

CS 1410 (Intro. to Computer Science) SPRING SEMESTER 2004
Project #4 Due: April 20, 2004

Bayou Savings and Loan decides to provide their customers with loan related calculator, so they can use the calculator to determine the monthly payment, loan amount, and monthly payment table. Your task is to write a C++ program to provide this activity. There are 3 choices for these calculations: find monthly payment, loan amount, and create monthly payment table. Your program should display a menu for these options.

For, the determining monthly payment option: The user must input the values for loan amount, interest rate (%), and number of years to payoff the loan. Use the following formula for this computation:

$$\text{Payment} = \text{Loan amount} \left(\frac{i}{1 - (1 + i)^{-n}} \right)$$

Where i is monthly interest rate and n is number of months to payoff the loan.

For, the determining loan amount option: The user must input the values for monthly payment, interest rate (%), and number of years to payoff the loan. Use the following formula for this computation:

$$\text{Loan amount} = \text{Monthly payment} \left(\frac{1 - (1 + i)^{-n}}{i} \right)$$

Where i is monthly interest rate and n is number of months to payoff the loan.

For, the creating monthly payment table: The user must input the values for loan amount, interest rate (%), and number of years to payoff the loan. Use the following formula for this computation:

$$\text{Payment} = \text{Loan amount} \left(\frac{i}{1 - (1 + i)^{-n}} \right)$$

Where i is monthly interest rate and n is number of months to payoff the loan. Use the above formula to find the first monthly payment, and then find the interest for the first month. Therefore the principle of the first month is the monthly payment subtracted by the first month interest. Repeat this for the rest of the months.

Output the first two options to the screen and the third option to a file called **Table.txt** See the sample I/O printed below.

Turn in a diskette containing the workspace file for this program along with all files needed to compile the program. Also turn in a hard copy (printed copy) of all C++ source code files that are contained in the project. *Be sure your name is contained in the file that contains the **main** function.* Other documentation should include an identifier for the program and a brief paragraph describing the nature and purpose of the program.

Input/Output sample

Choose one option from the Menu:

1. Get monthly payment.
2. Get loan amount.
3. Loan payment table.

Enter your chioce (1, 2, or 3) -->1

***** Calculate Monthly Payment *****

Enter the loan amount -->100000

Enter the interst rate -->6

Enter the number of years to payoff the loan -->15

The monthly payment is \$843.86

The total interest paid is \$51894.23

The total amount paid is \$151894.23

Enter y or Y to continue. -->y

Choose one option from the Menu:

1. Get monthly payment.
2. Get loan amount.
3. Loan payment table.

Enter your chioce (1, 2, or 3) -->2

***** Calculate Loan Amount *****

Enter the monthly payment that you can afford -->1000

Enter the interst rate -->6

Enter the number of years to payoff the loan -->15

The loan amount is \$118503.51

The total interest paid is \$61496.49

The total amount paid is \$180000.00

Enter y or Y to continue. -->y

Choose one option from the Menu:

1. Get monthly payment.
2. Get loan amount.
3. Loan payment table.

Enter your chioce (1, 2, or 3) -->3

***** Loan Payment Table *****

Enter the loan amount -->100000

Enter the interst rate -->6

Enter the number of years to payoff the loan -->15

Enter y or Y to continue. -->n

***** GOOD BYE *****

Sample output file: Table.txt

```
*****  
*****      Monthly Payment Table      *****  
*****
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Payment Number	Monthly Payment	Principle Paid	Interest Paid	Loan Balance
1	843.86	343.86	500.00	99656.14
2	843.86	345.58	498.28	99310.57
.
.
.
179	843.86	835.48	8.38	839.66
180	843.86	839.66	4.20	-0.00