

CSC 15 Chapter 2 lab

Financial application: compound value

Problem: suppose you save \$100 each month into a savings account with the annual interest rate 5%. So the monthly interest rate is $.05/12 = .00417$. The value in the account becomes:

After the first month: $100 + 100 * .00417 = 100.417$

After the second month: $(100 + 100.417) + (100 + 100.417) * .00417 = 201.251$

After the third month: $(100 + 201.251) + (100 + 201.251) * .00417 = 302.507$

And so on. Write a program to display the account value after a given number of months. You will use a for loop to simplify the code and display the information.

Requirements:

Methods:

1. Write a method called "interest" that calculates the amount of the interest for a given rate and amount. **public static double interest(double rate, double amount, double rate)**
2. Write a method called totalSaving that receives a parameter as the number of months and the monthly deposit as its parameter and outputs a table showing the amount of saving for each month. The method interest should be called in this method. Hint: you need a for loop in this method to remove redundancy. **public static void totalSaving(int months, double monthly).**
3. Write a method called "description" that outputs the description of your program along with your name. **public static void description()**
4. Write the main method
 - a. Declare the variables that you need such as rate, monthly deposit, number of months
 - b. Create a for loop that outputs account summary with the monthly deposit of 100, 200, 300 and 400. Refer to the output
 - c. Call the method description
 - d. Call the method totalSaving
5. The numbers in your output must match the numbers provided here.
6. You can design the description output

Sample output:

```
|      Welcome to Your name Finance Company      |
|      This software calculates the monthly and the total saving      |
|      after depositing certain amount of money each month for a given period      |
|_____|

With the monthly deposit of : 100.0
with the annual interest rate of :0.05%
Account summary is:

Interest      Saving
0.42          100.42
0.84          201.25
1.26          302.51
1.68          404.18
2.10          506.28
2.53          608.81

Total amount of interest after 6 months is : 8.811
```

With the monthly deposit of : 200.0
with the annual interest rate of :0.05%
Account summary is:

Interest	Saving
0.83	200.83
1.67	402.50
2.51	605.01
3.35	808.37
4.20	1012.57
5.05	1217.62

Total amount of interest after 6 months is : 17.622

With the monthly deposit of : 300.0
with the annual interest rate of :0.05%
Account summary is:

Interest	Saving
1.25	301.25
2.51	603.76
3.77	907.52
5.03	1212.55
6.30	1518.85
7.58	1826.43

Total amount of interest after 6 months is : 26.433

With the monthly deposit of : 400.0
with the annual interest rate of :0.05%
Account summary is:

Interest	Saving
1.67	401.67
3.34	805.01
5.02	1210.03
6.71	1616.74
8.40	2025.14
10.10	2435.24

Total amount of interest after 6 months is : 35.244
