CS 130 Assignment 1

Date Assigned: Wednesday, January 8, 2014
Date Due: Friday, January 10, 2014 at 1pm
Points: 50

Goals: Build a worksheet, format data correctly, use named cells, build simple formulas, use built in Functions, build a table, and build a simple chart.

In a Workbook called **01ExcelPUNetID**, create each of the following worksheets:

Worksheet #1 (Name it Exam Grades)

I need to calculate student exam grades and perform some simple analyses of each exam question. Which questions were most difficult? Which questions were easiest? Which questions had the largest spread in answers?

The attached spreadsheet allows me to perform the analysis I need. The spreadsheet has a column for each exam question and a row for each student.

You need to build the spreadsheet as shown.

You must write formulas to calculate: Total Points, Student Score, Average, Median, Average Percent, and Standard Deviation. Use may use Excel functions to perform these calculations. I must be able to add information for students 1006 through 1010 and have your spreadsheet update all the calculated values correctly.

In a comment in cell T1, answer the following questions:

- Which question was the most difficult (students scored the worst)?
- Which question was easiest (students scored the best)?

In a comment in cell U2, answer the following question:

- Which question had the largest spread in answers?
- Explain exactly what data you used to make this determination.

You may add calculations to the spreadsheet to answer the above questions. Add these calculations below the table.

Make sure all of your data is formatted correctly. Numeric data and column headers for numeric data must be right justified. Text data and column headers for text data must be left justified. Any value that is a percent must not have any digits after the decimal point. Average and Median must have one digit after the decimal point, and Standard Deviation must have two digits after the decimal point.

Worksheet #2 – named "Forest Defoliation"

A forester counts the number of egg masses on 1/40 of an acre the preceding fall to determine the amount of defoliation that will be caused by the gypsy moth during the current year. The percent of defoliation y is approximated by $y = \frac{300}{3+17e^{-1.57x}}$ where x is the number of egg masses **in thousands**. (Source: Department of Environmental Resources)

You are to design a worksheet with the title **Forest Defoliation** merged across A1-B1, and two columns of information under the headings **Egg Masses** in cell A3 and **Percent of Defoliation** in cell B3. Underneath the Egg Masses heading, display values that go from 0 to 2000 in increments of 100. For each egg mass value, calculate and display the percent (e.g. 12.45%) of defoliation in the corresponding row and column for the given egg mass. Display percentages to two decimal places. This worksheet is to look professional. Column headings and values are to be right aligned and the worksheet heading is to be centered. Make sure the columns are wide enough to display all information as well as a little spacing between each column.

NOTE: If I drag down on the last row of your table, your worksheet is to continue doing correct calculations without me having to do any table modifications.

Egg Masses	Percent Defoliation
0	15.00%
100	17.11%
200	19.46%

Worksheet #3 – named "Retirement"

You have just secured your first job with a starting salary of $58,000 per year. You have been asked if you would like to contribute a portion of that salary towards a retirement plan. The company has a matching option up to 5%, meaning that if you contribute 1% of your present salary to your retirement then the company will match that 1% all the way up to 5% (if you contribute 2%, they will contribute 2%; if you contribute 3%, they will contribute 3%; and so on). Your salary will keep up with inflation.

Design a worksheet that looks exactly like the following and gives correct results based on the specifications described.

	A	B	C	D	E	F	G	H
1	Enter Retirement Information							
2								
3	Starting Salary	$58,000.00			Final Balance			
4	Personal Contributions	3%						
5	Inflation Increase	2%						
6	Beginning Balance	$ -						
7	Years Until Retirement	45						
8	Yearly Interest Rate	8%		Retirement Schedule				
9			Beginning Balance ($)	Salary ($)	Contribution ($)	Interest Earned ($)	Ending Balance ($)	Year
10			$ -	$ 58,000.00	$ 3,480.00	$ 278.40	$ 3,758.40	1
11			$ 3,758.40	$ 59,160.00	$ 3,549.60	$ 584.64	$ 7,892.64	2
12			$ 7,892.64	$ 60,343.20	$ 3,620.59	$ 921.06	$ 12,434.29	3

Enter the following data for this assignment: Starting Salary ($58,000), Personal Contribution (3%), Inflation Increase (2%), Beginning Balance ($0), Years until Retirement (45), and Yearly Interest Rate (8%). Your worksheet is to calculate 45 years of retirement in rows 10 through 54 based on the above discussion.

Below the retirement table, you are to graph the ending balance for each of the 45 years. Make sure that your graph is properly labeled, easy to read, and correct based on the data in the retirement table.

In cell F3, enter the balance in your retirement account at the end of 45 years.

If I drag down on the last row of your table, your worksheet is to continue doing correct calculations without me having to do any table modifications.

How to Submit and Grading Policies

A copy of your single Excel file (properly named) with the two worksheets (properly named) is to be placed in the CS130 Drop Box by **1pm** on the due date to be considered on time.

Grading will be based on:

- Correctness of your results
- Completeness of your results
- Professional look of the worksheets as described above and discussed in class
- Ability to perform a what-if analysis by changing any of the user input data with accurate results computed and displayed in the worksheet.