CS/IT 253 Object Oriented Programming Lab

Week 1: Fundamentals of classes and objects.

Write a programme by creating a class "Employee" with the following methods and printing the final salary of employees. (Using Array of Objects).

1 - 'getInfo()' which takes the input as name , id , salary, number of hours of work per day of employees.

2 - 'AddSal()' which adds $10 to salary of the employees if it is less than $500.

3 - 'AddWork()' which adds $5 to salary of employees if the number of hours of work per day is more than 6 hours.

Week 2: static keyword, this keyword, variable length arguments and Command line arguments.

i. Write a java program to demonstarate a static keyword.
ii. Write a java program to demonstarate this keyword.
iii. Write a java program to demonstarate a varible length arguments.
iv. Write a java program to demonstarate a commanad line arguments.

Week 3: inner classes, constructor overloading.

i. Write a program for the following: an inner class named Inner is defined within the scope of class Outer. Therefore, any code in class Inner can directly access the variable outer_x. An instance method named display( ) is defined inside Inner. This method displays outer_x on the standard output stream. The main( ) method of InnerClassDemo creates an instance of class Outer and invokes its test( ) method. That method creates an instance of class Inner and the display( ) method is called.

ii. Write a Java program that displays the time in different formats in the form of HH, MM, SS using constructor Overloading.

Week 4: Types of inheritances.

i. Write a java program for the following: Create a class employee which takes input as name, id and designation and create an another class salary which takes input as Basic pay (BP), House Rent Allowance (HRA), Dearness Allowance(DA) and Provident Found (PF) and inherits the members of class employee. Print the Net Pay of each employee using the reademp() in employee class and readsalary() , calculatesalary() and displayemp() methods in salary class. (np = bp + hra + da – pf)

ii. Write a java program for the following: Assume that the test results of a batch of students are stored in three different classes. Class student stores the name, roll-number and class test stores the marks obtained in six subjects and class result contains the total marks obtained in the test. The class result can inherit the details of the marks obtained in the test and the name, roll number of students through Multi level inheritance.

iii. Write a java program for the following: **employee** is the parent class which is common for all the sub or child classes both the **permanent_employee class** and **temporary_employee class**. Use the read_emp() method in

employee class which reads the name, id and salary. And use the print_emp() method in both **permanent_employee class** and **temporary_employee class** which prints the details of name ,id and incremented salary details.(if employee is temporary then increment the salary 3.5% of the given salary and if employee is permanent then increment the salary 5% of the given salary).

Week 5: Method overloading, Method Overriding, usage of final and super.

i. Write a Java Program to compute the area of "room", using method overloading. (Area of room=length X Breadth) (Consider method with no parameters,method with single parameter and method with two parameters).

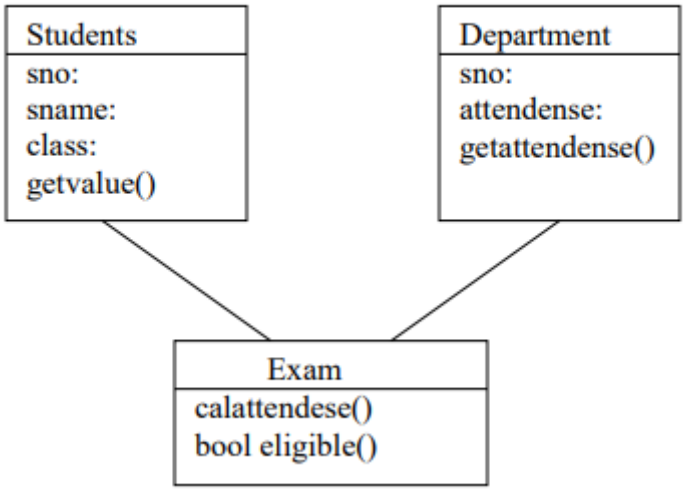
ii. Write a program to create a superclass called Figure that stores the dimensions of a two-dimensional object. It also defines a method called area( ) that computes the area of an object. The program derives two subclasses from Figure. The first is Rectangle and the second is Triangle. Each of these subclasses overrides area( ) so that it returns the area of a rectangle and a triangle.

iii. Write a Java Program to demonstrate a final keyword.

Week 6: Abstract classes, interfaces, Dynamic method dispatch.

i. Write a java program to create an abstract class named Shape that contains two integers / doubles and an empty method named printArea(). Provide three classes named Rectangle, Triangle and Circle such that each one of the classes extends the class Shape. Each one of the classes contain only the method printArea( ) that prints the area of the given shape.

ii. Write a java program to find the details of the students eligible to enroll for the examination (Students, Department combinedly give the eligibility criteria for the enrollement class) using interfaces.



Week 7

- Write a java program to implement access protection in Packages.

Week 8

- Write a JAVA program for example of try and catch block. In this check whether the given array size is negative or not.

  DESCRIPTION: Program explains exceptions using try and catch block. In the try block array is created. Check the array size is negative or not. If the array size is positive then it will be display array size otherwise, it throws an error like java.lang.NegativeArraySizeException

Week 9

- Write a java program that implements a multi-thread application that has three threads. First thread generates random integer every 1 second and if the value is even, second thread computes the square of the number and prints. If the value is odd, the third thread will print the value of cube of the number.

Week 10

- Write a java program for passing parameters to Applets.

Week 11

- Write a java program to implement Graphics class and color class.

Week 12

- Write a java program for handling mouse events.
- Write a java program for handling key events.

Week 13

- Write a java program to develop SWING components.

Week 14

- Generic Implementation: Write a java program to find the maximum and minimum values from the given type of elements using generics.

  ALGORITHM:

  1. Start
  2. Create a class Myclass to implement generic class and generic methods.
  3. Get the set of the values belonging to specific data type.
  4. Create the objects of the class to hold integer, character and double values.
  5. Create the method to compare the values and find the maximum value stored in the array.

6. Invoke the method with integer, character or double values. The output will be displayed based on the data type passed to the method.

7. Stop