

CS130 Assignment #2

Date Assigned: Wednesday, September 21, 2016

Date Due: Wednesday, September 28, 2016

Points: 50

Continue adding the following worksheets to your Workbook called **PUNetIDExcel**:

Worksheet #3 – named “Mortgage”

Many believe that one of the best investments that anyone can make is buying a house. Houses in general will appreciate and the interest on the loan is tax deductible. Unfortunately, most of us become so mind boggled when presented with all of the paperwork for buying a house that we really don't understand much of what went on (trust me on this). For this problem, I want to concentrate on the mortgage loan.

Before you go out looking at houses, you need to have a price range in mind. That price range is based on how much the monthly payment is going to be. A monthly payment consists of principal, interest, taxes, and insurance (PITI). The principal is a portion of the actual loan that is being paid back. The interest is what you are paying as interest on the remainder of the loan each month. Taxes refer to property taxes and insurance is self-explanatory. The majority of the monthly payment is made up of (PI) which is principal and interest.

In order to figure out how much house we can buy, we need to know what the monthly payment is going to be. To figure out the monthly payment, we must do a what-if analysis. That is, what-if we are looking at an \$87,000 house for example. Further, we must do a what-if on the interest rate. As an example, presently the interest rate is somewhere in the range of 3.5% to 4% (fixed). Here is an example of what I want your worksheet to look like:

	A	B	C	D	E	F	G	H	I
1	Mortgage Calculator								
2									
3	Enter Loan Balance	\$87,000.00							
4	Enter APR	7.75%							
5	Enter Time In Years	30							
6	Enter Additional Payment	\$0.00							
7									
8	Monthly Payment	-\$623.28							
9	Total Interest Paid	\$137,380.32							
10									
11		Loan	Monthly	Interest	Principal	Additional	Final		
12		Balance	Payment	Portion	Portion	Payment	Balance	Month	Year
13		\$87,000.00	\$623.28	\$561.88	\$61.40	\$0.00	\$86,938.60	1	1
14		\$86,938.60	\$623.28	\$561.48	\$61.80	\$0.00	\$86,876.80	2	1

If your table is correct, the final balance will zero out at month 360 if no additional payment is made.

You will notice that the additional payment column so far is zero. Here is the deal. When you buy your house, you want to make sure that along with the regular monthly payment (which does not change over the duration of the loan), the lending institution will allow you to make additional monthly payments toward the principal. This will enable you to pay off the loan several months in advance if you so desire. Many people want to get out from under the loan as soon as possible.

With this background information, the problem is as follows. You are to design a worksheet that allows the user the ability to enter:

1. the amount of the loan (in dollars)
2. the annual interest rate (as a percentage e.g. 0.075 for 7.5%)
3. the time of the loan in years
4. the amount of any additional payment toward the principal each month (in dollars)

With this input information, you are to create the above amortization table. Split the screen showing the first 10 rows and the last 8 rows of the worksheet.

Note 1: If I can't do a drag down of your worksheet from the second row of the amortization table, then you do not have a completely correct solution. Use named variables in your solution for all input information.

Note2: Use the PMT function to calculate your monthly payment. Assume the payment is made at the end of the month.

Worksheet #4 – named “Grader”

As I mentioned in class, many faculty use Excel as a grading program. You are to set up a grading program for CS130 Introduction to Software Tools as follows:

	A	B	C	D	E	F	G	H
1	CS130 Introduction to Software Tools							
2								
3	Assignments	30%						
4	Midterm Exam	30%						
5	Final	40%						
6								
7	Student ID	Assignment #1	Assignment #2	Assignment #3	Midterm	Final	Course Average	Course Grade
8	1000	46	46	40	94	60		
9	1001	31	50	25	91	79		
10	1002	43	38	32	77	92		
11	1003	48	39	29	87	88		
12	1004	30	28	34	72	83		
13	1005	39	43	43	91	96		
14	1006	34	28	42	86	72		
15	1007	44	45	37	73	98		
16	1008	26	32	28	65	73		
17	1009	38	50	30	91	82		
18	1010	39	38	39	73	95		
19	1011	48	34	46	83	99		
20	1012	41	38	31	98	83		
21	1013	45	34	45	75	69		
22	1014	49	49	36	84	84		
23	1015	30	43	41	62	80		
24	1016	40	49	30	75	94		
25	1017	41	26	45	84	66		
26	1018	36	47	32	67	74		
27	1019	48	47	45	61	81		
28	1020	41	30	36	78	87		
29								
30	Maximum Points	50	50	50	100	100		
31								
32	Average	39.9	39.7	36.5	79.4	82.6		
33	Average Percent	79.71%	79.43%	72.95%	79.38%	82.62%		
34	Standard Deviation	6.53	7.78	6.33	10.48	10.65		

- You are to produce the above worksheet exactly as you see it (with the colors you like) using the data supplied from the link below. You can get the grade data from: <http://zeus.cs.pacificu.edu/ryand/cs130/fall16/Assignments/gradedata.txt>
- The Course Average column is the overall course grade for the class for each student in the class. Display the course average as XX.XX% (e.g. 76.20%).
- The Course Grade is based on [90,100] A, [80,90) B, [70,80) C, [60,70) D, and [0,60) F. The [, and] notation means includes and the) notation means excludes.
- Below the Standard Deviation row, you are to display a Pie Chart (properly labeled, i.e. meaningful title and legend names) that shows the number of A's, B's, C's, D's, and F's in the course.
- Finally, in cell G36, show a comment that answers the following question: What

score on the final would the student with StudentID of 1003 have needed to receive to achieve the lowest possible C in the class? Give your answer to 2 decimal places.

How to Submit and Grading Policies

A copy of your single Excel file (properly named) with the four worksheets (properly named) is to be placed in the CS130-01Drop Box by **2:15pm** 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.

For each worksheet:

1. Clearly label all the data, and use the cell formatting options to make this spreadsheet easy to read and to give it a professional look.
2. Use Named Cells where appropriate.