COMP 111: Assignment # 2

Instructions:

1) You **MUST** do and submit your **OWN** work. There will be a severe penalty in case of plagiarism.
2) No late submission Accepted.
3) Full step is required.

Question # 1: (10 Marks)

(Rectangle Class) Create a class Rectangle with attributes length and width, each of which defaults to 1. Provide methods that calculate the rectangle's perimeter and area. It has set and get methods for both length and width. The set methods should verify that length and width are each floating-point numbers larger than 0.0 and less than 20.0.Write a program to test class Rectangle.

Question # 2: (20 Marks)

(Savings Account Class) Create class SavingsAccount. Use a static variable annualInterestRate to store the annual interest rate for all account holders. Each object of the class contains a private instance variable savingsBalance indicating the amount the saver currently has on deposit. Provide method calculateMonthlyInterest to calculate the monthly interest by multiplying the savingsBalance by annualInterestRate divided by 12—this interest should be added to savings- Balance. Provide a static method modifyInterestRate that sets the annualInterestRate to a new value. Write a program to test class SavingsAccount. Instantiate two savingsAccount objects, saver1 and saver2, with balances of $2000.00 and $3000.00, respectively. Set annualInterestRate to 4%, then calculate the monthly interest for each of 12 months and print the new balances for both savers. Next, set the annualInterestRate to 5%, calculate the next month's interest and print the new balances for both savers.