Pandit Deendayal Energy University

Gandhinagar

Object Oriented Programming in Java

Name: Dev Sapariya

Roll no.: 21BCP293

Branch: Computer Science Engineering (Division 5, Group 9)

Course Code: 20CP204P

Module 1

Question 1:

Write a program which will greet you with your name.

Code

```
public class Q1{
    public static void main(String[] args) {
        System.out.println("Have A Nice Day Dev");
    }
}
```

Input/Output

```
D:\College\Sem 3\Labs\Java\Final\module_1>javac Q1.java

D:\College\Sem 3\Labs\Java\Final\module_1>java Q1
Have A Nice Day Dev
```

Question 2:

Write a program which will print greeting message for your 5 friends. Friends name should be entered as command line arguments.

Code

```
public class Q2 {
    public static void main(String[] args) {
        System.out.println("Have A Nice Day "+args[0]);
        System.out.println("Have A Nice Day "+args[1]);
        System.out.println("Have A Nice Day "+args[2]);
        System.out.println("Have A Nice Day "+args[3]);
        System.out.println("Have A Nice Day "+args[4]);

    }
}
```

Index

9	Print following diamond pattern :
	
	  *
	
	 * *
	
	 * * *
	
	* * * *
	
	 * * *
	
	  * *
	
	  *

10	Write a program to accept a line and check how many consonants and vowels are there in line.
11	Write a program to count the number of words that start with capital letters.
12	Create a class which ask the user to enter a sentence, and it should display count of each vowel type in the sentence. Display the total count of each vowel and digits for all sentences.
13	Write a program which will perform following functionality on String: a) convert to uppercase b) convert to lowercase c) count total words d) substring e) If String ends with Java then concat standardEdition to it f) trim g) string length h) Check weather two strings are equal or not.
14	Perform addition and multiplication of two matrix.
15	Write a program which will overload method calculateArea which calculates area of different shapes like circle, rectangle and square.
16	Write a program which will demonstrate the java.util.Arrays class methods like sort, copyOf, copyOfRange, fill, binarySearch, equals, toString etc.
17	Write a program which will make calculator application. Use Math class methods like pow, abs, max, min, exp, log, sqrt, cbrt, sin etc...

Sr no	Topic
	Module 2
	Public and Private access specifiers
1	An EmployeeDetail Class Which Take the Employ Detail
	Constructer Overloading
2	A Product Class Which overload the constructor
3	Write program to create a class naming "Employee".Having instance fields empId, hoursOfWork and rates. Provide default constructor, parameterized constructor, copy constructor, getter/ setter methods.Instance method naming getNetIncome() calculates salary of an Employee.Extends class SalesPerson from Employee. Add one more instance field to SalesPerson as salesAmount.Override getNetIncome. Provide necessary constructors and getter/setter methods.Call base class constructor from SalesPerson constructor.Write test class, which will create objects of above mentioned classes, copy the objects with copy constructor and call methods.Use appropriate access specifiers.(private, protected and public).
4	A class of a Bank Account
	Abstract Class, Inheritance, Runtime Polymorphism
5	Write a class naming BankAccount.Provide three instance method withdraw, deposit and transfer. Instance fields accid, balance.Extends SavingsAccount and CurrentAccount class from BankAccount.Override withdraw method in both these classes. Provide necessary default constructor, parameterized constructor, copy constructor, getter/ setter methods in all three classes. Write one test class to test above mentioned classes.
6	Describe abstract class called TwoDShape having two instance fields length and width. Create default constructor, parameterized constructor, copy constructor. Getter and setter method. abstract int getArea(); It has three subclasses say Triangle, Rectangle, and Square. Override getArea() method in these three subclasses to calculate area for specific object i.e. getArea() of Triangle subclass should calculate area of triangle etc. Same for Rectangle and Square.

Copy Constructor, Return the Object	
7	Create an abstract class called Measurement. Having two instance field unit1 and unit2.Create default constructor, parameterized constructor, copy constructor. Getter and setter method. Instance method abstract Measurement getDifference(Measurement, Measurement). abstract method void printMeasurement(); Create a class called HeightMeasurement and extends Measurement implements all abstract methods. Create a class called DistanceMeasurement() extends Measurement implements all abstract methods. Create a test class.
Interface	
8	Interface Example
9	abstact class Residency instance fields :name, rNumber, area, unit_rate provide all overloaded constructor including copy constructor provide necessary getter/setter method. abstract long getPriceOfResidency(); override toString() and equals() method from Object class. create abstract class naming Semi_FurnishedResidency extends Residency. instance field - furnitureCharge, parkingCharge create class LuxuriousResidency extends Residency. instance field - amenityCharge override long getPriceOfResidency(). create interface naming Rentable - abstract public int getRent(); create TwoBHKResidency extends Semi_FurnishedResidency implements Rentable. override long getPriceOfResidency(). override int getRent().
Pass by Value and Variable Argument	
10	Pass By Value Example
11	Variable Argument Example
Package	
12	Example of using package in Residency Class

Module 3	
Exception	
1	Division By Zero Exception
2	Number Format Exception
3	A box class to Show the Checked Exception
4	A Triangle Class To show the Unchecked Exception
5	Nested Try Catch Block