

Microsoft Excel II — Essential Skills

As of 6/23/2025

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Introduction

In this course, we go further than just an introduction to Excel. You will learn skills that are vital to productive with Excel. You will also learn some tips and techniques that many experienced Excel users lack.

For this handout (in color) and more, visit my teacher’s website at:

www.clearcutcomputing.com/school



Microsoft Excel II — Essential Skills

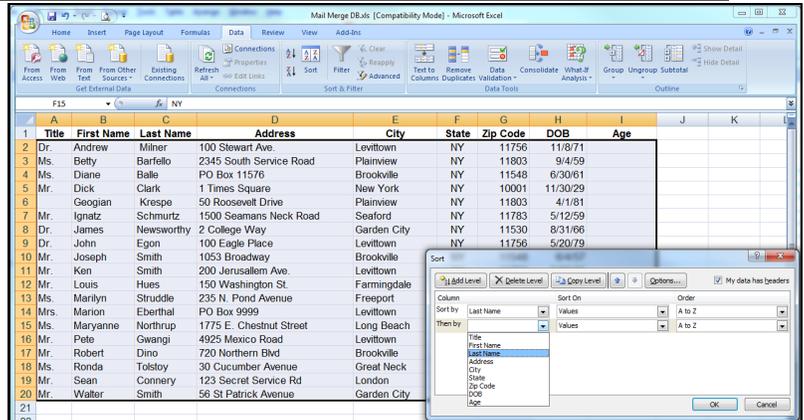
Data Management in Excel.

SORTING

First, click somewhere within the range of data. Doing this will allow Excel to “stretch out” and detect the range of the data, which will become highlighted. Now from the menu, choose:

DATA—SORT

You can choose up to three levels of sorting. If the first row in your sheet or selection contains the column headings, click the “Header row” button.

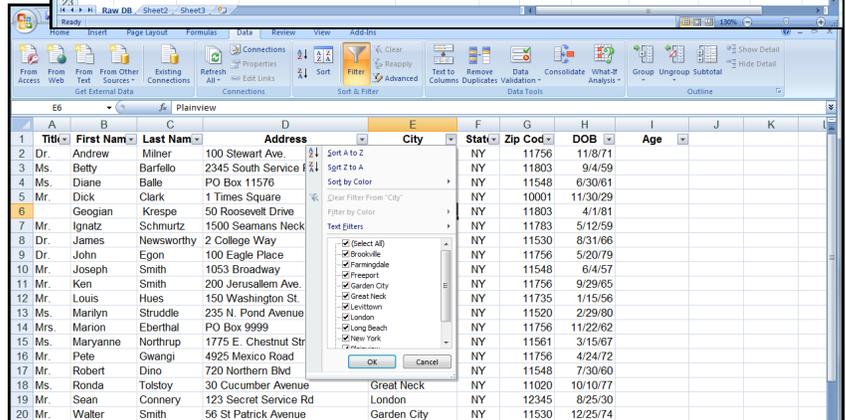


AUTOFILTERS

Autofilters allow you to quickly limit the display of rows of information based on criteria you select. To activate the Autofilters, choose from the menu:

DATA—FILTER

You will notice that pull-down arrows will have been added to the tops of each column. These arrows do not print. To turn off the Autofilters, repeat the menu command again.

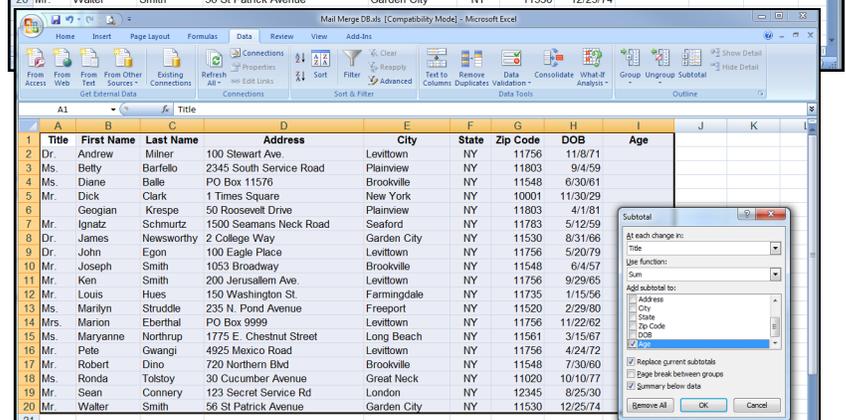


When you click on a pull-down arrow, you will see a unique list of the entries in that column. Simply choose one of those items in the list and your list will be limited to only those records.

SUBTOTALS

You can Sum, Count or Average the information in a column with the Subtotals feature. Before you use this feature, however, you must SORT your data first to match the desired Subtotal. Choose from the menu:

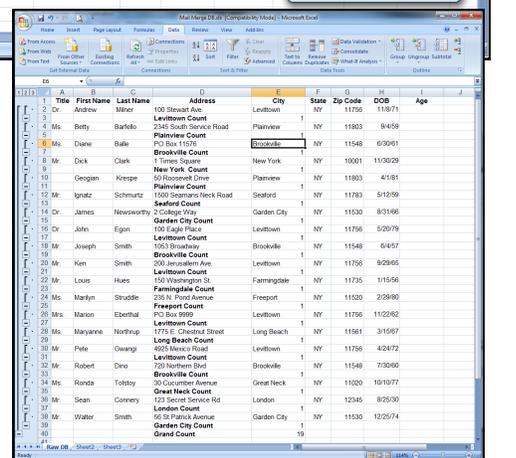
DATA—SUBTOTAL



A window will appear from which you must set:

- **At each change in:** this should be the same as the top level of sorting you chose (ie: City).
- **Use function:** If you want to total up salaries or quantities, set this to “Sum.” If you want to count the number of people in a town, choose “Count.”
- **Add subtotal to:** Here you would check off the columns you want to apply the above function to. You can select multiple columns.

To remove the subtotals, simply repeat the menu choice and click the “Remove All” button from the Subtotal window.



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Complex Spreadsheet Example

This is part of a spreadsheet we will use in our lesson. There is a lot of variety going on here.

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	
1	Title	First Name	Last Name	Address	City	State	Zip Code	DOB	Age	Name	Inv#	Patient#	Ins	Inv Date	Inv Amt	<30	31-60	61-90	>90
2	Mr.	Dick	Clark	1 Times Square	New York	NY	10001	11/30/29	93	Clark, Dick	1000	Cla1000	Aetna	4/20/14	\$ 470.17				
3	Ms.	Ronda	Tolstoy	30 Cucumber Avenue	Great Neck	NY	11020	10/10/77	45	Tolstoy, Ronda	1001	Tol1001	Oxford	6/30/14	\$ 173.14				
4	Ms.	Marilyn	Struddle	235 N. Pond Avenue	Freeport	NY	11520	2/29/80	43	Struddle, Marilyn	1002	Str1002	Oxford	6/6/14	\$ 31.48				
5	Dr.	James	Newsworthy	2 College Way	Garden City	NY	11530	8/31/66	56	Newsworthy, James	1003	New1003	BCBS	6/6/14	\$ 754.09				
6	Mr.	Walter	Smith	56 St Patrick Avenue	Garden City	NY	11530	12/25/74	48	Smith, Walter	1004	Smi1004	Cigna	6/8/14	\$ 790.58				
7	Mr.	Robert	Dino	720 Northern Blvd	Brookville	NY	11548	7/30/60	62	Dino, Robert	1005	Din1005	Humana	4/17/14	\$ 763.37				
8	Mr.	Joseph	Smith	1053 Broadway	Brookville	NY	11548	6/4/57	66	Smith, Joseph	1006	Smi1006	United HC	5/26/14	\$ 567.86				
9	Ms.	Diane	Balle	PO Box 11576	Brookville	NY	11548	6/30/61	62	Balle, Diane	1007	Bal1007	Aetna	4/8/14	\$ 859.96				
10	Ms.	Maryanne	Northrup	1775 E. Chestnut Street	Long Beach	NY	11561	3/15/67	56	Northrup, Maryanne	1008	Nor1008	Oxford	4/2/14	\$ 242.16				
11	Mr.	Louis	Hues	150 Washington St.	Farmingdale	NY	11735	1/15/56	67	Hues, Louis	1009	Hue1009	BCBS	4/24/14	\$ 807.82				
12	Dr.	John	Egon	100 Eagle Place	Levittown	NY	11756	5/20/79	44	Egon, John	1010	Ego1010	Cigna	5/21/14	\$ 22.50				
13	Dr.	Andrew	Milner	100 Stewart Ave.	Levittown	NY	11756	11/8/71	51	Milner, Andrew	1011	Mil1011	Humana	5/10/14	\$ 98.40				
14	Mr.	Pete	Gwangi	4925 Mexico Road	Levittown	NY	11756	4/24/72	51	Gwangi, Pete	1012	Gwa1012	United HC	7/3/14	\$ 373.71				
15	Mr.	Ken	Smith	200 Jerusalem Ave.	Levittown	NY	11756	9/29/65	57	Smith, Ken	1013	Smi1013	Aetna	5/23/14	\$ 975.46				
16	Ms.	Betty	Barfello	2345 South Service Road	Plainview	NY	11803	9/4/59	63	Barfello, Betty	1014	Bar1014	United HC	6/19/14	\$ 191.79				
17		Geogian	Krespe	50 Roosevelt Drive	Plainview	NY	11803	4/1/81	42	Krespe, Geogian	1015	Kre1015	Aetna	5/23/14	\$ 762.56				
18	Mr.	Sean	Connery	123 Secret Service Rd	London	NY	12345	8/25/30	92	Connery, Sean	1016	Con1016	Oxford	5/22/14	\$ 847.12				
19	Mr.	Ignatz	Schmurtz	1500 Seamans Neck Road	Seaford	NY	TBA	5/12/59	64	Schmurtz, Ignatz	1017	Sch1017	BCBS	4/18/14	\$ 992.27				
20	Mrs.	Marion	Eberthal	PO Box 9999	Levittown	NY	TBA	11/22/62	60	Eberthal, Marion	1018	Ebe1018	Cigna	5/5/14	\$ 342.23				
21	Mr.	Dick	Clark	1 Times Square	New York	NY	10001	11/30/29	93	Clark, Dick	1000	Cla1000	Humana	5/14/14	\$ 723.40				
22	Ms.	Ronda	Tolstoy	30 Cucumber Avenue	Great Neck	NY	11020	10/10/77	45	Tolstoy, Ronda	1001	Tol1001	United HC	6/8/14	\$ 792.14				
23	Ms.	Marilyn	Struddle	235 N. Pond Avenue	Freeport	NY	11520	2/29/80	43	Struddle, Marilyn	1002	Str1002	Aetna	5/12/14	\$ 786.51				
24	Dr.	James	Newsworthy	2 College Way	Garden City	NY	11530	8/31/66	56	Newsworthy, James	1003	New1003	Oxford	6/28/14	\$ 934.16				
25	Mr.	Walter	Smith	56 St Patrick Avenue	Garden City	NY	11530	12/25/74	48	Smith, Walter	1004	Smi1004	BCBS	5/28/14	\$ 76.29				
26	Mr.	Robert	Dino	720 Northern Blvd	Brookville	NY	11548	7/30/60	62	Dino, Robert	1005	Din1005	Cigna	4/2/14	\$ 746.37				
27	Mr.	Joseph	Smith	1053 Broadway	Brookville	NY	11548	6/4/57	66	Smith, Joseph	1006	Smi1006	Humana	6/20/14	\$ 494.40				
28	Ms.	Diane	Balle	PO Box 11576	Brookville	NY	11548	6/30/61	62	Balle, Diane	1007	Bal1007	BCBS	4/8/14	\$ 196.19				
29	Ms.	Maryanne	Northrup	1775 E. Chestnut Street	Long Beach	NY	11561	3/15/67	56	Northrup, Maryanne	1008	Nor1008	Cigna	6/21/14	\$ 471.66				
30	Mr.	Louis	Hues	150 Washington St.	Farmingdale	NY	11735	1/15/56	67	Hues, Louis	1009	Hue1009	Humana	5/21/14	\$ 885.79				

Freeze Panes

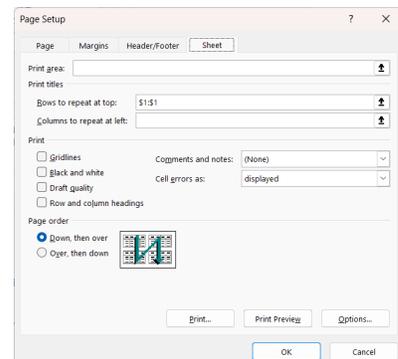
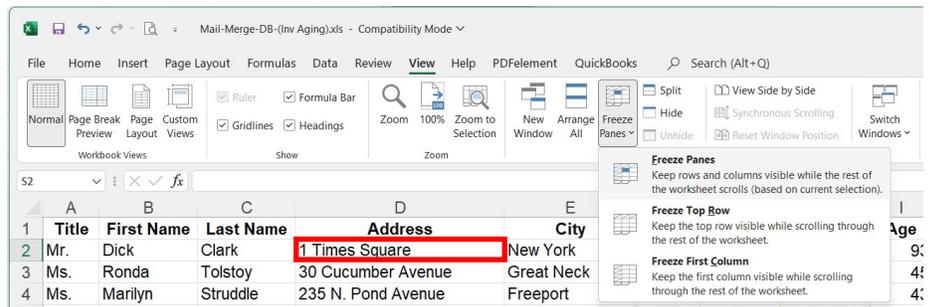
-the most popular choice for this is to keep the top row of a spreadsheet visible on the screen while the rest of the sheet can be scrolled up and down. This would be:

Freeze Top Row.

Used much less is the choice

Freeze First Column. Now, when you scroll left and right, the first column stays put.

But the most versatile is the first choice of the three, **Freeze Panes**, where you select a cell, such as **D4**, and choose **Freeze Panes**. Now, everything above D4 and to the left of D4 stays put while you scroll up, down, left and right.



NOTE: this does not carry through to the printing of the spreadsheet. To get the top row (or more) to print on the top of every page, you must go to the **Page Setup** dialog box on the **Page Layout** tab, and set them in the **Rows to repeat at top** and **Columns to repeat at left** settings in that dialog's **Sheet** tab

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A Great Totaling Trick

When most people total a column of numbers, they use the SUM function at the bottom of the column. This is cumbersome in cases where there are a lot of rows of data. Why not put the total *above* the column being totaled?

1. Insert a row above row 1.
2. Click where you want the answer to be -in this case, in empty cell above “**Inv Amt.**”
3. Now click the AutoSum button on the *Home* tab. It may not be able to guess what cells you want to add up. Even if it does load a guess, you are going to replace that guess.
4. Select the first few cells below **Inv Amt**; in this case I may have selected O3:O6.
5. Now, since the data sheet is empty below the last row (row 93), erase the 6 and type 10000.
6. The formula becomes =SUM(O3:O10000). Now, if you add more data below row 93, the total(s) in row 1 will update automatically.

NOTE: I used the “s” at the end of the word total(s) to encourage you to use totals on many columns. Try a formula that counts the number of records in the list (suggestion: count the Last Names).

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1															\$ 44,078.99
2	Title	First Name	Last Name	Address	City	State	Zip Code	DOB	Age	Name	Inv#	Patient#	Ins	Inv Date	Inv Amt
3	Mr.	Dick	Clark	1 Times Square	New York	NY	10001	11/30/29	93	Clark, Dick	1000	Cla1000	Aetna	4/20/14	\$ 470.17
4	Ms.	Ronda	Tolstoy	30 Cucumber Avenue	Great Neck	NY	11020	10/10/77	45	Tolstoy, Ronda	1001	Tol1001	Oxford	6/30/14	\$ 173.14
5	Ms.	Marilyn	Struddle	235 N. Pond Avenue	Freeport	NY	11520	2/29/80	43	Struddle, Marilyn	1002	Str1002	Oxford	6/6/14	\$ 31.48
6	Dr.	James	Newsworthy	2 College Way	Garden City	NY	11530	8/31/66	56	Newsworthy, James	1003	New1003	BCBS	6/6/14	\$ 754.09
7	Mr.	Walter	Smith	56 St Patrick Avenue	Garden City	NY	11530	12/25/74	48	Smith, Walter	1004	Smi1004	Cigna	6/8/14	\$ 790.58

Formulas that span multiple Worksheets or Workbooks

Let’s take this further and use the steps above to put the total on another Worksheet. First, review the basics of the point-&-shoot method of building a formula. See the box to the RIGHT →

Now, insert a new sheet labeled SUMMARY and follow the basic steps. Thanks to the Point=&-Shoot method, the intelligence of identifying the target worksheet, whether it be in the same Workbook, or another file is handled by Excel.

=SUM('Expanded DB'!O3:O10000)

	A	B	C	D	E	F	G	H	I	J	K				
1	MANAGEMENT SUMMARY														
2															
3	Total of Invoice amounts	\$44,078.99													
4															
5															
6															
7															

REMEMBER

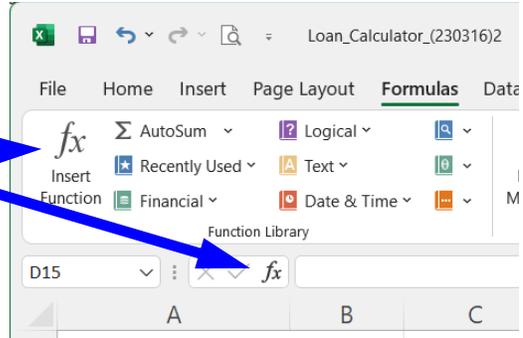
To CREATE a FORMULA:

1. **CLICK** on the cell where you want the answer to be.
2. Press **=** on the keyboard (the equals sign).
3. **Build** your formula.

Microsoft Excel II — Essential Skills

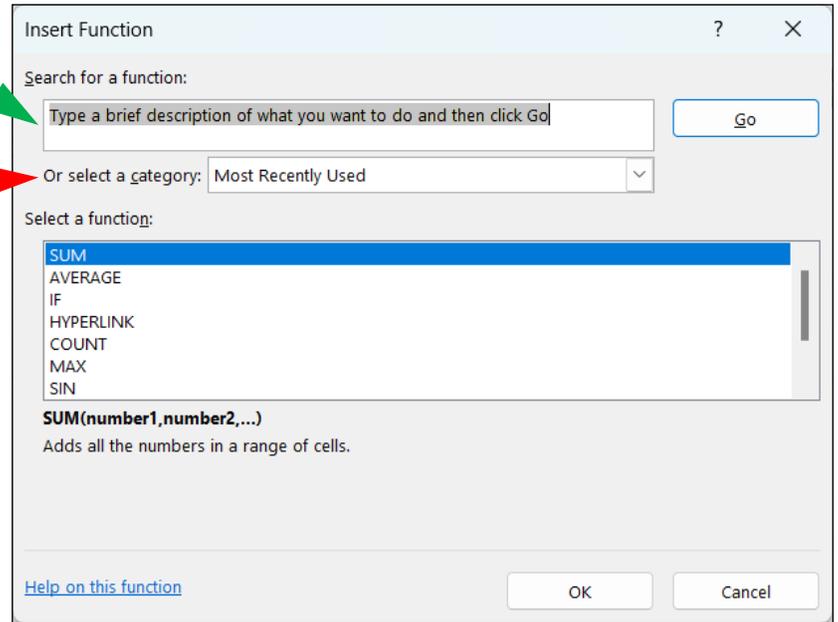
Function Library – Excel has over 450 Functions built-in. There are two ways to find them. Using the **Function Library Window** or by clicking the **Formulas** tab.

The **Function Library Window** is the best—especially if you don't know exactly what function you are looking for. Start by clicking in the cell where you want the answer to be, then click the **fx** button:

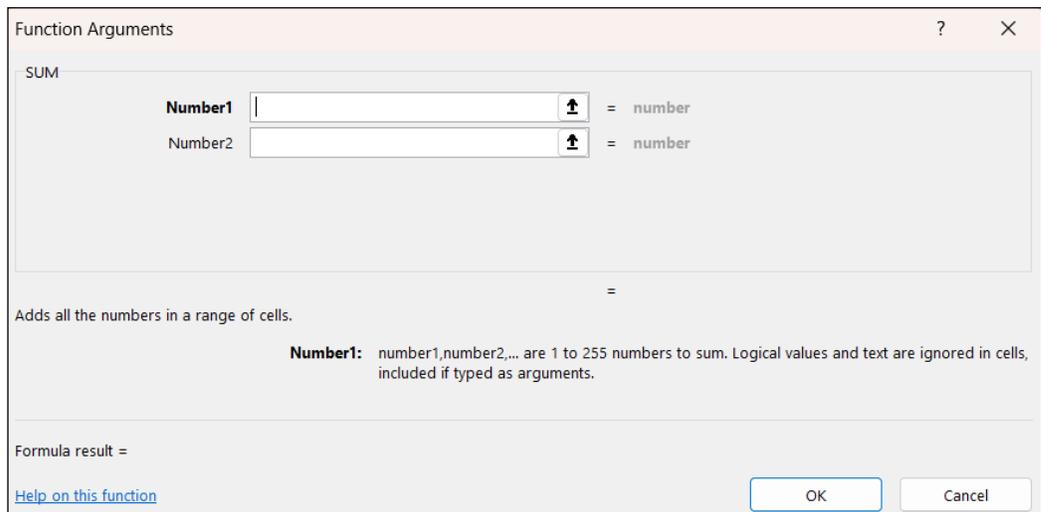


If you don't know the name of function you are looking for, use the *Search* box and describe what you want.

...Or, if you can at least narrow down the type of function you are looking for, select that type from the category pull-down, then scroll through the list of functions in that category.



When you select the function you want to use and click OK, the Function Arguments window will appear. Fill in the arguments and click OK. Arguments can be cell references, constants, or a formula using either or both of those. Some arguments can be left blank.



Microsoft Excel II — Essential Skills

Text Functions – There are a host of Text functions that are useful for manipulating and cleaning up data in spreadsheets. Let's start with a couple that are used in this sheet.

Concatenation—is when you put two or more pieces of text together. In basic math, we could add cells B3 + C3 if they both contained numbers. Using the Concatenate symbol (&) instead of the (+) produces the answer: DickClark

The formula would look like this: =B3&C3

But we should have a space between the names. That is a text constant and text constants must be surrounded with double quotes ("). Hence we need to add to the middle of the equation, DoubleQuote—space—DoubleQuote

That revised formula would be: =B3&" "&C3—which looks a bit odd.

While it would work like that, we can clean it up by adding spaces before and after the & to get: =B3 & " " & C3

The actual formula in cell J3 uses a text constant of ", " and the formula reads: =C3 & ", " & B3

The MID function lets you extract a portion of a text string. Its syntax is:

MID(text,start_num,num_chars)

Used in cell L3, the formula is:

=MID(C3,1,3) & K3

	A	B	C	D	E	F	G	H	I	J	K	L
1												
2	Title	First Name	Last Name	Address	City	State	Zip Code	DOB	Age	Name	Inv#	Patient#
3	Mr.	Dick	Clark	1 Times Square	New York	NY	10001	11/30/29	93	Clark, Dick	1000	Cla1000
4	Ms.	Ronda	Tolstoy	30 Cucumber Avenue	Great Neck	NY	11020	10/10/77	45	Tolstoy, Ronda	1001	Tol1001
5	Ms.	Marilyn	Struddle	235 N. Pond Avenue	Freeport	NY	11520	2/29/80	43	Struddle, Marilyn	1002	Str1002
6	Dr.	James	Newsworthy	2 College Way	Garden City	NY	11530	8/31/66	56	Newsworthy, James	1003	New1003
7	Mr.	Walter	Smith	56 St Patrick Avenue	Garden City	NY	11530	12/25/74	48	Smith, Walter	1004	Smi1004
8	Mr.	Robert	Dino	720 Northern Blvd	Brookville	NY	11548	7/30/60	62	Dino, Robert	1005	Din1005
9	Mr.	Joseph	Smith	1053 Broadway	Brookville	NY	11548	6/4/57	66	Smith, Joseph	1006	Smi1006
10	Ms.	Diane	Balle	PO Box 11576	Brookville	NY	11548	6/30/61	62	Balle, Diane	1007	Bal1007
11	Ms.	Maryanne	Northrup	1775 E. Chestnut Street	Long Beach	NY	11561	3/15/67	56	Northrup, Maryanne	1008	Nor1008

Other popular Text functions include:

- RIGHT(text,[num_chars]) Returns the last character or characters in a text string, based on the number of characters you specify.
- LEFT(text,[num_chars]) Returns the first character or characters in a text string, based on the number of characters you specify.
- MID(text,start_num,num_chars) Returns part of the text from the start number you provide, and for the total number of characters you specify.
- TRIM(text) Removes all spaces from text except for single spaces between words. Useful on data received from another application that may have irregular spacing.
- TEXTJOIN(delimiter, ignore_empty, text1, [text2], ...) Combines text in multiple cells separating them with a delimiter.

Case Modifying functions

- LOWER(text) Converts the text to all lower case.
- UPPER(text) Converts the text to all upper case.
- PROPER(text) Converts text so the 1st letter of each word is capitalized.

Microsoft Excel II — Essential Skills

Date Functions – Excel saves dates as a number of days since Jan 1 1900 to whatever date you typed in.

Excel Dates Notes

- A) Entering dates (mm/dd/yy)
- B) The “1930” threshold
- C) The NOW () function returns the current date and time
- D) The TODAY() function returns just the current date
- E) Dates are stored as a serial number representing the number of days from January 1, 1900.
 - 1900 date system vs. 1904
 - 1900 date system is used by Excel & Lotus 1-2-3 for Windows
 - 1904 date system was used by Excel for Macintosh – All versions of Excel for Windows calculate dates based on the 1900 date system. **Excel 2008 for Mac and earlier Excel for Mac versions calculate dates based on the 1904 date system.** Excel 2016 for Mac and Excel for Mac 2011 use the 1900 date system, which guarantees date compatibility with Excel for Windows.

You can use the options menu to change this

- F) Date Math – to calculate an age, you might try =NOW() – date value. The result will be the number of days between the dates.
- G) The formula to calculate the person’s age in cell I3 is:
 =**ROUNDDOWN**((NOW()-H3)/365.25,0)
 --or--
 =INT((NOW()-H3)/365.25) --uses the Integer function.

EXCEL’s Popular Rounding Functions

ROUND(number, num_digits)
- round the number to the specified number of digits.

ROUNDUP(number, num_digits)
- round the number upward to the specified number of digits.

ROUNDDOWN(number, num_digits)
- round the number downward to the specified number of digits.

One interesting benefit of the ROUNDDOWN function is that the number of digits can be negative. Thus the formula in J3 of the AgeGrp column is:
=ROUNDDOWN((NOW()-H3)/365.25,-1)

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1																\$ 44,078.99
2	Title	First Name	Last Name	Address	City	State	Zip Code	DOB	Age	AgeGrp	Name	Inv#	Patient#	Ins	Inv Date	Inv Amt
3	Mr.	Dick	Clark	1 Times Square	New York	NY	10001	11/30/29	93	90	Clark, Dick	1000	Clr1000	Aetna	4/20/14	\$ 470.17
4	Ms.	Ronda	Tolstoy	30 Cucumber Avenue	Great Neck	NY	11020	10/10/77	45	40	Tolstoy, Ronda	1001	Tol1001	Oxford	6/30/14	\$ 173.14
5	Ms.	Marilyn	Struddle	235 N. Pond Avenue	Freeport	NY	11520	2/29/80	43	40	Struddle, Marilyn	1002	Str1002	Oxford	6/6/14	\$ 31.48
6	Dr.	James	Newsworthy	2 College Way	Garden City	NY	11530	8/31/66	56	50	Newsworthy, James	1003	New1003	BCBS	6/6/14	\$ 754.09
7	Mr.	Walter	Smith	56 St Patrick Avenue	Garden City	NY	11530	12/25/74	48	40	Smith, Walter	1004	Smi1004	Cigna	6/8/14	\$ 790.58
8	Mr.	Robert	Dino	720 Northern Blvd	Brookville	NY	11548	7/30/60	62	60	Dino, Robert	1005	Din1005	Humana	4/17/14	\$ 763.37
9	Mr.	Joseph	Smith	1053 Broadway	Brookville	NY	11548	6/4/57	66	60	Smith, Joseph	1006	Smi1006	United HC	5/26/14	\$ 567.86

Other popular Date functions include:

NOW()	Returns the current date and time formatted as a date and time.
TODAY()	Returns the current date formatted as a date.
DAY(serial_number)	Extracts the day from a date.
MONTH(serial_number)	Extracts the month number from a date.
YEAR(serial_number)	Extracts the 4-digit year from a date.
DATE(year,month,day)	Assembles a date (as a serial number).
WEEKDAY(serial_number,[return_type])	Returns a number representing the day of the week for the date. (Incorporate the CHOOSE function to show the day name).

As the formulas get more advanced, remember what you (probably) learned in elementary school mathematics; Order of Operations. For example the following could lead you to think of two possible answers:

$$3 + 4 * 5$$

...as written, it would equal 23. But you could force it to equal 35 by adding parenthesis as follows:

$$(3 + 4) * 5$$

ORDER OF OPERATIONS

- 1) () parenthesis
- 2) * /
- 3) + -

Microsoft Excel II — Essential Skills

Paste Operations – Excel saves dates as a number of days since Jan 1 1900 to whatever date you typed in.

STEPS:

- a) We know that if we add a number to a date, we get an answer of a date that number of days later. Examples:
 $11/8/71 + 7 = 11/15/71$ (one week later)
 $4/24/72 + 10 = 5/4/72$ (10 days later and into the next month)
- b) From the list in column “O” (Inv Date), we need to determine the oldest and most recent dates. The functions for that are MIN and MAX.
- c) But here’s a twist—I want to calculate those on the SUMMARY sheet.
- d) Once we find out the oldest and most recent dates, we need to calculate how old the most recent date is and add that number to every Inv Date.
- e) But will do that with the PASTE—ADD feature under Paste Operations.

In this Invoice Aging Report-
 In order to make a useful representation of the last four columns, we need to bring all of these dates forward to a current time period. In short, the most recent date in the list will be changed to today’s date. *This is only for the day when this class is taught.*



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
1																\$ 44,078.99				
2	Title	First Name	Last Name	Address	City	State	Zip Code	DOB	Age	AgeGrp	Name	Inv#	Patient#	Ins	Inv Date	Inv Amt	<30	31-60	61-90	>90
3	Mr.	Dick	Clark	1 Times Square	New York	NY	10001	11/30/29	93	90	Clark, Dick	1000	Clat1000	Aetna	4/20/14	\$ 470.17				
4	Ms.	Ronda	Tolstoy	30 Cucumber Avenue	Great Neck	NY	11020	10/10/77	45	40	Tolstoy, Ronda	1001	Tol1001	Oxford	6/30/14	\$ 173.14				
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11	Ms.	Maryanne	Northrup	1775 E. Chestnut Street	Long Beach	NY	11561	3/15/67	56	50	Northrup, Maryanne	1008	Nor1008	Oxford	4/2/14	\$ 242.16				
12	Mr.	Louis	Hues	150 Washington St.	Farmingdale	NY	11735	1/15/56	67	60	Hues, Louis	1009	Hue1009	BCBS	4/24/14	\$ 807.82				
13	Dr.	John	Egon	100 Eagle Place	Levittown	NY	11756	5/20/79	44	40	Egon, John	1010	Ego1010	Cigna	5/21/14	\$ 22.50				
14	Dr.	Andrew	Milner	100 Stewart Ave.	Levittown	NY	11756	1/18/71	51	50	Milner, Andrew	1011	Mil1011	Humana	5/10/14	\$ 98.40				
15	Mr.	Pete	Gwangi	4925 Mexico Road	Levittown	NY	11756	4/24/72	51	50	Gwangi, Pete	1012	Gwa1012	United HC	7/3/14	\$ 373.71				
16	Mr.	Ken	Smith	200 Jerusalem Ave.	Levittown	NY	11756	9/29/65	57	50	Smith, Ken	1013	Smi1013	Aetna	4/30/14	\$ 975.46				
17	Ms.	Betty	Barfello	2345 South Service Road	Plainview	NY	11803	9/4/59	63	60	Barfello, Betty	1014	Bar1014	United HC	5/23/14	\$ 191.79				
18		Geogian	Krespe	50 Roosevelt Drive	Plainview	NY	11803	4/1/81	42	40	Krespe, Geogian	1015	Kre1015	Aetna	6/19/14	\$ 762.56				
19	Mr.	Sean	Connery	123 Secret Service Rd	London	NY	12345	8/25/30	92	90	Connery, Sean	1016	Con1016	Oxford	5/22/14	\$ 847.12				
20	Mr.	Ignatz	Schmurtz	1500 Seamans Neck Road	Seaford	NY	TBA	5/12/59	64	60	Schmurtz, Ignatz	1017	Sch1017	BCBS	4/18/14	\$ 992.27				
21	Mrs.	Marion	Eberthal	PO Box 9999	Levittown	NY	TBA	11/22/62	60	60	Eberthal, Marion	1018	Ebe1018	Cigna	5/5/14	\$ 342.23				
22	Mr.	Dick	Clark	1 Times Square	New York	NY	10001	11/30/29	93	90	Clark, Dick	1000	Clat1000	Humana	5/14/14	\$ 723.40				
23	Ms.	Ronda	Tolstoy	30 Cucumber Avenue	Great Neck	NY	11020	10/10/77	45	40	Tolstoy, Ronda	1001	Tol1001	United HC	6/8/14	\$ 792.14				
24	Ms.	Marilyn	Struddle	235 N. Pond Avenue	Freeport	NY	11520	2/29/80	43	40	Struddle, Marilyn	1002	Str1002	Aetna	5/12/14	\$ 786.51				
25	Dr.	James	Newswothy	2 College Way	Garden City	NY	11530	8/31/66	56	50	Newswothy, James	1003	New1003	Oxford	6/28/14	\$ 934.16				
26	Mr.	Walter	Smith	56 St Patrick Avenue	Garden City	NY	11530	12/25/74	48	40	Smith, Walter	1004	Smi1004	BCBS	5/28/14	\$ 76.29				
27	Mr.	Robert	Dino	720 Northern Blvd	Brookville	NY	11548	7/30/60	62	60	Dino, Robert	1005	Din1005	Cigna	4/2/14	\$ 746.37				
28	Mr.	Joseph	Smith	1053 Broadway	Brookville	NY	11548	6/4/57	66	60	Smith, Joseph	1006	Smi1006	Humana	6/20/14	\$ 494.40				
29	Ms.	Diane	Balle	PO Box 11576	Brookville	NY	11548	6/30/61	62	60	Balle, Diane	1007	Bal1007	BCBS	4/8/14	\$ 196.19				
30	Ms.	Maryanne	Northrup	1775 E. Chestnut Street	Long Beach	NY	11561	3/15/67	56	50	Northrup, Maryanne	1008	Nor1008	Cigna	6/21/14	\$ 471.66				

Paste Special ? X

Paste

All

Formulas

Values

Formats

Comments

Validation

All using Source theme

All except borders

Column widths

Formulas and number formats

Values and number formats

All merging conditional formats

Operation

None

Add

Subtract

Multiply

Divide

Skip blanks

Transpose

Paste Link OK Cancel

Microsoft Excel II — Essential Skills

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	6/4/57	42.6	
5	Mr.	Robert	Dino	720 Northern Blvd	Brookville	NY	11548	7/30/60		

Enter the following formula: `=(NOW()-H2)/365`
And copy it to all the cells below.

Add this heading

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 than 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, change 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:

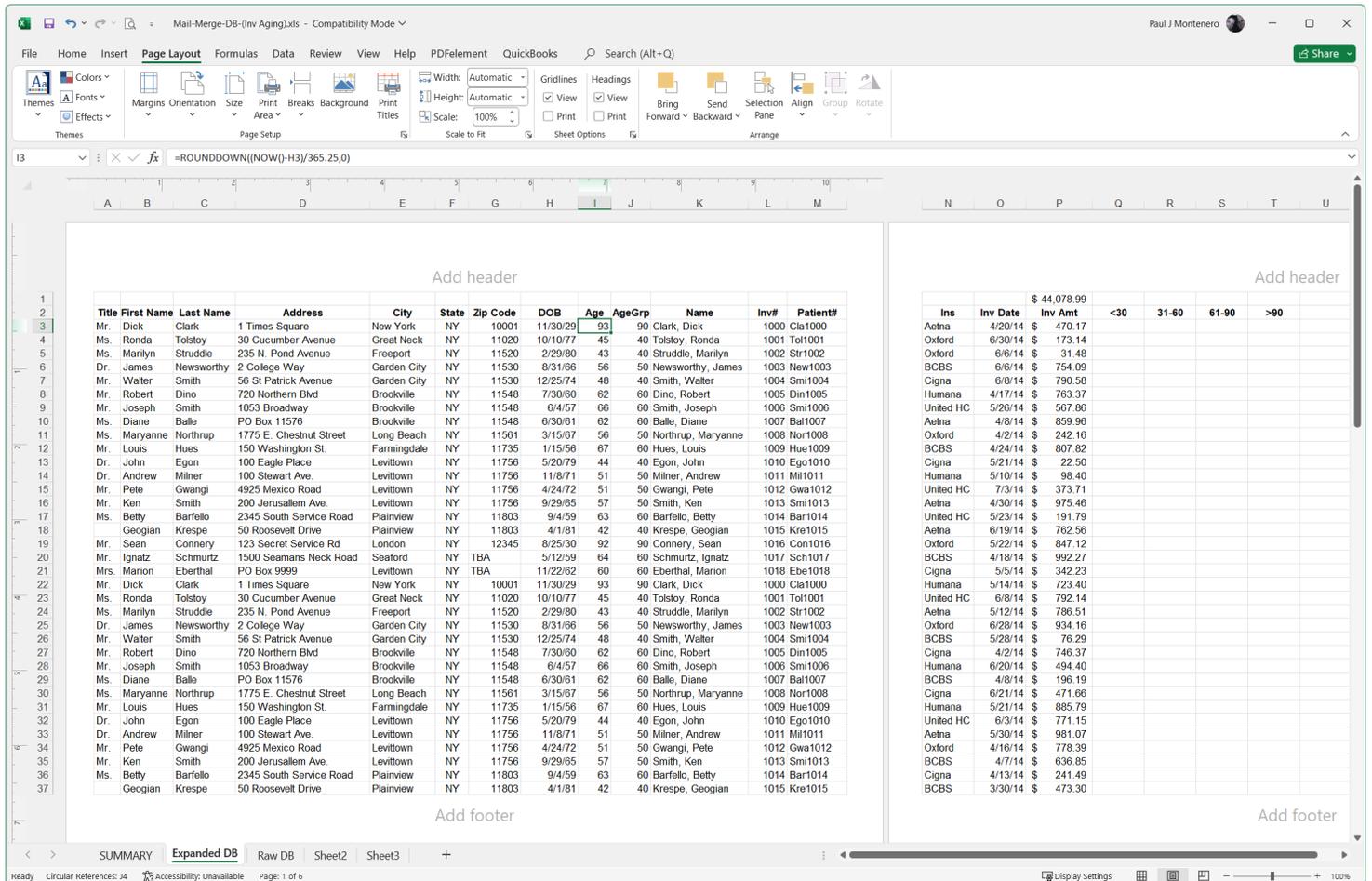
`=IF(I2>59.5, “SENIOR”, IF(I2<21, “Minor”, “”))`

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.

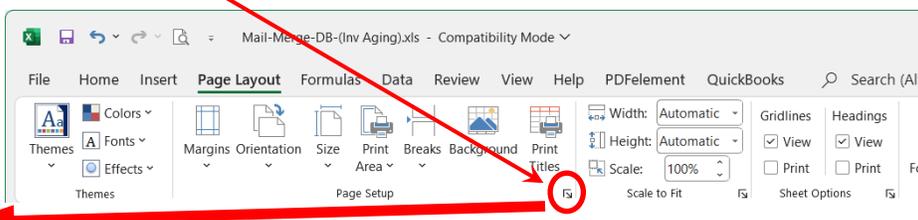
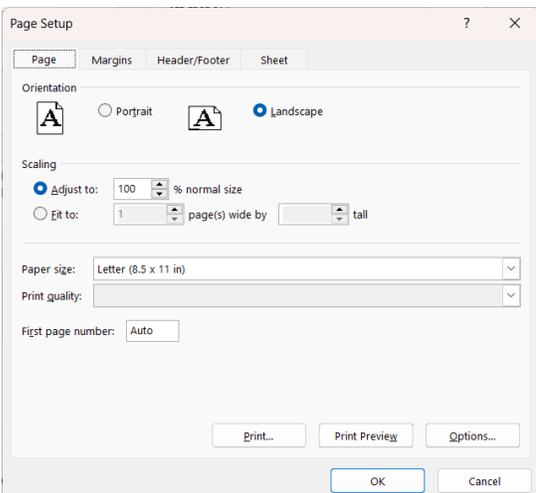
This tutorial used the IF function to place text in cells. It could also be used to conditionally place a numeric value. For example, if you were to insert the sales tax rate based on a State column, you could build an IF function as follows: `=IF(F2=“NY”, 0.085, IF(F2=“CT”, 0.06, 0))` which simply says 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).

Microsoft Excel II — Essential Skills

PRINTING: Page Layout –set to shrink printout to one page wide by as many tall as



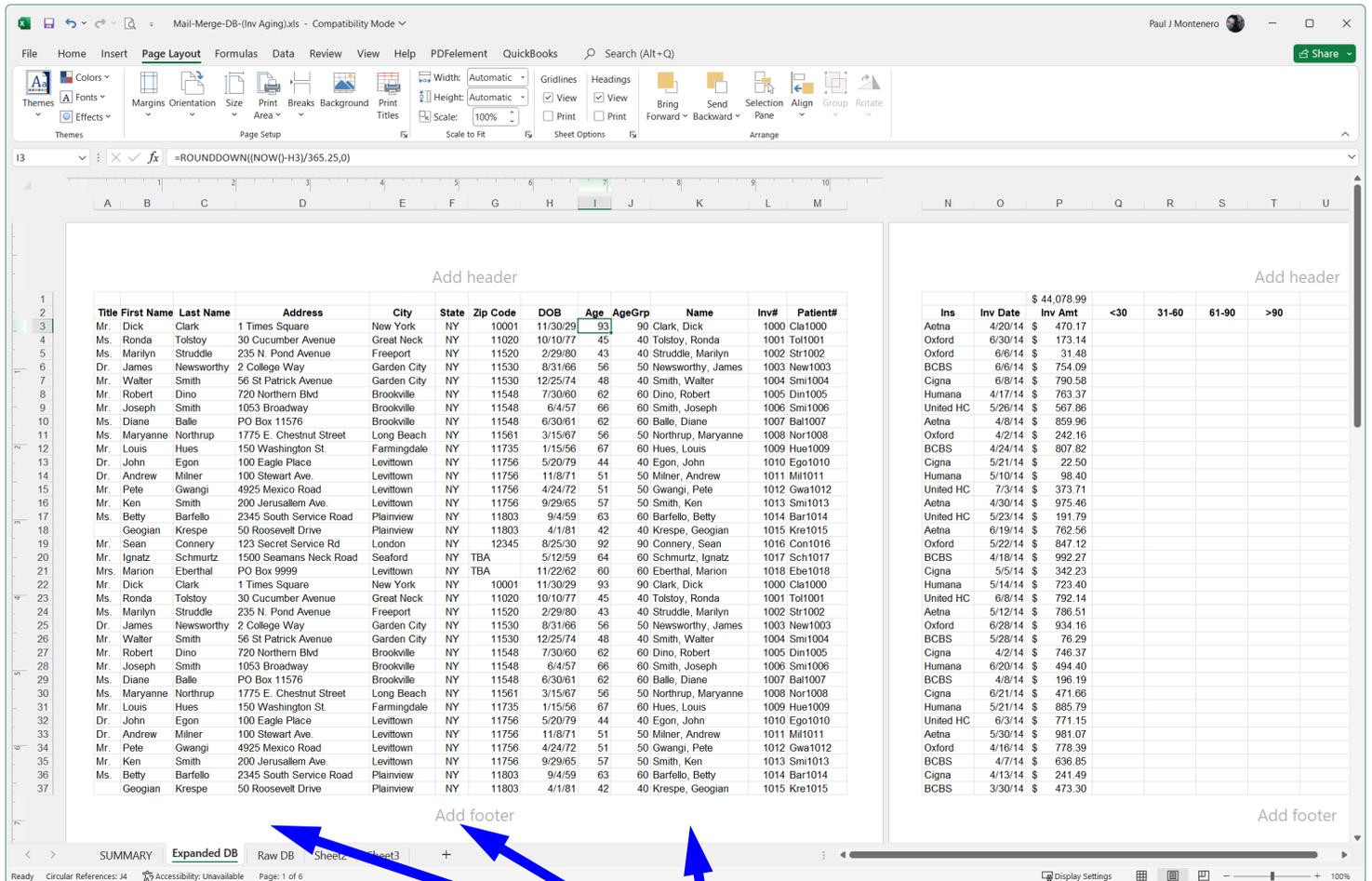
Page Layout View
Shows us how many pages, the pagination, and the header & footer.
You can either use some buttons on the *Page Layout* tab,
Or open the *Page Setup Dialog* window.



To fit on on page wide:
Page Layout tab –set Width to 1 page and leave Height as Automatic
Page Setup Dialog –select “Fit to:” and 1 page(s) wide & blank pages tall.

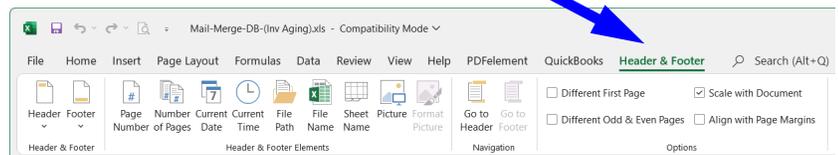
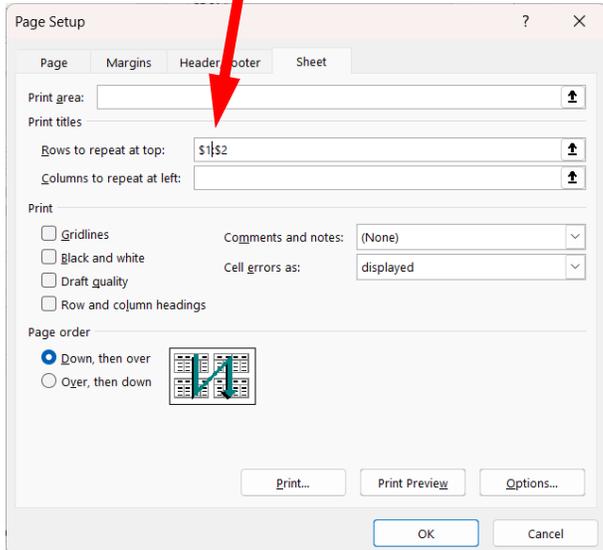
Microsoft Excel II — Essential Skills

PRINTING: Page Layout –Header & Footer, Print Titles



To have the top two rows print on each page, set the **Print Titles**.

When you click in either the header or footer area, the **Header & Footer** tab will appear. Use this to help you place Fields in these areas



Microsoft Excel II — Essential Skills

Templates – With Microsoft Excel, you can create a spreadsheet (or workbook) that can be used as a “form” to be used on a regular basis. Take, for example, an Expense Report.

We will use the PMT function (Payment). The SYNTAX of the function is:

PMT(rate, nper, pv, [fv], [type]) the arguments, [fv] & [type] are in square brackets because they are optional.

The screenshot shows a spreadsheet titled "Loan_Calculator_(230316)2" with the following data and annotations:

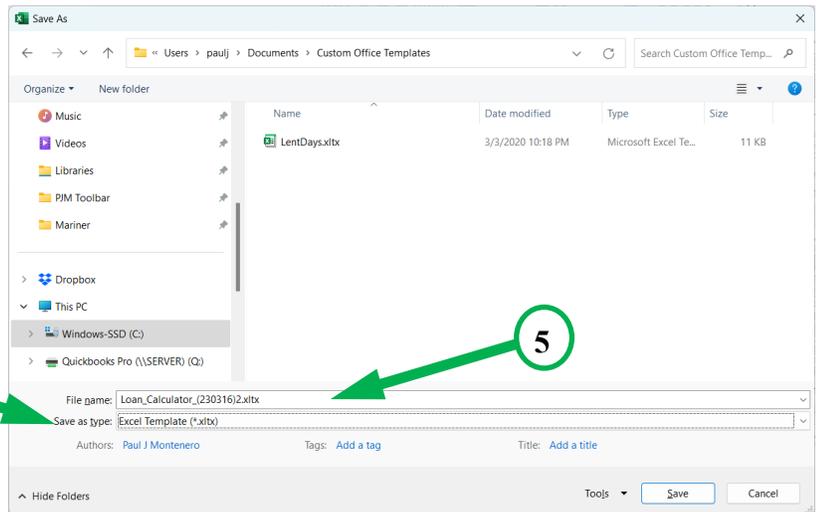
	A	B	C	D	E
1	LOAN CALCULATOR				7/19/2023
2			Electric Ford Mustang		
3	Cost		\$46,000.00		
4	Deposit		(\$5,000.00)		
5	Amount to borrow		\$41,000.00		
6					
7	Interest rate		6%	annual rate (APR)	
8					
9	Term		7	years	
10					
11	Amount left at loan end		0	Final value	
12					
13	When paid		1	Use 1 for beginning of month; 0 for end of month	
14					
15	MONTHLY PAYMENT		(\$595.97)		
16	Total paid back		(\$50,061.55)		
17					

Annotations in the image:

- Yellow box:** "This is the current date; use the TODAY() function and format as shown." (points to E5)
- Green box:** "This is a formula combining the two values above and this answer is the **pv** argument." (points to C4)
- Green box:** "This is the *annual* rate. The **rate** argument must be a *monthly* rate, so the rate will be =C7/12." (points to C7)
- Green box:** "This is the *term* of the loan, expressed as one normally refers to it—in years.. But the **nper** argument calls for the total" (points to C9)
- Green box:** "This is **fv** argument." (points to C11)
- Green box:** "This is **type** argument." (points to C13)
- Blue box:** "This is where you START; this is the Function you insert. After you build the formula with the FUNCTION HELPER, you have: =PMT(C7/12,C9*12,C5,C11,C13)" (points to C15)

When you're done creating the sheet, you're ready to save it.

1. On the **File** tab, click **Save As**. Unlike Save, Save As allows you to “translate” your spreadsheet (or workbook) into different formats.
2. Then click **Browse** to bring up the file save dialog window.
3. The Save As window at the right should appear.
4. In the *Save as type* field, near the bottom, select “Excel Template.” The folder in the *Save in* field will change to the Templates folder for the user’s account.
5. Enter a *File name* (such as “invoice”), and click the save button.
6. Finally, close your template with **File**➔**Close**.



Now, when you need to use the template, you must open a new workbook with the **File**➔**New** menu command, and choose the invoice template from the top of the window or from the templates area.

Microsoft Excel II — Essential Skills

Some Useful Keyboard Shortcuts

FORMATTING

Cut	Ctrl+X
Copy	Ctrl+C
Paste	Ctrl+V
Open the Paste Special dialog box.	Ctrl+Alt+V
Bold text	Ctrl+B
Italic text	Ctrl+I
Underline text	Ctrl+U
Open Format Font Window	Ctrl+Shift+P
Format as currency (with red negatives)	Ctrl+Shift+\$
Format as a percent	Ctrl+Shift+%

INSERTING

Insert today's date	Ctrl+;
Invoke the SUM function	Alt+=
Insert a Function	Shift+F3

MOVING AROUND

Move one cell down (unless program options changed)	Enter key
Move one cell up	Shift+Enter
Move one cell to the right	Tab key
Move one cell to the left	Shift+Tab
Go to cell A1 (or to the top left of the worksheet)	Ctrl+Home
Go to the lower right of Overall worksheet size	Ctrl+End
Move to the first column in the current row	Home
Skip over blank or filled cells	Ctrl+<arrow>
Move one screen downward	Ctrl+Page Down
Move one screen upward	Ctrl+Page Up

MISCELLANEOUS

HIDE the current ROW	Ctrl+9
HIDE the current COLUMN	Ctrl+0
SELECT the entire ROW	Shift+Spacebar
SELECT the entire COLUMN	Ctrl+Spacebar
SELECT the Entire sheet	Ctrl+A
Undo the last action	Ctrl+Z
Redo the last Undo action	Ctrl+Y
Display FORMAT CELLS Window	Ctrl+1
Print Preview	Alt+Ctrl+I or Ctrl+P
Save the Spreadsheet	Ctrl+S
To enter "In-Cell Editing"	F2
Find	Ctrl+F