

Lab 03

Introduction to MS Excel

Objective:

It will enable students to understand and use MS Excel. How to create MS Excel document, use rows and columns.

Activity Outcomes:

The students will be able to:

- Create Spread Sheets .
- Making reports.
- To filtration the data

Instructor Note:

As a pre-lab activity, read “MicroSoft” official site for detail guidelines.

1) Useful Concepts

MS Excel is a commonly used Microsoft Office application. It is a spreadsheet program which is used to save and analyse numerical data. Excel is typically used to organize data and perform financial analysis. It is used across all business functions and at companies from small to large.

The main uses of Excel include:

- Data entry
- Data management
- Accounting
- Financial analysis
- Charting and graphing
- Programming
- Time management
- Task management
- Financial modeling
- Customer relationship management (CRM)
- Almost anything that needs to be organized!

2) Solved Lab Activites

<i>Sr.No</i>	<i>Allocated Time</i>	<i>Level of Complexity</i>	<i>CLO Mapping</i>
<i>1</i>	<i>10</i>	<i>Low</i>	<i>CLO-6</i>
<i>2</i>	<i>25</i>	<i>Medium</i>	<i>CLO-6</i>
<i>3</i>	<i>25</i>	<i>Medium</i>	<i>CLO-6</i>

Activity 1:

Conditional Formatting

Solution:

Conditional formatting allows you to change the appearance of a cell, based on criteria that you define, using predetermined rules in Excel.

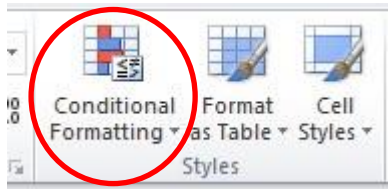
Highlight Cells Rules

Using the highlight cells rules, you can highlight cells in your data that are greater or less than a value, between or equal to a value or contain a specified or duplicate value.

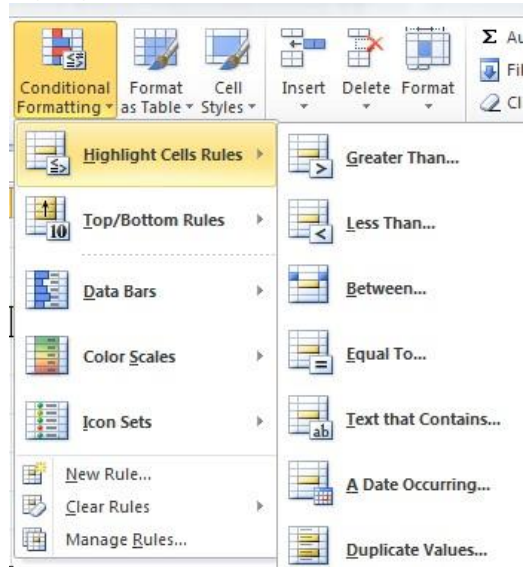
Greater Than

To highlight cells which contain data greater than a specific value:

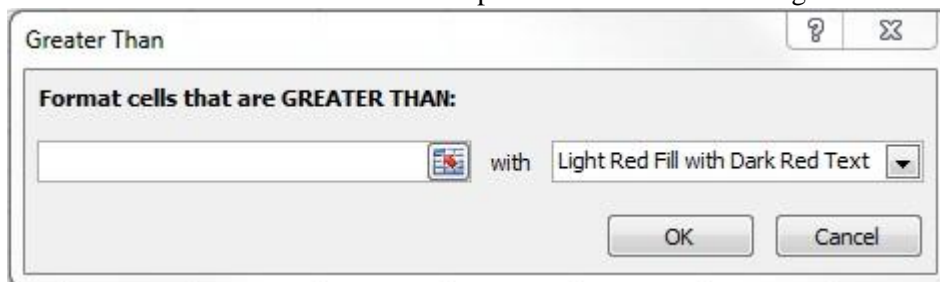
1. Highlight the data range.
2. Select the *Conditional Formatting* tool



3. Hover over *Highlight Cells Rules* to reveal the menu of different rules.



4. Select *Greater Than* from the menu to open the Greater Than dialogue box:



5. Enter the value that you want to set as your lower limit for the Greater Than condition.

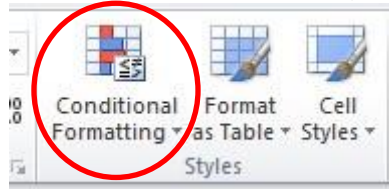
6. Select the type of formatting from the dropdown menu.
7. Select Ok.

The cells which contain a value greater than the value you specified will now appear with the cell formatting which you selected.

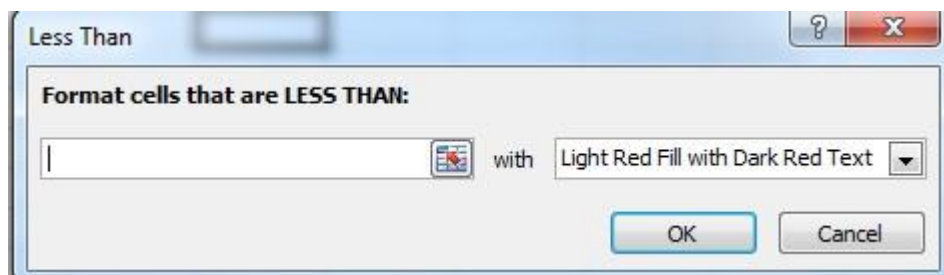
Less Than

To highlight cells that contain data less than a specific value:

1. Highlight the data range.
2. Select *Conditional Formatting* .



3. Hover over *Highlight Cell Rules*.
4. Select *Less Than* to open the Less Than dialogue box.



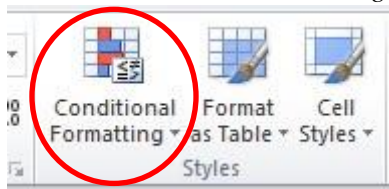
5. Enter the value that you want to set as your upper limit for the Less Than condition
6. Select *Ok*.

The cells which contain a value less than the value you specified will now appear with the cell formatting which you selected.

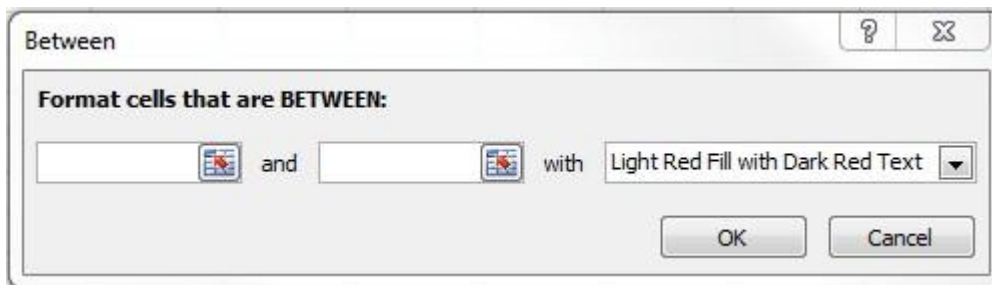
Between

To highlight cells between two specific values:

1. Highlight the data range.
2. Select *Conditional Formatting* .



3. Hover over *Highlight Cells Rules* to reveal the menu of different rules.
4. Select *Between* to open the Between dialogue box.



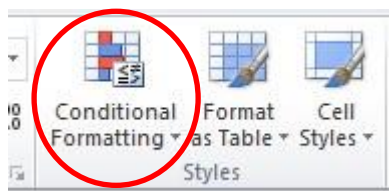
5. Enter the lower limit in the first box and the upper limit in the second box.
6. Select the cell formatting.
7. Select *Ok*.

The cells which contain a value between the two specified values will now appear with the cell formatting which you selected.

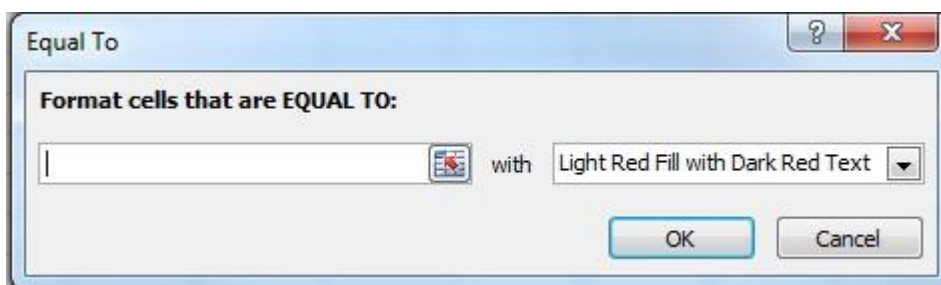
Equal To

To highlight cells equal to a specific value:

1. Highlight the data range.
2. Select *Conditional Formatting*.



3. Hover over *Highlight Cells Rules*.
4. Select *Equal To* to open the Equal To dialogue box.



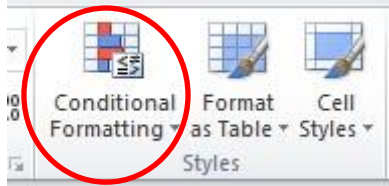
5. Enter the value that you're looking for.
6. Select the type of cell formatting you wish to use.
7. Select *Ok*.

The cells which contain the specified value will now appear with the cell formatting which you selected.

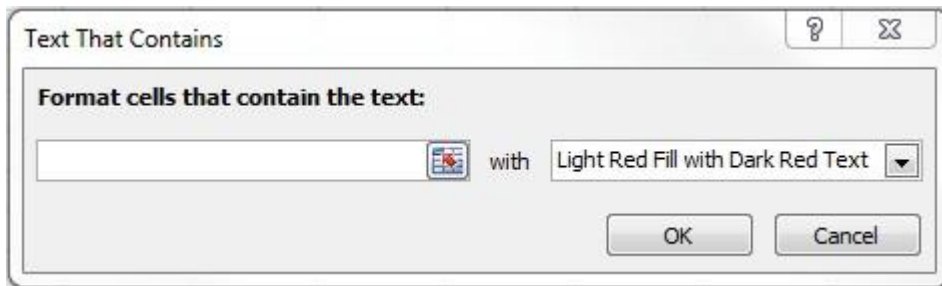
Text That Contains

To highlight cells that contain a certain character(s):

1. Highlight the data range.
2. Select *Conditional Formatting* .



3. Hover over the *Highlight Cells Rules*.
4. Select *Text That Contains* to open the Text That Contains dialogue box.



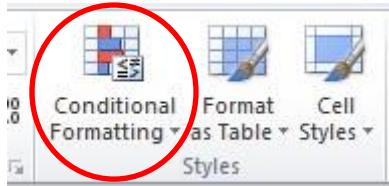
5. Enter the character(s) you're looking for.
6. Select the type of cell formatting you wish to use.
7. Select *Ok*.

The cells which contain the specified character(s) will now appear with the cell formatting which you selected.

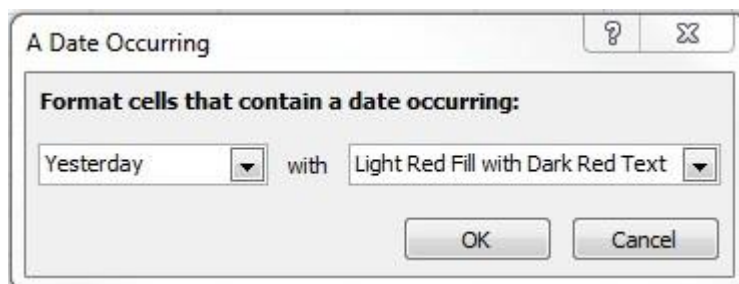
A Date Occurring

To highlight cells that contain a certain date or date range:

1. Highlight the data range.
2. Select *Conditional Formatting* .



3. Hover over the *Highlight Cells Rules*.
4. Select *A Date Occurring* to open the Date Occurring dialogue box.



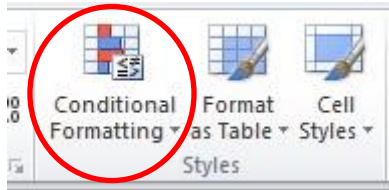
5. Select the date or date range that you're looking for.
6. Select the type of cell formatting.
7. Select *Ok*.

The cells which contain the specified date or date range will now appear with the cell formatting which you selected.

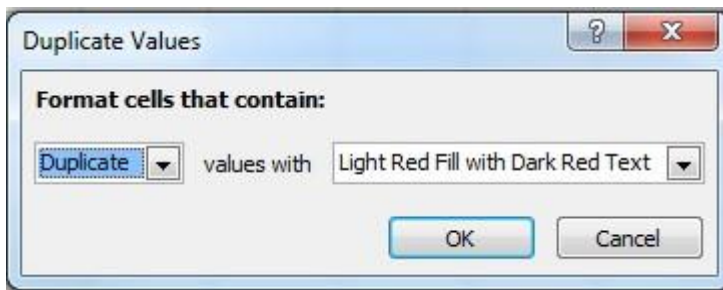
Duplicate Values

To highlight cells that contain either duplicate or unique values:

1. Highlight the data range.
2. Select *Conditional Formatting* .



3. Hover over *Highlight Cells Rules*.
4. Select *Duplicate Values* to open the Duplicate Values dialogue box.

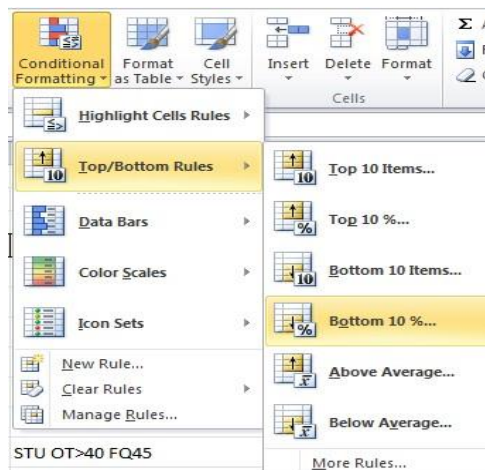


5. Select either *Duplicate* or *Unique* from the drop down menu.
6. Select the type of cell formatting you wish to use.
7. Select *Ok*.

The cells which contain either duplicate or unique values will now appear with the cell formatting which you selected.

Top/Bottom Rules

Top and bottom rules can be used to highlight cells that are the top or bottom ten items or the top or bottom ten percent. They can also be used to identify items above or below the average.



Activity 2:

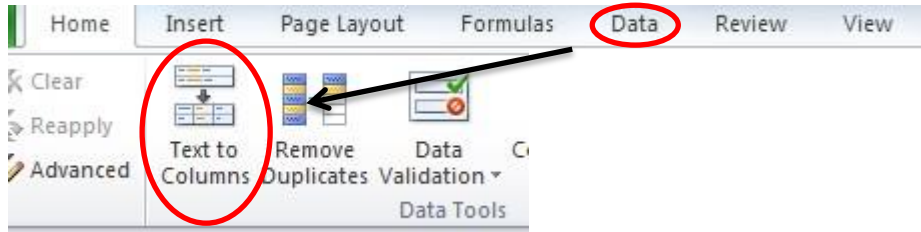
Separating Text within a Cell

Solution:

When data is combined within a cell, such as a first and last name, Excel is able to separate this data into two cells.

To separate data within a cell:

1. Insert a blank column to the right of the column containing the merged data.
2. Highlight the column of full names.
3. Select the *Data* tab.
4. Select *Text to Columns*.



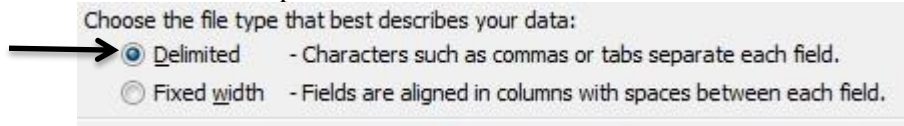
The Convert Text to Columns Wizard dialogue box will.

5. Choose the appropriate data type.

To separate a column based on punctuation characters, select *Delimited*.

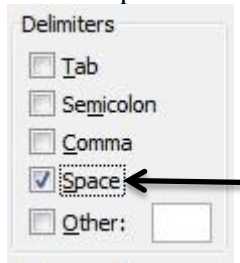
To separate a column based on spaces between each field, select *Fixed Width*.

For this example we will select *Delimited*.



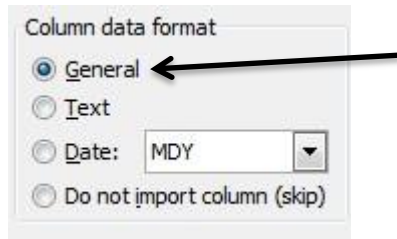
6. Select *Next*.
7. Choose your delimiters for the text separation.

For this example select *Space*.



8. Select *Next*.

9. Select the data format for each column.
For this example select *General*.



10. Select *Finish*.

Data will be displayed as separate columns

Sallie Shaffer
Joseph Garcia
Sallie Shaffer
Surhid Gautam
Charles Dennis
Yasmine Johnson
Kathleen Chilton
Kathleen Chilton
Helen Martin
Helen Sue Martin
Joseph Garcia
Sallie Shaffer
Mark Abraham
Mark Abraham
Surhid Gautam
Carmen Roberts

→

Sallie	Shaffer
Joseph	Garcia
Sallie	Shaffer
Surhid	Gautam
Charles	Dennis
Yasmine	Johnson
Kathleen	Chilton
Kathleen	Chilton
Helen	Martin
Helen	Martin
Joseph	Garcia
Sallie	Shaffer
Mark	Abraham
Mark	Abraham
Surhid	Gautam
Carmen	Roberts

Activity 3:

Use of Functions and Formulas

Solution:

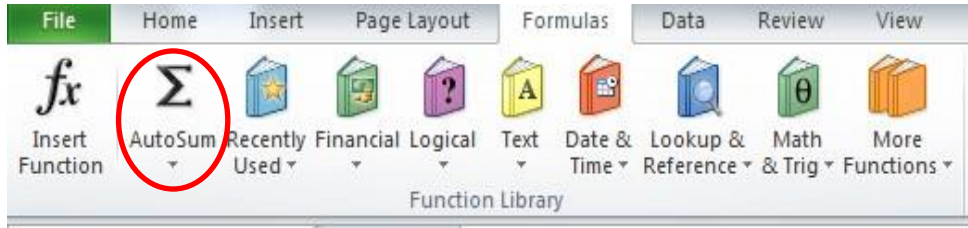
Excel has many different functions and formulas which can be used to manipulate data in a variety of ways, such as sums, subtotals, averages, number counts, maximums, and minimums.

Sums: One of the most commonly used functions of Excel is summation. If you have a data table for a single student with amounts and dates of payment, to find the sum of all payments, you would use the summation function.

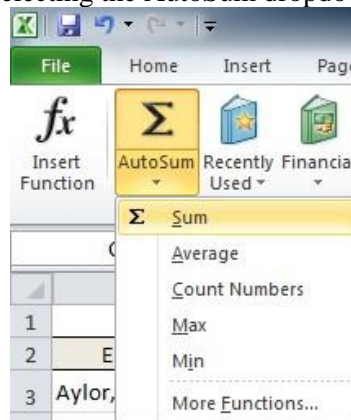
Last Name	First Name	Banner ID	Amount Paid	Date Paid
Smith	John	745082	3,000	9/8/2013
			2,500	10/12/2013
			1,500	12/10/2013
			2,000	3/15/2014
			1,000	6/10/2014

To add numbers in a column:

1. Select the cell directly beneath the last entry.
2. Select *Auto Sum* located on the *Formulas* tab.

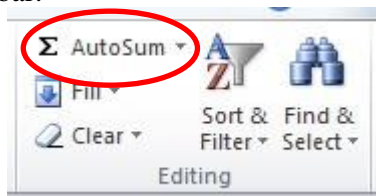


3. Select the *AutoSum* button
 4. This will select all items within the column
 5. Click the *Enter* key on your keyboard to calculate the sum of all fields.
- Other functions are available by selecting the AutoSum dropdown



Other functions include: averaging the numbers in a column, counting the numbers in a column and finding the minimum and/or maximum numbers in the column.

Additionally, there is an *AutoSum* button and dropdown menu also located on the Home toolbar.



Subtotaling

The Subtotal tool is used sum data by group. Subtotaling data eliminates the need to manually insert a row and perform a summation.

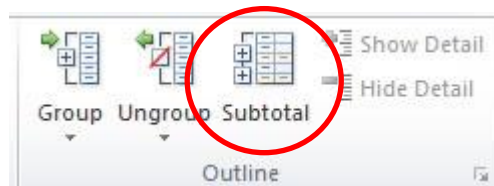
Below is a sample data sheet for which we need to calculate the total amount paid for each semester.

Last Name	First Name	Banner ID	Amount Paid	Semester
Smith	John	745082	\$ 3,000.00	Fall
			\$ 2,500.00	Fall
			\$ 1,500.00	Fall
			\$ 2,000.00	Spring
			\$ 1,000.00	Spring

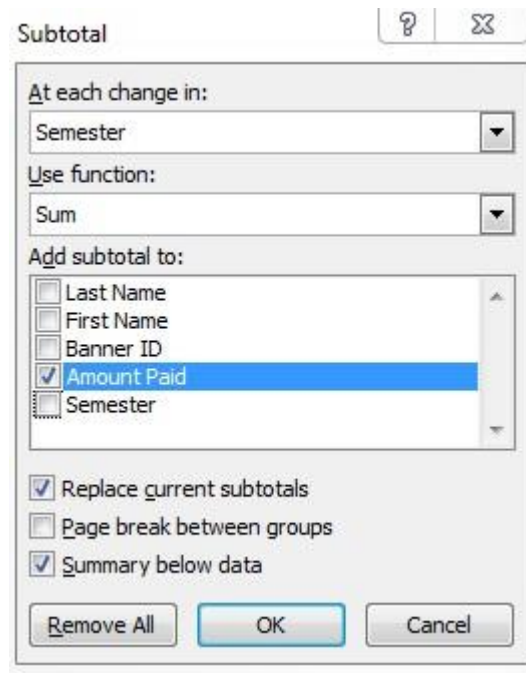
One Level Subtotals

To Subtotal a data sheet:

1. Select the *Subtotal* button located on the Data toolbar.



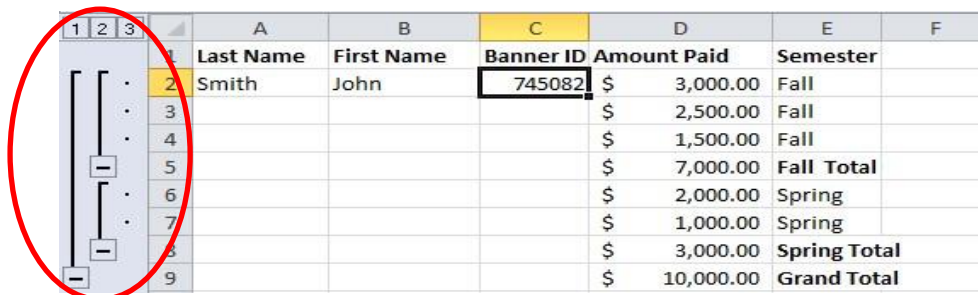
The Subtotal dialogue box will open

A screenshot of the 'Subtotal' dialog box in Excel. The 'At each change in:' dropdown is set to 'Semester'. The 'Use function:' dropdown is set to 'Sum'. In the 'Add subtotal to:' list, 'Amount Paid' is selected with a checkmark. The 'Replace current subtotals' checkbox is checked, 'Page break between groups' is unchecked, and 'Summary below data' is checked. Buttons for 'Remove All', 'OK', and 'Cancel' are at the bottom.

To subtotal this data sheet by semester:

1. Choose *Semester* for the *At Each Change In* dropdown.
2. Select *Sum* for the *Use Function* dropdown.
3. Choose *Amount Paid* for the *Add Subtotal To* field.
4. Click *Ok*.

Subtotals will automatically be added to your data.

A screenshot of an Excel spreadsheet with subtotals. The 'Amount Paid' column (D) is highlighted in yellow. The 'Banner ID' cell (C2) is circled in red. The data is grouped by semester, with subtotals for 'Fall Total' and 'Spring Total' shown in bold. The 'Grand Total' is shown at the bottom.

	A	B	C	D	E	F
1	Last Name	First Name	Banner ID	Amount Paid	Semester	
2	Smith	John	745082	\$ 3,000.00	Fall	
3				\$ 2,500.00	Fall	
4				\$ 1,500.00	Fall	
5				\$ 7,000.00	Fall Total	
6				\$ 2,000.00	Spring	
7				\$ 1,000.00	Spring	
8				\$ 3,000.00	Spring Total	
9				\$ 10,000.00	Grand Total	

The subtotal hierarchy located to the left of the spreadsheet can be used to hide some of the data within the spreadsheet.

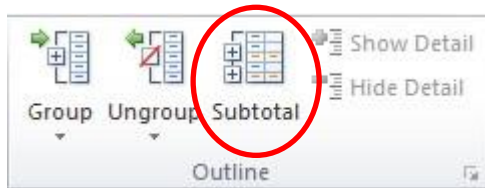
- To view only the grand total, select column 1
- To view the total for each subsection, select column 2
- To view all data, select column 3.

Nested Level Subtotals

Nested Level Subtotals are used to subtotal more than one level of data. For this example our list of data contains individual payers and semesters

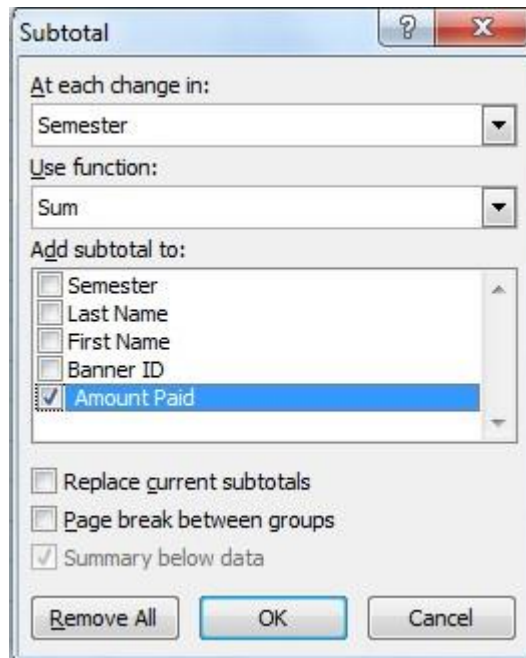
Semester	Last Name	First Name	Banner ID	Amount Paid
Fall 2013	Smith	John	745082	\$ 3,000.00
Fall 2013	Smith	John	745082	\$ 2,500.00
Fall 2013	Smith	John	745082	\$ 1,500.00
Fall 2013	Jones	Katherine	642986	\$ 1,500.00
Fall 2013	Jones	Katherine	642986	\$ 2,000.00
Fall 2013	Jones	Katherine	642986	\$ 3,250.00
Spring 2014	Smith	John	745082	\$ 2,000.00
Spring 2014	Smith	John	745082	\$ 1,000.00
Spring 2014	Jones	Katherine	642986	\$ 3,000.00
Spring 2014	Jones	Katherine	642986	\$ 2,750.00
Fall 2014	Smith	John	745082	\$ 2,750.00
Fall 2014	Smith	John	745082	\$ 3,250.00
Fall 2014	Jones	Katherine	642986	\$ 1,750.00
Fall 2014	Jones	Katherine	642986	\$ 2,000.00
Spring 2015	Smith	John	745082	\$ 1,750.00
Spring 2015	Smith	John	745082	\$ 2,250.00
Spring 2015	Smith	John	745082	\$ 2,000.00
Spring 2015	Jones	Katherine	642986	\$ 2,250.00
Spring 2015	Jones	Katherine	642986	\$ 2,500.00
Spring 2015	Jones	Katherine	642986	\$ 3,000.00

1. Select any cell within your range of data
2. Select *Subtotal* on the Data tab.



The Subtotal dialogue box will open.

3. For the *At Each Change* in dropdown menu, select *Semester*.
4. Choose to *Use Function, Sum*.
5. Choose to *Add Subtotal To, Amount Paid*.



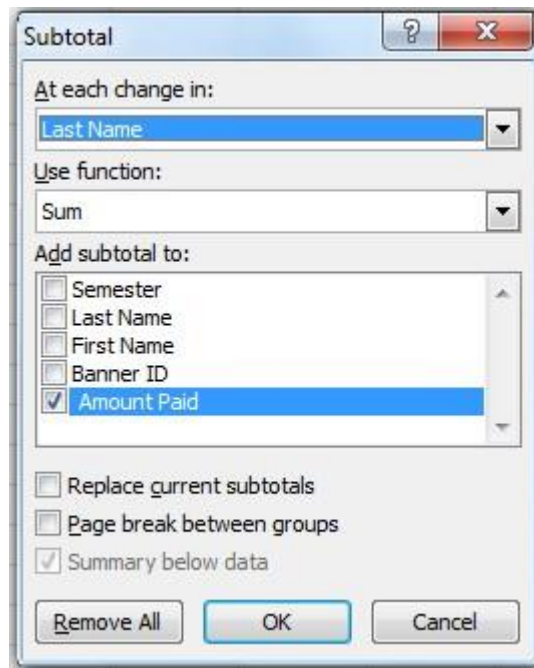
6. Click *Ok*.

The first level of subtotal will be added to the data.

	A	B	C	D	E
1	Semester	Last Name	First Name	Banner ID	Amount Paid
2	Fall 2013	Smith	John	745082	\$ 3,000.00
3	Fall 2013	Smith	John	745082	\$ 2,500.00
4	Fall 2013	Smith	John	745082	\$ 1,500.00
5	Fall 2013	Jones	Katherine	642986	\$ 1,500.00
6	Fall 2013	Jones	Katherine	642986	\$ 2,000.00
7	Fall 2013	Jones	Katherine	642986	\$ 3,250.00
8	Fall 2013 Total				\$ 13,750.00
9	Spring 2014	Smith	John	745082	\$ 2,000.00
10	Spring 2014	Smith	John	745082	\$ 1,000.00
11	Spring 2014	Jones	Katherine	642986	\$ 3,000.00
12	Spring 2014	Jones	Katherine	642986	\$ 2,750.00
13	Spring 2014 Total				\$ 8,750.00
14	Fall 2014	Smith	John	745082	\$ 2,750.00
15	Fall 2014	Smith	John	745082	\$ 3,250.00
16	Fall 2014	Jones	Katherine	642986	\$ 1,750.00
17	Fall 2014	Jones	Katherine	642986	\$ 2,000.00
18	Fall 2014 Total				\$ 9,750.00
19	Spring 2015	Smith	John	745082	\$ 1,750.00
20	Spring 2015	Smith	John	745082	\$ 2,250.00
21	Spring 2015	Smith	John	745082	\$ 2,000.00
22	Spring 2015	Jones	Katherine	642986	\$ 2,250.00
23	Spring 2015	Jones	Katherine	642986	\$ 2,500.00
24	Spring 2015	Jones	Katherine	642986	\$ 3,000.00
25	Spring 2015 Total				\$ 13,750.00
26	Grand Total				\$ 46,000.00

To add an additional level of subtotals:

1. Select *Subtotal*
2. For the *At Each Change in* dropdown menu, select *Last Name*.
3. Choose to *Use Function, Sum*.
4. Choose to *Add Subtotal To, Amount Paid*.
5. Ensure the checkbox *Replace Current Subtotals* is unchecked.



6. Click *Ok*.

The second level of subtotals will be added to the data range:

	A	B	C	D	E
1	Semester	Last Name	First Name	Banner	Amount Paid
2	Fall 2013	Smith	John	745082	\$ 3,000.00
3	Fall 2013	Smith	John	745082	\$ 2,500.00
4	Fall 2013	Smith	John	745082	\$ 1,500.00
5		Smith Total			\$ 7,000.00
6	Fall 2013	Jones	Katherine	642986	\$ 1,500.00
7	Fall 2013	Jones	Katherine	642986	\$ 2,000.00
8	Fall 2013	Jones	Katherine	642986	\$ 3,250.00
9		Jones Total			\$ 6,750.00
10		Fall 2013 Total			\$ 13,750.00
11	Spring 2014	Smith	John	745082	\$ 2,000.00
12	Spring 2014	Smith	John	745082	\$ 1,000.00
13		Smith Total			\$ 3,000.00
14	Spring 2014	Jones	Katherine	642986	\$ 3,000.00
15	Spring 2014	Jones	Katherine	642986	\$ 2,750.00
16		Jones Total			\$ 5,750.00
17		Spring 2014 Total			\$ 8,750.00
18	Fall 2014	Smith	John	745082	\$ 2,750.00
19	Fall 2014	Smith	John	745082	\$ 3,250.00
20		Smith Total			\$ 6,000.00
21	Fall 2014	Jones	Katherine	642986	\$ 1,750.00
22	Fall 2014	Jones	Katherine	642986	\$ 2,000.00
23		Jones Total			\$ 3,750.00
24		Fall 2014 Total			\$ 9,750.00
25	Spring 2015	Smith	John	745082	\$ 1,750.00
26	Spring 2015	Smith	John	745082	\$ 2,250.00
27	Spring 2015	Smith	John	745082	\$ 2,000.00
28		Smith Total			\$ 6,000.00
29	Spring 2015	Jones	Katherine	642986	\$ 2,250.00
30	Spring 2015	Jones	Katherine	642986	\$ 2,500.00
31	Spring 2015	Jones	Katherine	642986	\$ 3,000.00
32		Jones Total			\$ 7,750.00
33		Spring 2015 Total			\$ 13,750.00
34		Grand Total			\$ 46,000.00

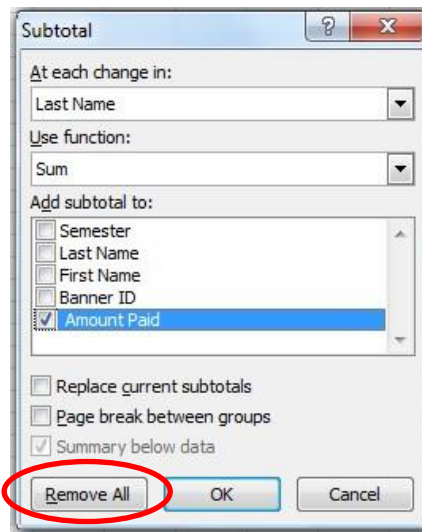
Removing Subtotals

To remove subtotals from a data sheet:

1. Select the *Subtotal* tool

The Subtotal Dialogue box will appear.

2. Select *Remove All* to remove all subtotals.



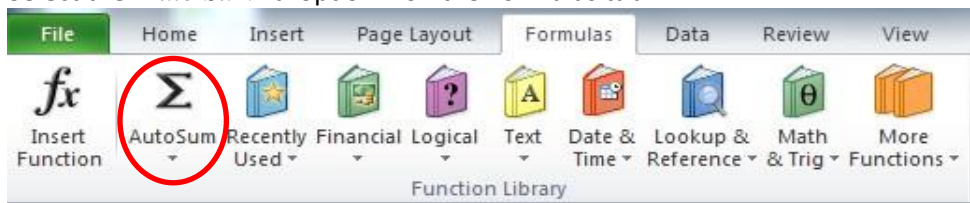
Average

To find the average of a select range of data:

1. Select the cell directly beneath the range of data

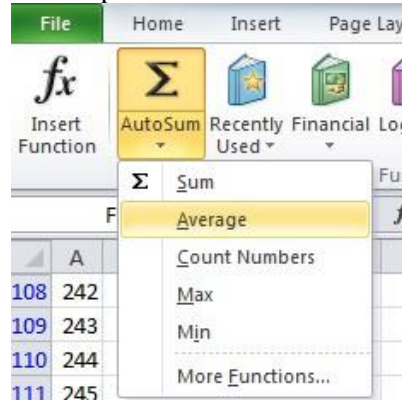
Last Name	First Name	Banner ID	Amount Paid	Date Paid
Smith	John	745082	3000	9/8/2013
			2500	10/12/2013
			1500	12/10/2013
			2000	3/15/2015
			1000	6/10/2015

2. Select the *Auto Sum* dropdown on the Formulas tab.



3.

Choose *Average* from the Auto Sum dropdown:



4. Select the range of cells to calculate
5. Click *Enter* on your keyboard

Last Name	First Name	Banner ID	Amount Paid	Date Paid
Smith	John	745082	\$3,000	9/8/2013
			\$2,500	10/12/2013
			\$1,500	12/10/2013
			\$2,000	3/15/2015
			\$1,000	6/10/2015
			\$2,000	

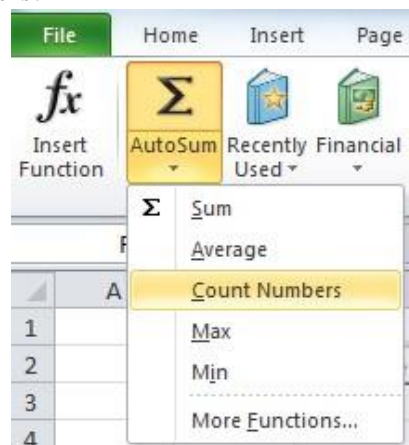
Count Numbers

To count the number of items in a range of data:

1. Select the cell directly beneath the range of data.

Last Name	First Name	Banner ID	Amount Paid	Date Paid
Smith	John	745082	3000	9/8/2013
			2500	10/12/2013
			1500	12/10/2013
			2000	3/15/2015
			1000	6/10/2015

2. Select the *Auto Sum* dropdown.
3. Select *Count Numbers*.



4. Select the range of cells to calculate.
5. Click *Enter* on your keyboard.

Last Name	First Name	Banner ID	Amount Paid	Date Paid
Smith	John	745082	3000	9/8/2013
			2500	10/12/2013
			1500	12/10/2013
			2000	3/15/2015
			1000	6/10/2015
			5	

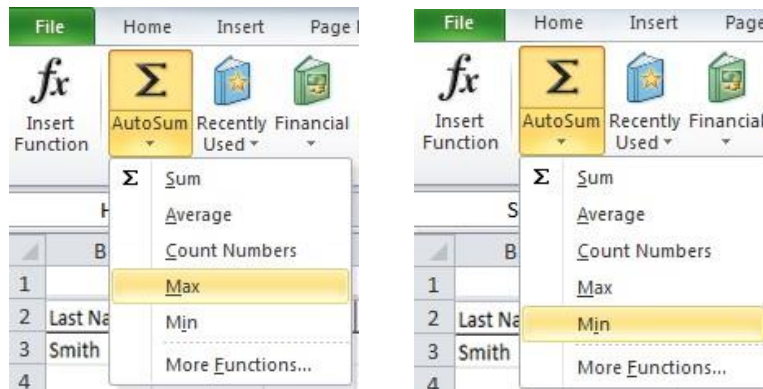
Maximum and Minimum

To calculate the Maximum or Minimum for a range of data:

1. Select the cell directly beneath the range of data.

Last Name	First Name	Banner ID	Amount Paid	Date Paid
Smith	John	745082	3000	9/8/2013
			2500	10/12/2013
			1500	12/10/2013
			2000	3/15/2015
			1000	6/10/2015

2. Select the *Auto Sum* dropdown.
3. Select *Max* or *Min* to calculate the maximum or minimum values



6. Select the range of cells to calculate.
7. Click *Enter* on your keyboard to calculate the value.

3) Graded Lab Tasks

Note: The instructor can design graded lab activities according to the level of difficulty and complexity of the solved lab activities. The lab tasks assigned by the instructor should be evaluated in the same lab.

Lab Task 1

The Sales Invoice

Use the template below and create your own invoice for purchased products. You can sell any product at any price, but you must include General sales tax, discount percentages and at least four items in your invoice. Do all formulas required. Format the invoice for clarity.

Item	Quantity	List Price	Discount	Your Price	Total
Lays	10	9	0.5	8.5	85
Subtotal					
G. Sales Tax(GST @17% of the price)					
Amount Due					

Lab Task 2

The CSC101 Grade Book

Recreate the table shown below. Determine the average for each student's final grade. Alphabetize the list. Using the IF statements, calculate the letter grade for each student whereby anything over 90 is an A, 80 is a B, 70 is a C, 60 is a D and anything lower is an F. Chart the final grades in a bar chart.

Name	Exam 1	Exam 2	Exam 3	Final	Final Grade	Letter Grade
Asad	80	88	87	94		
Amir	99	92	96	100		
Atique	85	99	82	95		
Ayesha	56	76	74	70		
Khurram	45	35	56	60		
Rizwan	100	90	95	100		
Nusrat	75	88	97	89		
Salman	90	90	85	89		

Lab Task 3

Class Make-up

Create a chart for each:

- *There are 28 students in a class. 10 are freshmen, 8 sophomores, 4 juniors, and 1 senior. 5 people did not answer the question;*
- *There are 11 men and 17 women – do a pie chart for this.*
- *If only 23 of the students did the homework assignment, what percent of the class is that? Another pie chart.*

LAB Task 4

Vacation Budget

Before you create the worksheet in Excel, explain where you want to go and what kind of activities you would like to do while you are there in a Word Document. What is your proposed budget? Set up your worksheet for transportation costs (airfare, car rental, trains, etc.), accommodations, food, sightseeing and shopping. Include any other activities you might enjoy. Include a 10% contingency plan for emergencies.