CSE110: Object Oriented Programming Language
Section: 6

Time: 70 minutes (Problem Solving + Submission)

1. Design a class named Rectangle to represent a rectangle. The class contains:

   ■ Two double data fields named width and height that specify the width and height of the rectangle. The default values are 1 for both width and height.
   ■ A no-arg constructor that creates a default rectangle.
   ■ A constructor that creates a rectangle with the specified width and height.
   ■ A method named getArea() that returns the area of this rectangle.
   ■ A method named getPerimeter() that returns the perimeter.

   Write a test program that creates two Rectangle objects - one with width 4 and height 40 and the other with width 3.5 and height 35.9. Display the width, height, area, and perimeter of each rectangle in this order.

2. Design a class named Account that contains:

   ■ A private int data field named id for the account (default 0).
   ■ A private double data field named balance for the account (default 0).
   ■ A private double data field named monthlyInterestRate that stores the cur-rent interest rate (default 0). Assume all accounts have the same interest rate.
   ■ A no-arg constructor that creates a default account.
   ■ A constructor that creates an account with the specified id and initial balance.
   ■ The setter and getter methods for id, balance, and annualInterestRate.
   ■ A method named getMonthlyInterestRate() that returns the monthly interest rate.
   ■ A method named getMonthlyInterest() that returns the monthly interest.
   ■ A method named withdraw that withdraws a specified amount from the account.
   ■ A method named deposit that deposits a specified amount to the account.

   Write a test program that creates an Account object with an account ID of 1122, a balance of $20,000, and an monthly interest rate of 4.5%. Use the withdraw method to withdraw $2,500, use the deposit method to deposit $3,000, and print the balance, the monthly interest, and the date when this account was created.

Instructions:
1. Make sure you write your student ID and name at the top of your .java file as comment. Then just submit the files in classroom. You do not need to rename them.
2. In no way you are to share your code with anyone during the online. In case of such violation, both the receiver and the provider will be treated as equally responsible and the both will be penalized -100%.