

CS130 Assignment #2

Date Assigned: Wednesday, September 12, 2012

Date Due: Wednesday, September 19, 2012 4:45 pm

Points: 50

In a Workbook called **02ExcelPUNetID**, create each of the following worksheets:

Worksheet #1 (Name it Crickets)

As crickets move their wings faster, the chirping sound produced becomes higher. It is believed that warmer ground temperatures cause crickets to move their wings faster. A study was done and the data is available here: <http://zeus.cs.pacificu.edu/shereen/cs130f12/crickets.html>

- 1) Create a professional looking worksheet with the above data. Make sure the worksheet has a title and proper alignment is used. The above data in a worksheet would not be considered professional if the appearance doesn't change.
- 2) Perform a linear regression on the data. Make sure that the independent variable is on the X-axis and the dependent variable is on the Y-axis. Make sure that your scatterplot, regression equation and R^2 are visible.
- 4) Would this correlation be considered a "strong" correlation based on our discussions in class? Why or why not? Answer this question in a comment in one of your cells.
- 5) If the ground temperature was 92 degrees, at what approximate rate would you expect the crickets to be chirping. Answer this question in a comment in another cell.
- 6) If the crickets were chirping about 16 times per second, what was the approximate ground temperature to two decimal places. Answer this question in another cell.

Notes:

- Make sure that your comments are all visible.

Worksheet #2 (Name it Wages)

You need to build a worksheet to keep track of one year (52 weeks) of your wages. The worksheet should be setup as shown below. Allow the user to input how many hours they work each week in cell B2. Allow the user to input their hourly wage in cell B3.

Users also need to input the data in the Taxes per week table. There are three tax brackets, High, Mid, and Low. In the example below, you pay 23% taxes if you earn at least \$500 in a week, and you pay 11% taxes if you earn at least \$200 but less than \$500 in a week. If you earn less than \$200 you pay 3% in taxes.

	A	B	C	D	E	F	G	H	I	J
1										
2	Weekly Hours	40								
3	Hourly Wage	\$13.25								
4										
5										
6										
7				Work Schedule						
8	Taxes per week			Week	Vacation	Gross Income	Taxes	Net Income	Net Wages To Date	Taxes to Date
9	Gross Income	At Least	Tax Rate	1	Full	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
10	High Bracket	\$500.00	23%	2	Half	\$265.00	\$29.15	\$235.85	\$235.85	\$29.15
11	Mid Bracket	\$200.00	11%	3		\$530.00	\$121.90	\$408.10	\$643.95	\$151.05
12	Low Bracket	\$0.00	3%	4		\$530.00	\$121.90	\$408.10	\$1,052.05	\$272.95
13				5		\$530.00	\$121.90	\$408.10	\$1,460.15	\$394.85

Finally, you need to build a table of data to represent your pay throughout the entire year. The columns are as follows:

Vacation: This can have a value of either **Full** or **Half**. If the value is Full, you worked zero hours that week. If the value is Half, you worked half the number of hours shown in cell B2. If the column is blank, you worked a full week.

Gross Income: This is the income you earned this week before taxes are paid.

Taxes: The amount of taxes you paid this week.

Net Income: This is the income you earned this week after taxes are taken out.

Net Wages To Date: Your total net income up to and including this week.

Taxes to Date: Your total taxes paid up to and including this week.

Below the table you need to calculate the totals for: Gross Income, Taxes, and Net Income.

Charting:

Below the table build a chart that charts Net Wages To Date and Taxes To Date for each Week. Make sure to properly label the chart and ensure that both datasets are readable.

What If Analysis: The user should be able to change any of the values in cells B2, B3, B10, B11, B12, C10, C11, or C12 and see the Work Schedule table update.

Data: You worked a Half week in week 2 and 19. You had a Full vacation in week 1, 27, 51, and 52. **You must enter this vacation data by hand!**

Conditional Formatting: Highlight the vacation column so that cells containing "Full" are highlighted in green and cells containing "Half" are highlighted in blue.

Formatting:

Be sure to format money and percents correctly. All percents must have no digits past the decimal point. Make sure column headers are justified appropriately. The example above is poorly formatted.

Goal Seek:

- Using Goal Seek, determine how much your hourly wage would need to be for you to earn a total net income of \$25,000. Place this number in Cell N2, properly labeled.

- Reset the Hourly Wage back to \$13.25. Determine how many hours per week you would need to work to earn a total net income of \$25,000. Place this number in Cell N4, properly labeled.

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 **4:45pm** on the due date to be considered on time.

Grading will be based on:

- Correctness and Completeness of your results
- Professional look of the worksheets as described above and discussed in class
- Make sure all of your data is properly formatted
- Use Named Cells where appropriate
- Ability to perform a what-if analysis by changing any of the user input data with accurate results computed and displayed in the worksheet.

The formulas and functions on these spreadsheets are trickier than they appear! Start early!

Remember, this is an individual assignment. Do not discuss your solution with other students.