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CMPT220L

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PROJECT 2

DELIVERABLES

- Analysis:

For this problem, I am creating a program that that calculates the future investment value at an interest rate and investment amount typed in by the user for a specified number of years. In order for the user to be able to put in these values which are the investment amount and the interest rate, I would need to prompt the user to enter the investment amount as well as the interest rate. After the user types in these two values, the output produces the future investment value from the years 1 to 30 with each year linked to its future investment value for that year.

- Design:

1. I imported the java.util.Scanner for user input as well and the java.text.DecimalFormat for decimal conversion.

2. I created a scanner for the user input.

3. I moved on to declare and initialize the variables which were the investment amount, interest rate, and the number of years(n) along with their data types with the number of years having its variable and datatype as: “int n=0”.

4. After this, I printed a statement which prompts the user to input the investment amount and the interest rate in order to produce the future investment value for each year from 1 to 30 years as the output.

5. When this was done, I created a print statement which displays the investment amount and the interest rate along with the values input by the user.

6. After this, I created a for loop to loop 30 times in order to produce an output of the future value from 1 to 30 years. In this for loop I decided to include the equation which calculates the future investment value for one year and include the futureInvestmentValue method as well.

7. The futureInvestmentValue method consists of the investment value, and then the rate which is then multiplied by 0.01/12 to be able to calculate the future investment value in one year.

8. I also represented “i” as 1 which will be added as the for loop keeps repeating till it reaches 30 which is the condition it has to meet.

9. Lastly I called the futureInvestmentValue method and declared the parameters of the method as well as the return value in order build the output of the program being created. In the end, the result which is returned is the future investment value which was calculated using its formula.

10. The formula used: investmentAmount × (1 + monthlyInterestRate)^numberOfYears×12.

- Testing:
  I started of by testing my program with an investment value of: 10000 and an interest rate of: 5% and then with the result produced I looked for the future value of the fifth year and compared the future value from my output with the future value from the output on the problem description and I had the same results. So, I tested my program the second time with an investment value of :1000 and an interest rate of: 9% and the output produced was accurate. For both tests the future values for each were displayed correctly and were displayed from years 1 to 30 and so this ensures that my program works perfectly.