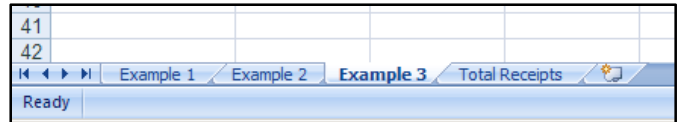


# Microsoft Excel 2007

## Lesson 8: Logical Functions & Multiple Worksheets

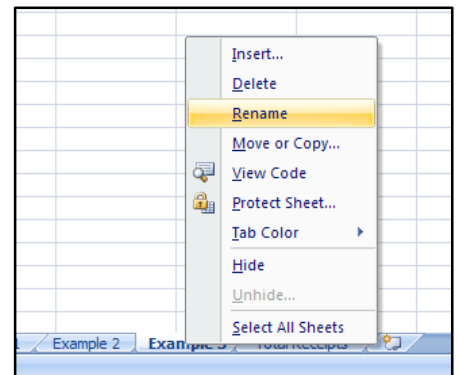
### Renaming a Worksheet

After creating the chart on a separate sheet, you should have four worksheet tabs at the bottom of the Excel window.

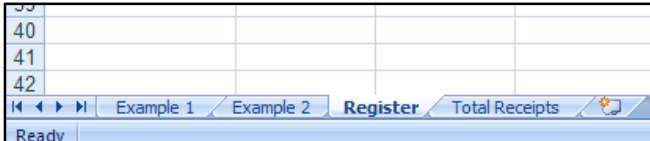


When you have several tabs, it frequently is convenient to label them with descriptive names to help you and others move easily back and forth among the worksheets.

Right-click on the “Example 3” tab and click on **Rename** in the menu that pops up.

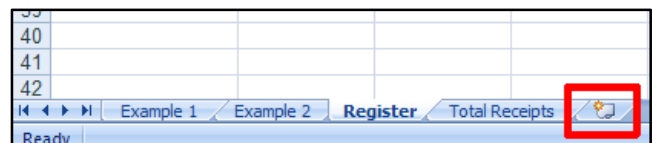


Rename the worksheet as **Register**.

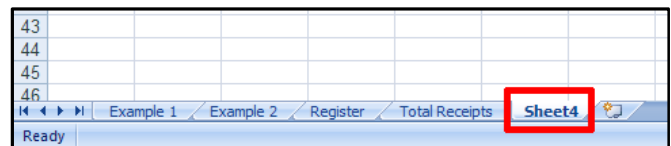


### Creating a New Worksheet

Let's create a new worksheet to use in this lesson. Click on the tab that contains the **New Sheet** icon.



This will create a new sheet with a generic name on the tab.



Rename the new sheet **Analysis**.

Enter text into the Analysis worksheet so that it looks like this picture.

The font is **16 pt Century Schoolbook**, with the title being 20 pt.

The date is set to update automatically to the current date.

The table has borders.

	A	B	C	D
1	<b>Data Analysis</b>			30-Jul-07
2				
3				
4	<b>Register</b>	<b>Percent</b>	<b>Max</b>	<b>Retain?</b>
5	1			
6	2			
7	3			
8	4			

Also, set up a custom footer so that the bottom of the page will print out as shown below (with your name rather than mine).

Prepared by	David Whisnant	7/30/2007
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## Using Multiple Worksheets

You plan to share the percent usage by each register with others, but would rather not show outsiders the actual cash taken in at each register. We will do this by using the data from one sheet in another.

In the **Analysis** worksheet, move to cell B5, which corresponds to the percent for register #1, and enter an equal sign from the keyboard

	A	B	C	D
1	<b>Data Analysis</b>			2-Mar-07
2				
3				
4	<b>Register</b>	<b>Percent</b>	<b>Max</b>	<b>Retain?</b>
5	1	=		
6	2			
7	3			
8	4			

Click on the **Register** tab to move to that worksheet.

In the Register worksheet, click on cell B15, which holds the value of the percent for register #1.

You should see “=Register!B15” in the Formula Bar.

**Register!B15** means “cell B15 in the Register worksheet.”

Press the **Enter** key on the keyboard.

Day	1	2
Monday	\$ 2,032	\$ 1,227
Tuesday	\$ 1,785	\$ 1,567
Wednesday	\$ 2,237	\$ 1,454
Thursday	\$ 2,876	\$ 1,981
Friday	\$ 2,118	\$ 1,527
Saturday	\$ 3,873	\$ 2,173
Sunday	\$ 877	\$ 425
Register Total	\$ 15,708	\$ 10,354
Percent	33%	21%

You now will find yourself back on the Analysis worksheet again. You should see **33%** in cell B5, corresponding to the formula =**Register!B15** .

Register	Percent	Max	Retain?
1	33%		
2			
3			
4			

Do the same for cells B6, B7, and B8. (*Note: You may need to move the Comment aside to select cells C15, D15, and E15 in the Register worksheet.*)

Register	Percent	Max	Retain?
1	33%		
2	21%		
3	38%		
4	8%		

In cells C5 through C8, we want to put the highest daily amount for each register. Use the **MAX** function and cells in the Register worksheet to do this

Format these four cells as currency, showing only dollars.

	A	B	C	D
1	Data Analysis			30-Jul-07
2				
3				
4	Register	Percent	Max	Retain?
5	1	33%	\$ 3,873	
6	2	21%	\$ 2,173	
7	3	38%	\$ 4,371	
8	4	8%	\$ 965	

## Logical Functions

Logical functions are like the Boolean operators we have used to retrieve information from databases. In essence they test whether something is **TRUE** or **FALSE**.

### AND(X,Y)

*The AND(X,Y) function tests whether both X and Y are TRUE.*

**If both X and Y are TRUE then AND(X,Y) is TRUE**  
**Otherwise AND(X,Y) is FALSE**

### OR(X,Y)

*The OR(X,Y) function tests whether either X or Y are TRUE.*

**If X is TRUE then OR(X,Y) is TRUE**  
**If Y is TRUE then OR(X,Y) is TRUE**  
**If both X and Y are FALSE then OR(X,Y) is FALSE**

### IF(Test,ValueIfTrue,ValueIfFalse)

*The IF function in a cell tests a value to see if it is TRUE or FALSE*

**If the test value is TRUE then the cell contains ValueIf True**  
**If the test value is FALSE then the cell contains ValueIfFalse**

The small sample worksheet below illustrates how these three logical functions work. This worksheet contains two numbers:

Cell A1: 5  
Cell B1: 6

It also contains the following functions:

Cell A3: =AND(A1=5, B1=6)  
Cell A4: =AND(A1=5, B1=5)

Cell A6: =OR(A1=5, B1=5)  
Cell A7: =OR(A1=6, B1=7)

Cell A9: =IF(A1=5, 8, 9)  
Cell A10: =IF(A1=6, 8, 9)

	A	B	C
1	5	6	
2			
3	TRUE	<-----	=AND(A1=5, B2=6)
4	FALSE	<-----	=AND(A1=5, B1=5)
5			
6	TRUE	<-----	=OR(A1=5, B1=5)
7	FALSE	<-----	=OR(A1=6, B1=7)
8			
9	8	<-----	=IF(A1=5, 8, 9)
10	9	<-----	=IF(A1=6, 8, 9)
11			

Look at each cell containing a function and ask yourself the following questions:

- Why does cell A3 contain TRUE?
- Why does cell A4 contain FALSE?
- Why does cell A6 contain TRUE?
- Why does cell A7 contain FALSE?
- Why does cell A9 contain 8?
- Why does cell A10 contain 9?

**With this background, here is what we want to do in the Analysis worksheet.**

For each register we want to test two things:

- Is the maximum amount earned for the seven days greater than \$1,000
- Is the percent for the register greater than 10%

If both of these are true we will keep the register.  
Otherwise we will remove the register.

In cell D5 enter:        **=IF(AND(B5>10%,C5>1000),"Yes","No")**

Note that, inside the IF function, the AND function does not need an equal sign in front.

*Before you go any farther ask yourself what the function above will do:*

- *What will the IF function put in its cell if B5 contains 12 % and C5 contains \$800*
- *What will the IF function put in its cell if B5 contains 9% and C5 contains \$1,200*
- *What will the IF function put in its cell if B5 contains 12% and C5 contains \$1,200*

Copy the function in cell D5 and paste it into Cells D6, D7, and D8.

	A	B	C	D	E
1	Data Analysis			30-Jul-07	
2					
3					
4	Register	Percent	Max	Retain?	
5	1	33%	\$ 3,873	Yes	
6	2	21%	\$ 2,173	Yes	
7	3	38%	\$ 4,371	Yes	
8	4	8%	\$ 965	No	
9					