

Student Name: _____
Class and Section _____
Total Points (20 pts) _____
Due: Jan 31, 2011 before the class

Project: Calculating Future Investment Value

CSCI 1301 Introduction to Programming Principles
Armstrong Atlantic State University

Problem Description:

Write a program that reads in investment amount, annual interest rate, and number of years, and displays the future investment value using the following formula:
and displays the future investment value using the following formula:

$$\text{futureInvestmentValue} = \text{investmentAmount} * (1 + \text{monthlyInterestRate})^{\text{numberOfYears} * 12}$$

For example, if you enter amount 1000, annual interest rate 3.25%, and number of years 1, the future investment value is 1032.98.

Hint: Use the Math.pow(a, b) method to compute a raised to the power of b.

Here is a sample run:

Sample 1:

```
Enter investment amount: 1000
Enter annual interest rate: 4.25
Enter number of years: 1
Accumulated value is 1043.34
```

Sample 2:

```
Enter investment amount: 1000
Enter annual interest rate: 4.25
Enter number of years: 1
Accumulated value is 1043.34
```

Analysis:

(Describe the problem including input and output in your own words.)

Design:

(Describe the major steps for solving the problem.)

Coding: (Copy and Paste Source Code here. Format your code using `Courier 10pts`)

[Copy and Paste Your program here]

Testing: (Describe how you test this program)

Submit the following items:

1. Print this Word file and Submit to me before the class on the due day
2. Compile, Run, and Submit to LiveLab as Exercise02_17 (you must submit the program regardless whether it complete or incomplete, correct or incorrect)

Code Solution:

```
public class Test {
    public static void main(String[] args) {
        java.util.Scanner input = new java.util.Scanner(System.in);

        // Enter the investment amount
        System.out.print(
            "Enter the investment amount, for example 120000.95: ");
        double investmentAmount = input.nextDouble();

        // Enter yearly interest rate
        System.out.print("Enter annual interest rate, for example 8.25: ");
        double annualInterestRate = input.nextDouble();

        // Obtain monthly interest rate
        double monthlyInterestRate = annualInterestRate / 1200;

        // Enter number of years
        System.out.print(
            "Enter number of years as an integer, \nfor example 5: ");
        int numOfYear = input.nextInt();

        double futureValue =
            investmentAmount * Math.pow(1 + monthlyInterestRate,
            numOfYear * 12);

        System.out.print("Future value is " +
            (int)(futureValue * 100) / 100.0);
    }
}
```