CSE 1007 - Programming in JAVA

Assessment - 1 .

L 5+L56 - Time : 11.30 - 1.00 Date : 15/02/2021
Faculty : Prof. A. Anitha

General Instruction:

At the end of the document, the question number allotted to each student is available. Please select your question and start the exam

1. Write a program to identify common elements or numbers between two given arrays. You should not use any inbuilt methods are list to find common values.

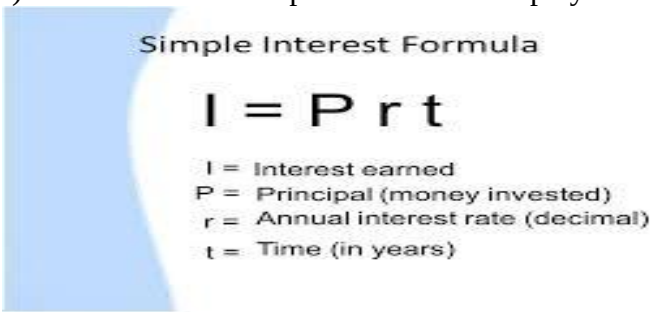
2. Find out the duplicate number in an array and display the resultant array.

3. Develop a program to simulate a Simple Banking System in which the initial balance and the rate of interest are read from the keyboard and these values are also initialized using the constructor. The program should consist of the following methods:
a) To initialize the balance and the rate of interest using constructor.
b) create an interface called getinterest() to calculate the compound and simple interest.
b) To find the compound interest. The Formula to find the compound interest is given below

$$P_t = P_0\left(1+\frac{i}{n}\right)^{nt}$$

P_t : Principle at time t
P_0 : Principle at time 0
i : Interest Rate
n : Number of compounding periods
t : Number of years the investment earns interest

c) To calculate the simple interest and display the balance amount



4. Research several car-pooling websites:

Create an application that calculates your daily driving cost, so that you can estimate how much money could be saved by carpooling, which also has other advantages such as reducing carbon emissions and reducing traffic congestion. The application should input the following information and display the user's cost per day of driving to work:
a)Total miles driven per day.
b)Cost per gallon of gasoline.
c)Average miles per gallon.
d)Parking fees per day.
e)Tolls per day.

5. Create a complex class with data members as real and imaginary. Overload three constructors to initialize the data members (i.e. default, normal, and through object initialization).Provide methods which returns object of the complex class as the result for addition, subtraction, multiplication of two complex numbers.

6. Write a program to maintain the office database using single inheritance. Super class is Employee that contain the information as follows- Emp_code, Emp_name, Address, Ph_no, Da-10%, Hra-20%. Create three subclasses as Manager, Typist, officer where each class having their own basic pay & da, hra remain same. Get the details of at least 3 record of each subclasses

7. Write a program to declare & instantiate an 2D-array to hold marks obtained by students in different subjects in a class. Assume that there are up to 10 students in a class & there are 5 subjects. Find out the best student according to average marks of all subjects and display all the marks of him/her.

8. Create a super class **Point** with two instance variable x and y which indicate the x-y coordinates of the point. It contains a default constructor which initializes a point in origin and a parameterized constructor which initializes a user-specified point.

   Create a sub class **Line** that extends Point class. The constructor of Line class, should create a new Point object to denote the end point of the line The starting point of the line is automatically created when it extends the Point class.

   A new class **Triangle** inherits the Line class.
   Write a program to create the triangle from the origin and another triangle which takes input from the user. Now change the Point class to abstract class. Call the methods using the object of triangle class.

********** ALL THE BEST **********

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18BCE0842	NAIR VIGNESH UNNIKRISHNAN	8
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