

CS112 - Intro to Problem Solving and Programming Lab Assignment #3

Summer 2004

The purpose of this assignment is to use looping statements in a C++ program.

For this assignment, you are to write a program that will calculate the value of money in a bank account on a monthly basis. The input to the program be the initial principal (i.e., the amount deposited), the annual interest rate, and the number of months to calculate. The program should then print a table, one line for each month, showing the month number (1, 2, 3, etc.), the starting principal, the amount of interest earned, and the ending principal for the month.

Background information:

Interest rates are usually expressed in annual percent; if the annual rate is i , then the monthly rate will be $\frac{i}{12}$. The amount of interest calculated for each month will be:

$$I = P_0 \left(\frac{i}{12} \right)$$

Where P_0 is the starting principal for the month. This interest is added to the starting principal to produce the ending principal for the month. This amount then becomes the starting principal for the next month.

Example output

Assume that you input an initial principal of \$5000.00, an interest rate of 6%, and a number of months of 24. The output should look similar to the following:

```
Interest Rate Table

Starting Principal of $ 5000.00
Annual interest rate of 6 %
No of months: 24

Month  Starting  Interest  Ending
No.    Principal  Interest  Principal
-----
  1     5000.00    25.00    5025.00
  2     5025.00    25.12    5050.12
  3     5050.12    25.26    5075.38
  .
  .
  .
 24     xxxx.xx    xx.xx    xxxx.xx

Total interest earned: xxx.xx
```