

**CS 1410 (Intro. to Computer Science) - SPRING SEMESTER 2005**  
**Project #2 - Due date: March 9, 2005**

Write a C++ program to compute a monthly payment for a mortgage loan. Your program will ask the user to enter annual interest rate, length of the mortgage, and the amount of the principal. Then compute the monthly payment according to the information that the user entered. Use the following formula to compute the monthly payment:

$$M = P(i / (1 - (1 + i)^{-t}))$$

Where

M is the monthly payment,  
P is the principal value,  
i is the monthly interest rate,  
t is the length of the mortgage in months.

Output the monthly payment including the information the user entered by both displaying on the screen and to a file. *Try to make the input/output from your program correspond as closely as possible to the sample input/output below.*

**Input sample (keyboard and monitor)**

```
***This program calculates a monthly payment for a loan***  
  
Enter the annual interest -->8.5  
  
Enter the number of years for the loan -->30  
  
Enter the principal amount of the loan -->85000
```

**Output sample (monitor)**

```
*****  
*                A MORTGAGE LOAN CALCULATOR                *  
*****  
  
The annual interest rate of your mortgage is 8.50%  
The length of your mortgage is 30 years  
The principal amount of your mortgage is $85000.00  
Your monthly payment is $653.58
```

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 files that are contained in the project. Your source file should start with a comment header as followings:

```
// *****  
// Program Name: Project1.cpp  
// Author: Your Name  
// Class: CS 1410-10793  
// Due Date: October 2, 2003  
// Description: This program does computes a monthly payment  
// for a loan with a specific principal amount and interest  
// rate.  
// *****
```

**Other documentation should include identifiers for the program and a brief paragraph describing the nature and purpose of the program. Use appropriate names and appropriate type for identifiers. Be sure to test your program with lots of sample input sets other than that shown above.**