

Object Oriented Programming Lab - M2023

Assignment 3

Date: 24-08-2023

Instructions

1. Submit the files via individual google classroom.
3. **Your code will be checked for plagiarism.**

Questions

Problem 1

Write a program to create a student class containing roll number, name, grade, year of study, and branch as private variables. There should be a constructor to initialize the variables and a public function to set the values of these variables, another set of functions to return the value of these variables (separate function for getting the value of each variable).

In the main function, create three objects of the student and write if else if conditions to find the student having the highest grade.

Attach a single .java file with all the required classes and Screenshot (jpg/png) of program execution with sample output.

Problem -2

Write static methods

- public static double cubeVolume(double h)
- public static double cubeSurface(double h)
- public static double sphereVolume(double r)
- public static double sphereSurface(double r)
- public static double cylinderVolume(double r, double h)
- public static double cylinderSurface(double r, double h)
- public static double coneVolume(double r, double h)
- public static double coneSurface(double r, double h)

that compute the volume and surface area of a cube with height h, sphere with radius r, a cylinder with circular base with radius r and height h, and a cone with circular base with radius r and height h. Place them into a class Geometry. Then write a program that prompts the user for the values of r and h, calls the six methods, and prints the results. Attache Screenshot (jpg/png) of program execution with sample output.

Attach a single .java file with all the required classes and Screenshot (jpg/png) of program execution with sample output.

Problem -3

Write a Java program to implement a Banking Application. The application should create and manipulate 'Account' objects. The following operations should be available:

- a. Account creation
- b. Account Balance checking
- c. Credit and Debit operations
- d. Account Login

This should be done before performing the operations b-d. Login should be based on account number and password.

All accounts should have the following attributes:

- a. Account number
- b. Account name
- c. Password
- d. Balance

Note:

- Don't use unnecessary print statements in your program. For all the banking operations, use the account number for the identification of accounts.
- Use proper scope for all members of any classes.
- You may take input from the users. Do not have to use an array of objects. You can have around 5 accounts.

What to turn in for problem 3

1. **BankApplication_S2022XXXXXXX.java** (filename with your roll number) which will contain the following classes

- a. Class Account
- b. Class BankApplication

2. Print account details of a customer by printing account number, account name and account balance. You are also suggested to show credit and debit output of the customer. A Screenshot (jpg/png) of program execution with sample output.

3. **DO NOT ZIP**. Submit the files directly.