ASSIGNMENT 3 - PROGRAMMING ASSIGNMENTS (Midterm Period)

Instructions:

1. Submit all Java classes through this Edmodo assignment post. If you choose to submit via google drive, make sure it is open/accessible (public) to anyone you share the link, submit the google drive folder link through this Edmodo assignment post.
2. Duplicate/similar programs are not accepted.

PROBLEM #1 (SHAPES): Total number of Java classes to submit is 5.

Create a Java program to compute the area and perimeter (sum of all sides of the object, circle's perimeter is its circumference) of any of the following shapes: Circle , Rectangle, Square and Right Triangle.
Create 1 Java Class for each shape below without main method with the specifications given below.
There should be a constructor for each shape's Java class to set the instance variables value which is passed as argument to the constructor coming from user input.

Object: Circle
States: radius
Behaviors: computeArea() - returns the area of a circle
computeCircumference()

Object: Rectangle
States: length, width
Behaviors: computeArea() - returns the area of a rectangle
computePerimeter()

Object: Square
States: side
Behaviors: computeArea(),
computePerimeter()

Object: RightTriangle
States: base, height
Behaviors: computeArea(),
computePerimeter() - Find first the hypotenuse which is the 3rd (longest) side using the Pythagorean formula. You may use the sqrt() method defined in Math Java class.

Create 1 Java class with main method (5th Java class). In the main method of this Java class present the 4 computation choices to the user, ask the user to select a shape and then compute the area and perimeter(circumference if selected shape is circle) of that selected shape. Allow a user to repeat computing as many times as he/she wishes for any shape using a loop.

PROBLEM #2 (STUDENT ASSESSMENT): Total number of Java classes to submit is 2.

Create a Java program for USTP Academic Solutions Office. The program is a classrecord which will accept as input the following student information: id no., first name, middle name, last name, course, year level, total units, 4 grading scores (declared as 1D array) of same total points, also a user input.

The program computes for the grade of each grading score which is computed as follows: $grading_i = (score_i / total\ points) \times 100$, where $i = 1$ to 4.

Compute the overall grade as follows:

$$overall\ grade = 10\%\ of\ grading_1 + 20\%\ of\ grading_2 + 30\%\ of\ grading_3 + 40\%\ of\ grading_4$$

Create 1 Java class **Student** without main method and 1 Java class **ClassRecord** with main method which accessed the Student class, accepts user inputs, compute the overall grade, compute the whole semester miscellaneous fee and display/output all inputs and computed values. The student may pay the total amount of the miscellaneous fee in 4 installments (during prelim, midterm, prefinal and final exam). After computing for the total amount of the miscellaneous fee, compute the amount to be paid for each 4 installments. The program should be able to compute for at least 5 students.

miscellaneous fee of a student = total units of the student x miscellaneous rate,
where miscellaneous rate is a user input that is the same value for all students in the university.

Specifications of Java class Student:

Fields: all states of object **Student**
Methods: computeMiscellaneous(), computeOverallGrade(), displayInfo() - displays all student's information

Decide which Student fields should be static or instance and use a constructor to initialize instance variables and static initializer to initialize static fields.