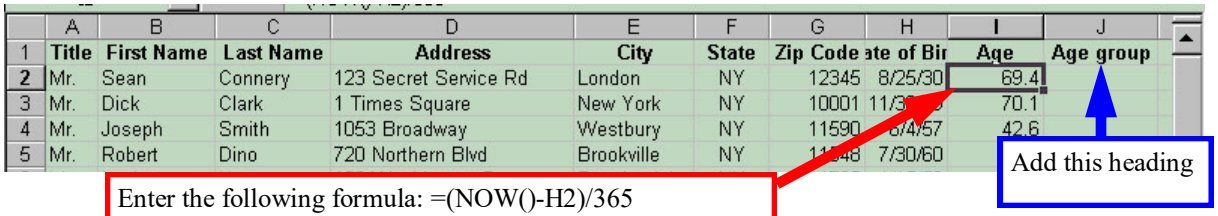
Microsoft Excel – Advanced Topics

Rev 1

The "If" Function — Easily the most popular of the conditional functions. This function applies a test to a cell or formula and allows you to apply one value if the test is successful (true) or a different value if the test fails (false). First, let's prepare our Mail Merge DB spreadsheet as follows:



	A	B	C	D	E	F	G	H	I	J
1	Title	First Name	Last Name	Address	City	State	Zip Code	ate of Bir	Age	Age group
2	Mr.	Sean	Connery	123 Secret Service Rd	London	NY	12345	8/25/30	69.4	
3	Mr.	Dick	Clark	1 Times Square	New York	NY	10001	11/3	70.1	
4	Mr.	Joseph	Smith	1053 Broadway	Westbury	NY	11590	8/4/57	42.6	
5	Mr.	Robert	Dino	720 Northern Blvd	Brookville	NY	11548	7/30/60		

We want to test the age of each person in the list and if they are over the age of 59.5, we would like to have the **Age Group** say "SENIOR." Otherwise, the function should place "Too young" in this column. The syntax for the If function is as follows:

IF(logical_test,value_if_true,value_if_false)

Let's break down what we want for each of the three parameters:

logical_value:	I2 > 59.5	{is the contents of the first age column greater than 59.5?}
value_if_true:	"SENIOR"	{if yes, enter the word "SENIOR" - be sure to include the quotes}
value_if_false:	"Too young"	{if no, enter the words "Too young" - again, with the quotes}

Put it all together, and you should have entered into cell J2: **=IF(I2>59.5, "SENIOR", "Too young")**

Copy the formula down into all the necessary cells below and you should see different results depending on the various age values. Try changing a few of the birth dates to make different people older that 59.5 and the **Age Group** value should change automatically.

COMPARISON SIGNS

= is equal to
> is greater than
< is less than
>= is greater than or equal to
<= is less than or equal to
<> not equal to

NOT(test)

We really don't need to list the non-seniors as "Too young." Let's make the **Age Group** cells for those people be blank. To do this, just remove the **value_if_false** component of the function – BUT LEAVE THE COMMA. Hence, chnge the formula to: **=IF(I2>59.5, "SENIOR",)** and copy it to the necessary cells below it.

But this should produce zeros for the non-seniors – not exactly what we wanted. This is because of the formatting of the cell to display zero values, which is the equivalent to a **False** result from a logical test. To fix this, we could create a custom number format for these cells of a single "#" symbol. BUT, there is an easier way to do this within the **IF** function. Change the formula of the first cell to: **=IF(I2>59.5, "SENIOR","")** and copy it to the necessary cells below it. Notice that the **value_if_false** parameter is set to a pair of double quotes with no space in-between. This tells Excel that we want to put the NULL value in the cell.

Nesting IF functions – it is possible to create many layers of IF tests in a formula. The process is referred to as "nesting."

In our example above, we now want to display the word "Minor" in the **Age Group** for the people under 21 years old. We still want our over-59.5 folks to be shown as "SENIOR" and the rest to be blank. In words, we wish to perform the test: "if not a senior, test to see if a minor." Well, "if not a senior" the **value_if_false** would be applied. So, in place of the double-quotes, we will insert another **IF** function. Hence, the first cell should be as follows:

=IF(I2>59.5, "SENIOR", IF(I2<21, "Minor" ,""))

Enter this formula and copy it to the necessary cells below it. Try changing the birth dates of various people to see the effect of this function.

This tutorial used the IF function to place text in cells. It could also be used to conditionally place a numeric value. For example, if you were to insert the sales tax rate based on a State column, you could build an IF function as follows: **=IF(F2="NY", 0.085, IF(F2="CT", 0.06 ,0))** which simply says that if the State is "NY," put 8.5% in the target cell; if not, and the State is "CT," put 6% in the target cell; otherwise use zero (the zero is unnecessary, but helps the "readability" of the formula).