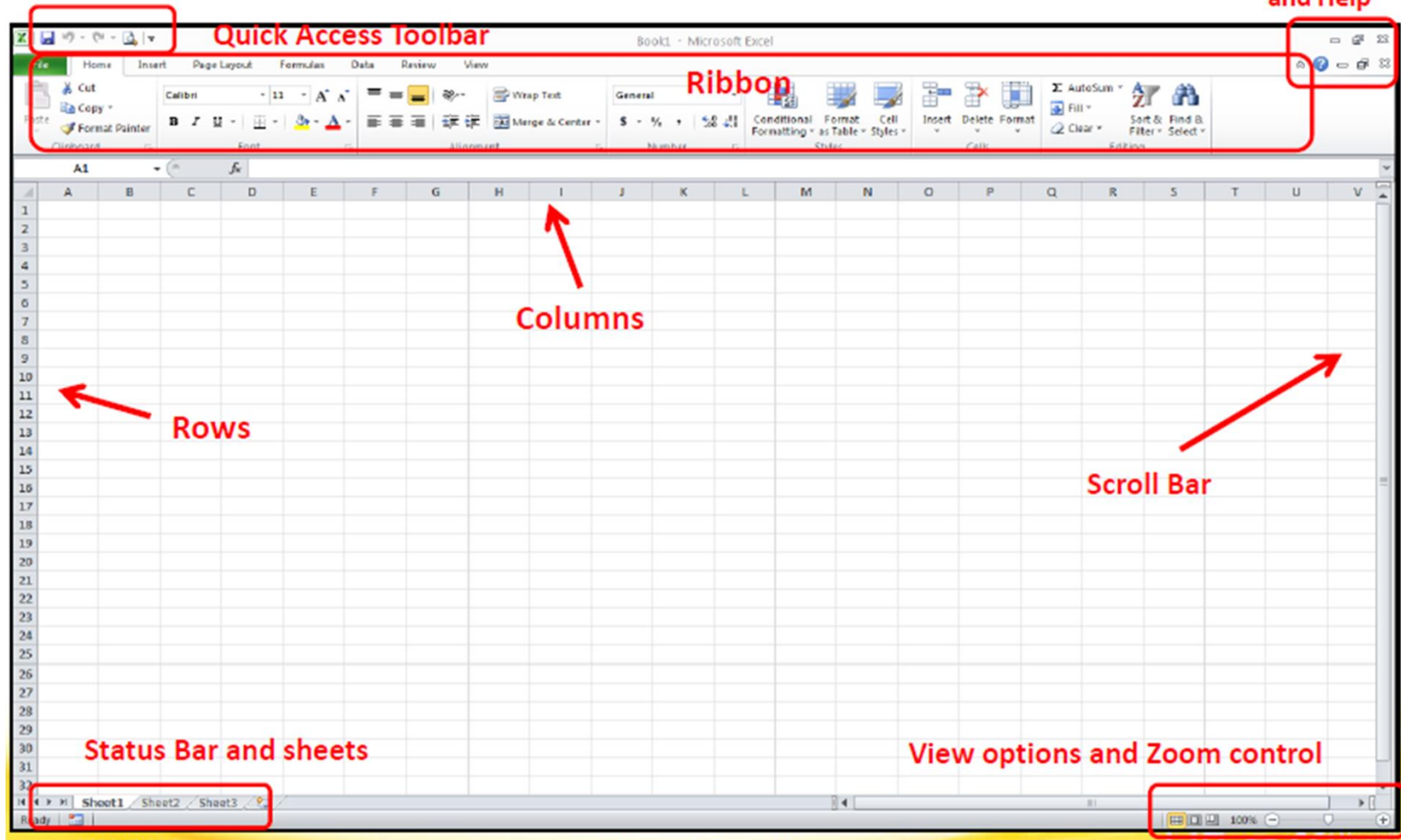
University of Technology
Department of Biomedical Engineering
1st Year

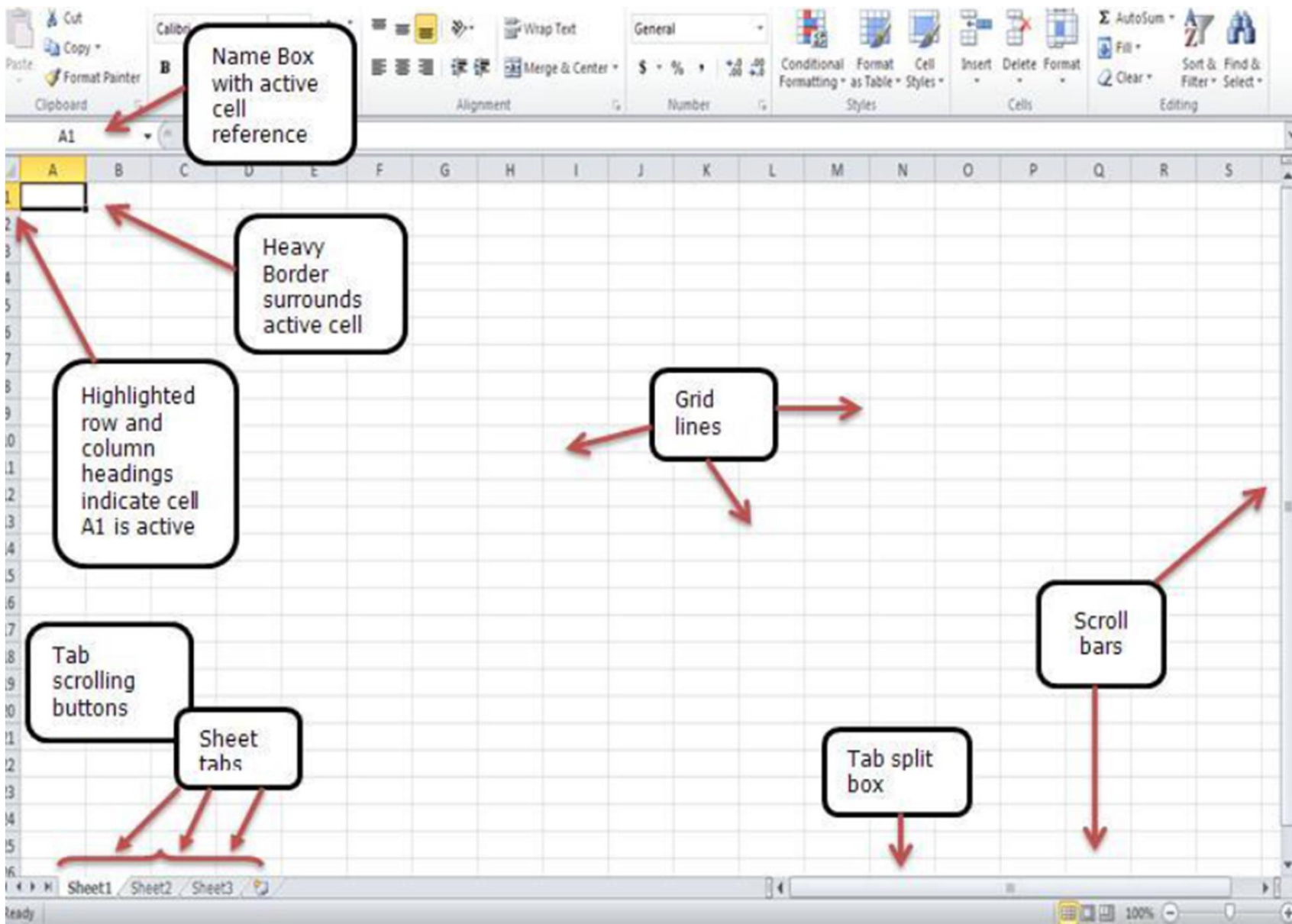
Papered By:
Dr. Taqwa Oday

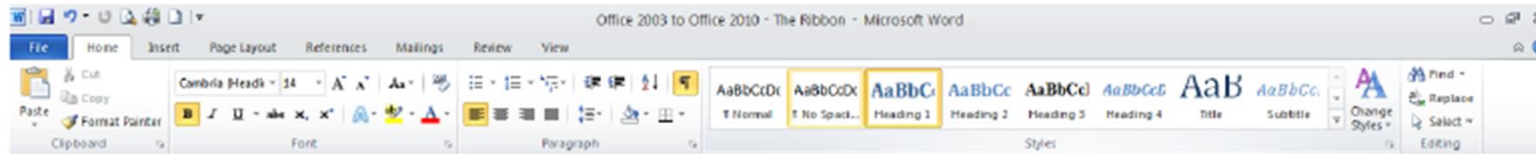
- Microsoft Excel is a spreadsheet application, which is part of Microsoft Office.
- It features calculation, graphing tools, pivot tables, and a macro programming language called Visual Basic for Applications.

Office Environment in Excel

Window controls and Help

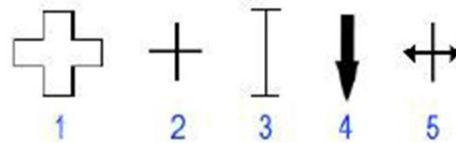


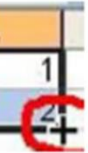




- 📁 **File** – managing files
- 📁 **Home** – common tools
- 📁 **Insert** – insert objects
- 📁 **Page Layout** – printing
- 📁 **Formulas** – functions in categories
- 📁 **Data** – working with data
- 📁 **Review** – spelling, protecting, sharing
- 📁 **View** – how Excel appears on screen (does not affect printing)

Mouse Pointers in Excel



1. **Select** – main mouse pointer used for selecting cells. Click once in a cell to select it or click and drag to select several cells.
2. **Fill** - appears after you have selected a cell (or cells) and will show only at the **bottom right of the selection** (tiny box called the Fill Handle). Using this will allow you to fill a series such as Monday, Tuesday, Wednesday, etc.

3. **Insertion point** - appears when you are typing or have double-clicked in a cell. The flashing insertion point determines where new text and numbers appear.
4. **Column/Row selector** - appears when you are over a column or row, allowing you to click once to select the entire column or row
5. **Resize** - appears when you are between columns or rows, allowing you to resize them

Formulas in Excel

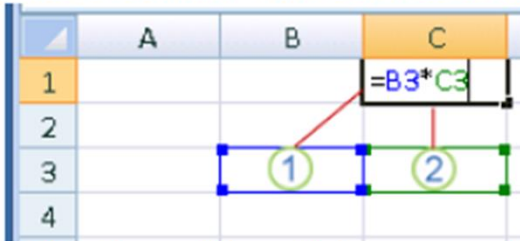
- Formulas are equations that perform calculations on values in your worksheet.
- A formula always starts with an equal sign (=).
- An example of a simple is =5+2*3 that multiplies two numbers and then adds a number to the result.
- Microsoft Office Excel follows the standard order of mathematical operations.
- In the preceding example, the multiplication operation (2*3) is performed first, and then 5 is added to its result.
- You can also create a formula by using a **function** which is a prewritten formula that takes a value, performs an operation and returns a value.
- For example, the formulas =SUM(A1:A2) and SUM(A1,A2) both use the **SUM** function to add the values in cells A1 and A2.

Create a Simple Formulas

1. Click the cell in which you want to enter the formula.
2. Type = (equal sign).
3. Enter the formula by typing the constants and operator^S that you want to use in the calculation.
4. Press ENTER.

EXAMPLE FORMULA	WHAT IT DOES
=5+2	Adds 5 and 2
=5-2	Subtracts 2 from 5
=5/2	Divides 5 by 2
=5*2	Multiplies 5 times 2
=5^2	Raises 5 to the 2nd power

Create a Formula with Cell References



1 The first cell reference is B3, the color is blue, and the cell range has a blue border with square corners.

2 The second cell reference is C3, the color is green, and the cell range has a green border with square corners.

To create your formula:



1. Click the cell in which you want to enter the formula.
2. In the **formula bar**, at the top of the Excel window that you use, type = (equal sign).
3. Click on the 1st cell you want in the formula.
4. Enter an Operator such as +, or *.
5. Click on the next cell you want in the formula.
Continue steps 3 – 5 until the formula is complete
6. Hit the **ENTER** key on your keyboard.

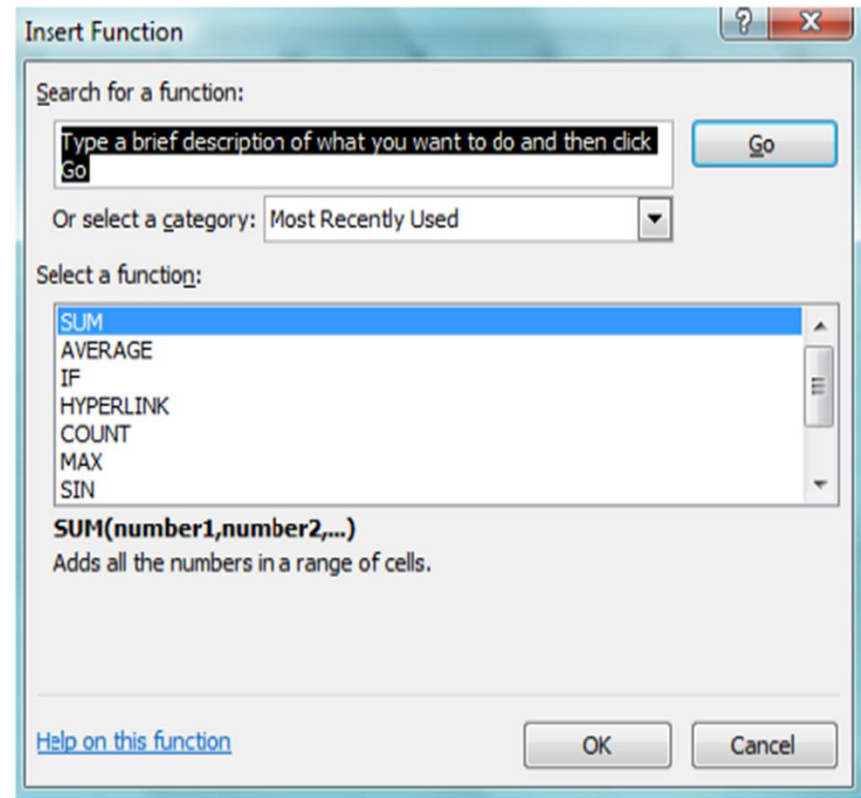
EXAMPLE WHAT IT DOES FORMULA

=A1+A2	Adds the values in cells A1 and A2
=A1-A2	Subtracts the value in cell A2 from the value in A1
=A1/A2	Divides the value in cell A1 by the value in A2
=A1*A2	Multiplies the value in cell A1 times the value in A2
=A1^A2	Raises the value in cell A1 to the exponential value specified in A2

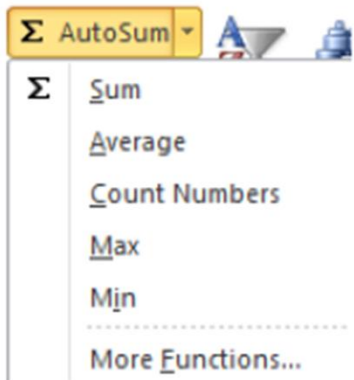
Symbol	Operation
+	Addition
-	Subtraction
/	Division
*	Multiplication
^	Power/Exponent

Create a Formula with Function

1. Click the cell in which you want to enter the formula.
2. Click **Insert Function**  on the formula bar . Excel inserts the equal sign (=) for you.
3. Select the function that you want to use.
NOTE: If you're not sure which function to use, type a question that describes what you want to do in the **Search for a function** box (for example, "add numbers" returns the **SUM** function), or browse from the categories in the **Or Select a category** box.
4. Enter the arguments.
5. After you complete the formula, press ENTER.

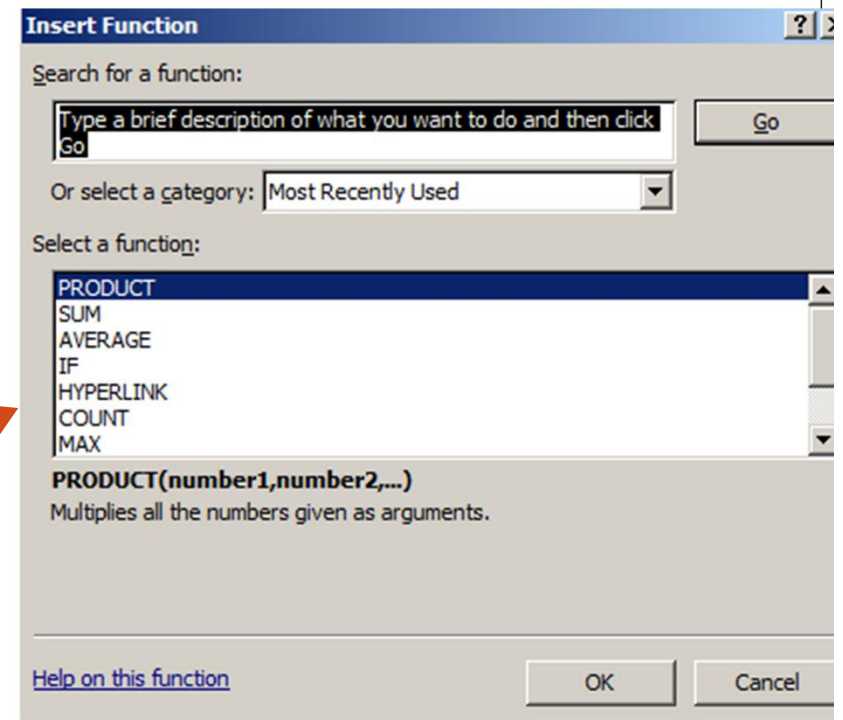
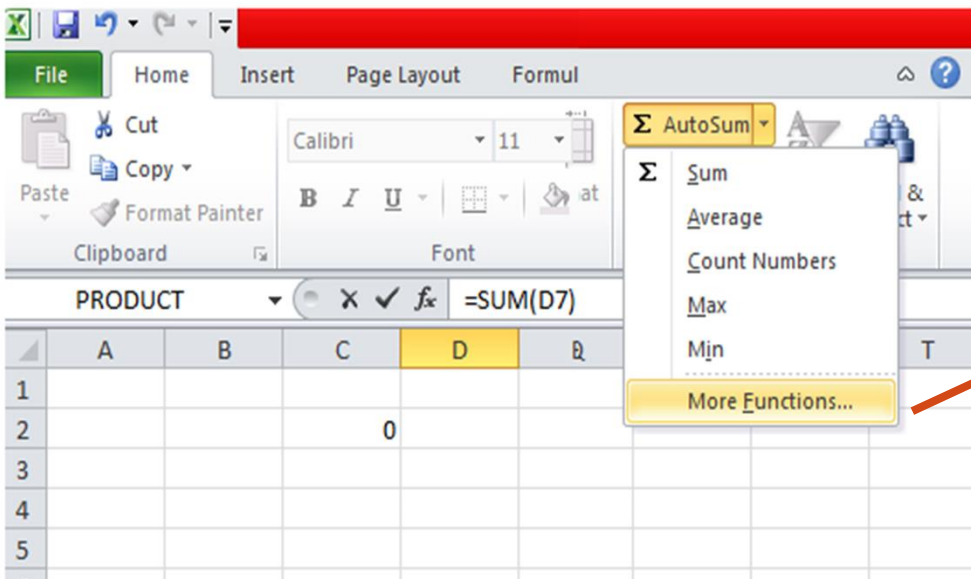


Use Auto Sum



To summarize values quickly, you can also use **AutoSum**.

1. Select the cell where you would like your formulas solution to appear.
2. Go to the **Home** tab, in the **Editing** group,
3. Click **AutoSum**, to sum your numbers or click the arrow next to **AutoSum** to select a function that you want to apply.



Expense Plan					
<i>(Does not include mortgage and car)</i>					
Category	Percent of Total	Monthly Spend	Annual Spend	LY Spend	Percent Change
Household Utilities		=D3/12	\$ 3,000	\$ 3,000	
Food			\$ 2,500	\$ 2,250	
Gasoline			\$ 1,500	\$ 1,200	
Clothes			\$ 1,200	\$ 1,000	
Insurance			\$ 1,500	\$ 1,500	

The blue border indicates that this cell is referenced in a formula.

The formula begins with an equal sign.

Cell D3 is the cell reference in this formula.

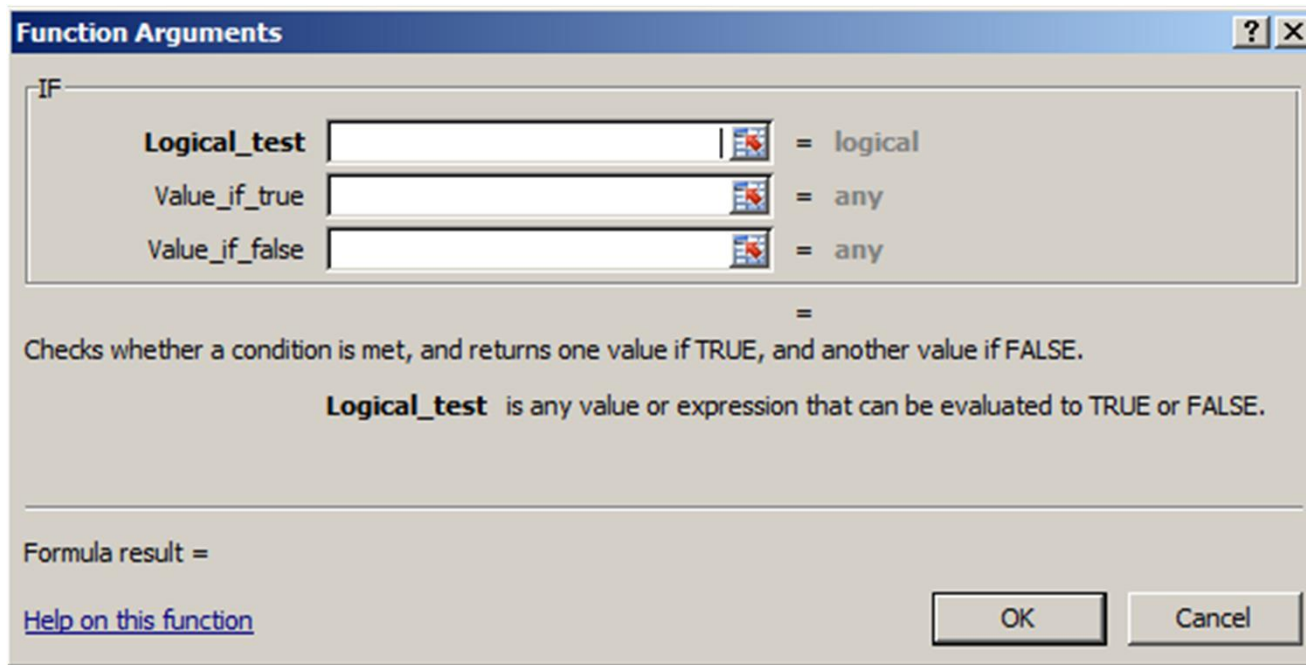
Taxes		\$ 292	\$ 3,500
Entertainment		\$ 167	\$ 2,000
Vacation		\$ 125	\$ 1,500
Miscellaneous		\$ 104	\$ 1,250
Totals		=SUM(C3:C11)	

Common Excel Functions

FUNCTION	DESCRIPTION
SUM	Calculates the sum of a group of values
AVERAGE	Calculates the mean of a group of values
COUNT	Counts the number of cells in a range that contains numbers
INT	Removes the decimal portion of a number, leaving just the integer portion
ROUND	Rounds a number to a specified number of decimal places or digit positions
NOW	Returns the system date and time
TODAY	Returns the system date, without the time
IF	Tests for a true or false condition and then returns one value or another
SUMIF	Calculates a sum from a group of values, but just of values that are included because a condition is met
COUNTIF	Counts the number of cells in a range that match a criteria
Product	Calculate the product of a group of values
Max	Returns the highest numeric value in a group of numbers
Min	Returns the lowest numeric value in a group of numbers

If Function

- We can design a Excel file in a way the result depend on the condition that you choose



المنطقة	عدد الذكور	عدد الإناث	العدد الأكثر
١	360	310	ذكور
٢	240	230	ذكور
٣	135	110	ذكور
٤	320	350	إناث
٥	310	340	إناث

Function Arguments [?] [X]

IF

Logical_test M11>N11 = TRUE

Value_if_true "ذكور" = "ذكور"

Value_if_false "إناث" = "إناث"

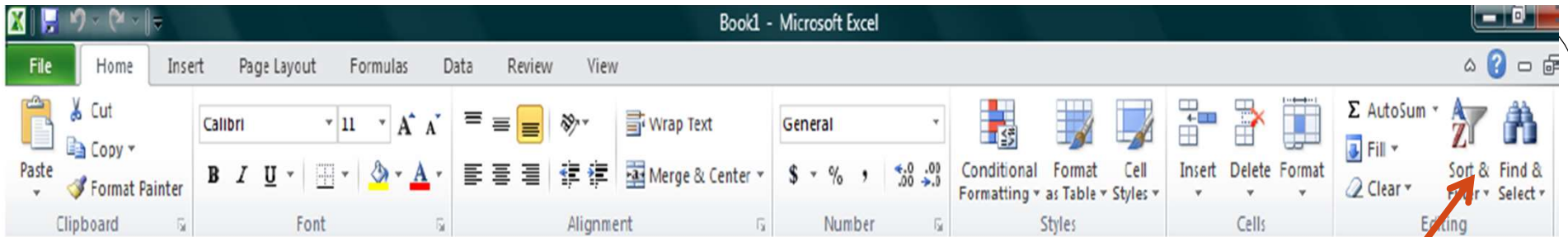
= "ذكور"

Checks whether a condition is met, and returns one value if TRUE, and another value if FALSE.

Value_if_true is the value that is returned if Logical_test is TRUE. If omitted, TRUE is returned. You can nest up to seven IF functions.

Formula result = ذكور

[Help on this function](#) [OK] [Cancel]



Filter Function

- You can filter a cell
- 1. Select the column
- 2. Choose the filter

(10) درجات طلبة	
	4
	5
	3
	9
	4
	0
	1

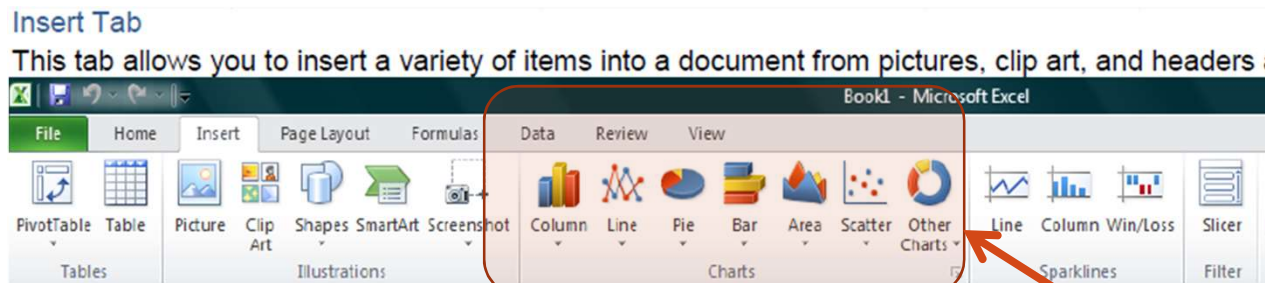
Number Filters

- (Select All)
- 0
- 1
- 3
- 4
- 5
- 9

5

Create a Chart

- On the worksheet, arrange the data that you want to plot in a chart. The data can be arranged in rows or columns — Excel automatically determines the best way to plot the data in the chart.
- 2. Select the cells that contain the data that you want to use for the chart.

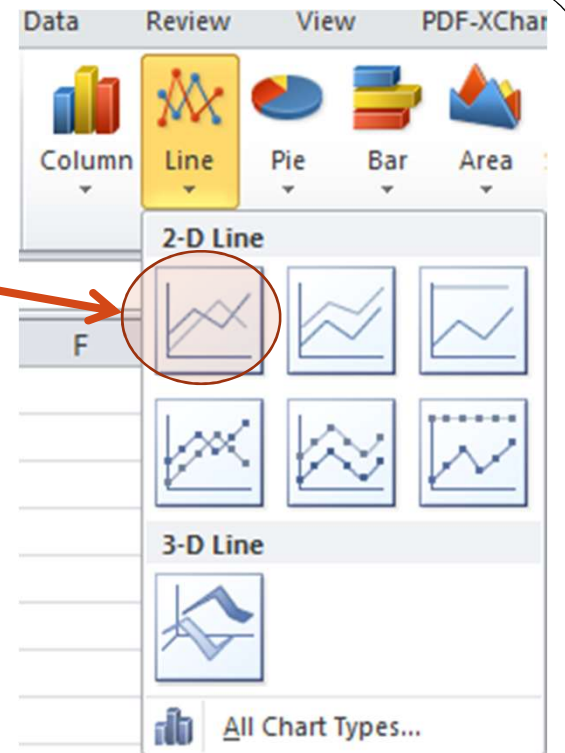


	A	B
Heat ©		Time (in)
	20	1
	30	2
	50	3
	70	4
	100	5
	120	6

- Design a chart

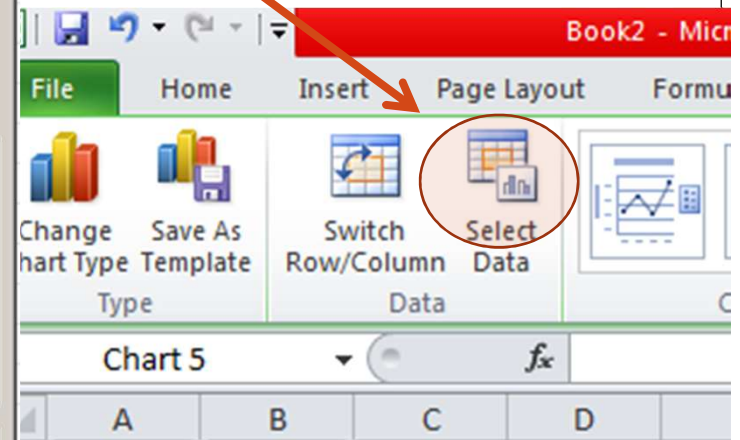
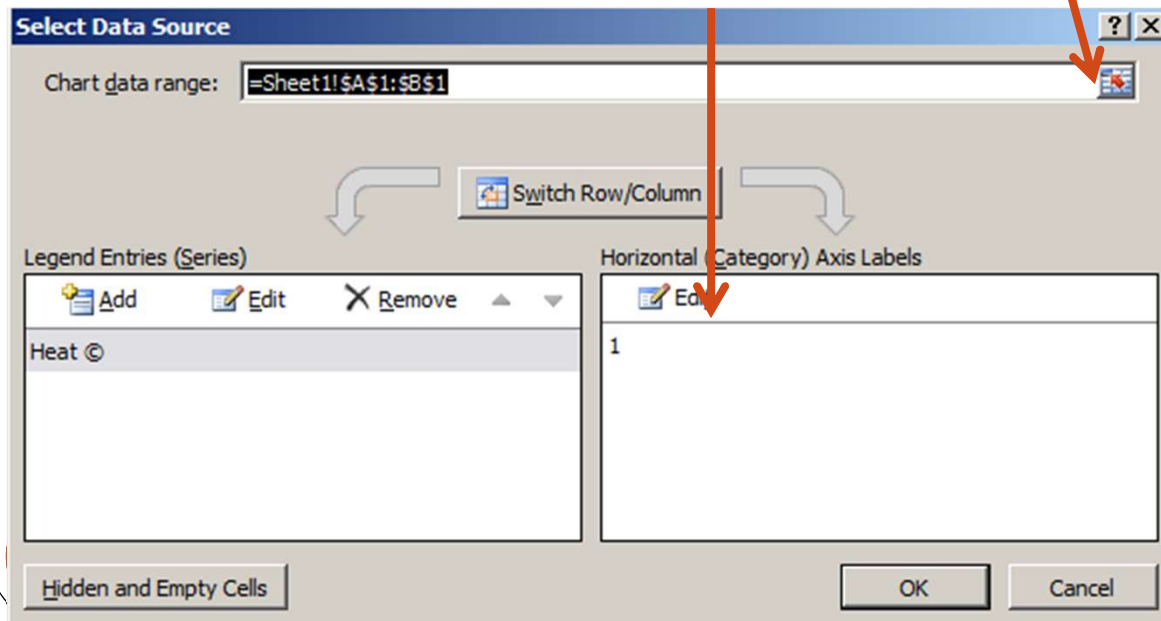
1. Select the table

2. Select any where (**not the chart**)



Heat

Time



Assignment 1:

- A worksheet contains Roll Number, Marks in 5 subjects for 30 students in a class. Calculate:
 - Average of marks for each student.
 - Number of passed students, if a student is declared as PASS if he gets 50 or more in all the subjects.
 - Highlight all failed marks in red color.
 - Find Grade of each student according to the following:
 - All FAILED students will be given grade Fail.
 - For PASSED students Grade will be obtained as follows:

Average	50-65	65-75	75-85	85-100
Grade	Medium	Good	Very Good	Excellent

Assignment 2:

- The following worksheet contains Name & Sales of 10 salesmen.
Calculate commission as per the following:

Sales	Commission
First 10,000 \$	5%
Next 20,000 \$	10%
Excess	15%

	A	B	C
1	NAME	SALE	COMMISSION
2			
:			
:			
11			

Assignment 3:

- For a worksheet that contains name and marks of 10 students in 3 subjects:
 - Calculate Total Marks.
 - Construct 3D Pie Chart for Total marks
 - Construct 2D Column Chart for Subject1, Subject2, Subject3