CGS1100, Fall 2003 – Assignment 2: Excel Project Using Financial Functions and Creating a Data Table

Dr. Martin Hepp, mhepp@computer.org, phone (239) 590-7311

Goal: You must demonstrate the ability to create a worksheet that utilizes financial functions and contains a data table.

Problem: The time has come for you to purchase a home. After years of saving you are ready to find the home of your dreams. You have a down payment and now wish to develop an amortization schedule so you can plan your payments. You hope to borrow no more than \$125,000. Interest rates are low but may soon be rising. Because you are not sure how long it will take to find just the right home, you wish to examine several different payment plans. You hope to pay off the loan in 20 years.

Develop a worksheet that will show the monthly payment as well as the beginning balance for each year of the loan, the ending balance each year of the loan, the annual cost of the loan, and the annual interest paid for each year of the loan.

Instructions: With a blank worksheet on the screen, create the worksheet partially illustrated in Figure 1.

Perform the following tasks:

- 1. Select the entire worksheet and change the font size to 12.
- 2. Change the column widths to the following: A = 9.00; B, C, and E = 15.00; D = 16.38.
- 3. Change the row heights to the following: 1, 6, 27, and 28 = 39.00.
- 4. Enter the worksheet title, Home Loan Schedule, in cell A1. Merge and center cell A1 across the range A1:E1. Change the font type to Bookman Old Style, the font color to red, and the background to yellow.
- 5. Enter the following labels: B2 = Principal; B3 = Rate; B4 = Years; B5 = Payment; D5 = per month; A6 = Year; B6 = Beginning Balance; C6 = Ending Balance; D6 = Total Paid; E6 = Interest. Change the font color to blue, except for cell D5.
- 6. Enter the =Now() function in cell E2 to display the current date and format as illustrated in Figure 1.
- 7. Enter the principal amount of \$125,000 in cell C2. Format to currency format with no decimal places.
- 8. Enter the interest rate of 7.2% in cell C3. Format as shown in Figure 1.

- 9. Enter the number 20 in cell C4 for the number of years.
- 10. Enter the function =PMT in cell C5 to calculate the monthly payment on a loan of \$125,000 (cell C2) at 7.2% (cell C3) for 20 years (cell C4). Format as shown in Figure 1. Hint: You have to multiply and / or divide values by 12 to get that result. The approach is shown in project 4 in the textbook.
- 11. Use the fill handle to fill the range A7:A26 with the numbers 1 20.
- 12. Enter the formula =C2 in cell B7 to reference the principal, which is the beginning balance for year 1.
- 13. Enter the =PV function in cell C7 to determine the ending balance for year 1.
- 14. Enter the formula = \$C\$5 * 12 in cell D7 to determine the annual amount paid on the loan.
- 15. Enter the formula = D7 (B7 C7) in cell E7 to calculate the amount of interest paid for the year.
- 16. Enter the formula = C7 in cell B8 to obtain the beginning balance for year 2. Copy this formula to the range B9:B26.
- 17. Copy the =PV function entered in cell C7 to the range C8:C26.
- 18. Copy the formula in cell D7 to the range D8:D26.
- 19. Copy the formula in cell E7 to the range E8:E26. If all is done properly, the value in cell 20 should be zero.
- 20. Use the =SUM function in cells D27 and E27 to sum the payment and interest amounts.
- 21. Format all cells as illustrated in Figure E4A-1.
- 22. In cell A28, enter the label, The Effect of Various Interest Rates. Format this entry the same as the entry in cell A1.
- 23. Enter the following labels: B29 = Rate; C29 = Total Paid; D29 = Total Interest.
- 24. Enter the formula =D27 in cell C30 and the formula =E27 in cell D30.
- 25. Enter and format the interest rates illustrated in Figure 2 into the range B31:B37.
- 26. Use the Table command on the Data menu to create a one-variable data table that displays the total amount paid and the total amount of interest for the 20 year amortization schedule created in this exercise.

- 27. Enter your name in cell A40. In the cells directly beneath your name, enter your course identification, assignment name (CGS1100 Assignment 2), date, and instructor name.
- 28. Rename the Sheet 1 tab to Home Loan.
- 29. Save the workbook using the file name *Yourname*-CGS1100-Assignment2, where *Yourname* is your full name.
- 30. Send this file by e-Mail to my account <u>mhepp@computer.org</u>. The deadline is October 28, 2003, 6:00 p.m.

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F23 - -									
	A	В	С	D	E				
1		Hon	ne Loan S	chedule					
2		Principal	\$125,000		14-Jul-01				
3		Rate	7.2%						
4		Years	20						
5		Payment	984.19	per month					
		Beginning	Ending						
6	Year	Balance	Balance	Total Paid	Interest				
7	1	125,000.00	122,095.14	11,810.24	8,905.38				
8	2	122,095.14	118,974.09	11,810.24	8,689.19				
9	3	118,974.09	115,620.76	11,810.24	8,456.91				
10	4	115,620.76	112,017.86	11,810.24	8,207.34				
11	5	112,017.86	108,146.82	11,810.24	7,939.20				
12	6	108,146.82	103,987.68	11,810.24	7,651.10				
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Figure 1

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F23 =								
	A	В	С	D	E			
26	20	11,362.25	0.00	11,810.24	447.99			
1								
27				236,204.79	111,204.79			
28	T	he Effect -	of Various	s Interest I	Rates			
29		Rate	Total Paid	Total Interest				
30			236,204.79	111,204.79				
31		2.0%						
32		4.0%						
33		8.0%						
34		10.0%						
35		11.0%						
36		12.0%						
37		14.0%						
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Figure 2