**CHAROTAR UNIVERSITY OF SCIENCE & TECHNOLOGY**

**DEVANG PATEL INSTITUTE OF ADVANCE TECHNOLOGY & RESEARCH**

Department of Computer Science & Engineering

**Subject Name: JAVA**

**Semester: 3rd**

**Subject Code: CSE201**

**Academic year: 2024-2025**

**Part - 3** : **Object Oriented Programming: Classes, Methods, Constructors**

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| **No.** | **Aim of the Practical** |
| 12. | Imagine you are developing a currency conversion tool for a travel agency. This tool should be able to convert an amount in Pounds to Rupees. For simplicity, we assume the conversion rate is fixed: 1 Pound = 100 Rupees. The tool should be able to take input both from command-line arguments and interactively from the user.  **PROGRAM CODE :**  import java.util.Scanner;  class poundconvert  {  public static void main(String a[])  {  int x=Integer.parseInt(a[0]);  int y=x\*100;  System.out.println("The value is rupees is: "+y);  }  }  **OUTPUT:**    **CONCLUSION:**  By this code I learnt to use parse integer and to convert pounds into rupees . |
| 13. | Create a class called Employee that includes three pieces of information as instance variables—a first name (type String), a last name (type String) and a monthly salary (double). Your class should have a constructor that initializes the three instance variables. Provide a set and a get method for each instance variable. If the monthly salary is not positive, set it to 0.0. Write a test application named EmployeeTest that demonstrates class Employee’s capabilities. Create two Employee objects and display each object’s yearly salary. Then give each Employee a 10% raise and display each Employees yearly salary again.  **PROGRAM CODE :**  import java.util.Scanner;  class Emp  {  Scanner s=new Scanner(System.in);  String fs;  String ls;  double sal;    Emp()  {  }    Emp(String f,String l,double s)  {  fs=f;  ls=l;  sal=s;  }    void setfs()  {  System.out.println("Enter the first name of employee: ");  fs=s.nextLine();  }    void setls()  {  System.out.println("Enter the last name of employee: ");  ls=s.nextLine();  }    void setsal()  {  System.out.println("Enter the salary of employee: ");  sal=s.nextDouble();  if(sal<0)  {  sal=0.0;  }    }  double newsal()  {  sal=sal+(0.1\*sal);  System.out.println("The raise in salary is :");  return sal;  }  String getfs()  {  return fs;  }  String getls()  {  return ls;  }    double getsal()  {  return sal;  }      }  class Emptest  {  public static void main(String a[])  {  Emp e1=new Emp();  Emp e2=new Emp();  e1.setfs();  e1.setls();  e1.setsal();  e2.setfs();  e2.setls();  e2.setsal();  System.out.println(e1.getfs());  System.out.println(e1.getls());  System.out.println(e1.getsal());  System.out.println(e1.newsal());  String fname=e2.getfs();  String lname=e2.getls();  double salary=e2.getsal();  System.out.println(fname);  System.out.println(lname);  System.out.println(salary);  System.out.println(e2.newsal());    }  }  **OUTPUT:**    **CONCLUSION:**  By this experiment I learnt that how to use gets and sets function in java and how to call by object. |
| 14. | Create a class called Date that includes three pieces of information as instance variables—a month (type int), a day (type int) and a year (type int). Your class should have a constructor that initializes the three instance variables and assumes that the values provided are correct. Provide a set and a get method for each instance variable. Provide a method displayDate that displays the month, day and year separated by forward slashes (/). Write a test application named DateTest that demonstrates class Date’s capabilities.  **PROGRAM CODE:**  import java.util.Scanner;  class date  {  Scanner s=new Scanner(System.in);  int d,m,y;  date()  {}  date(int date,int month,int year)  {  d=date;  m=month;  y=year;  }  void setd()  {  System.out.println("Enter date: ");  d=s.nextInt();  }  void setm()  {  System.out.println("Enter month: ");  m=s.nextInt();  }  void sety()  {  System.out.println("Enter year: ");  y=s.nextInt();  }  int getd()  {  return d;  }  int getm()  {  return m;  }  int gety()  {  return y;  }  void displayDate()  {  System.out.println(d+"/"+m+"/"+y);  }  }  class dateTest  {  public static void main(String a[])  {  date d1=new date();  d1.setd();  d1.setm();  d1.sety();  d1.displayDate();  }  }  **OUTPUT:**    **CONCLUSION:**  By this experiment I learnt how to use constructor ,methods classes and objects in java etc. |
| 15. | Write a program to print the area of a rectangle by creating a class named 'Area' taking the values of its length and breadth as parameters of its constructor and having a method named 'returnArea' which returns the area of the rectangle. Length and breadth of rectangle are entered through keyboard.  **PROGRAM:**  import java.util.Scanner;  class area  {  Scanner s=new Scanner(System.in);  int l,b;  area()  {}  area(int len,int bred)  {  l=len;  b=bred;  }  int returnarea()  {  return l\*b;  }  }  class rectTest  {  public static void main(String a[])  {  rect r1=new rect(5,7);  System.out.println("The area is: "+r1.area());  }  }  **OUTPUT:**  **CONCLUSION:**  By this experiment I learnt how to use default contructor and paramitarized constructor in java. |
| 16. | Print the sum, difference and product of two complex numbers by creating a class named  ‘Complex’ with separate methods for each operation whose real and imaginary parts are entered by user.  **PROGRAM:**  import java.util.Scanner;  class complex  {  Scanner s=new Scanner(System.in);  int r,i;    void readdata()  {  System.out.println("Enter r: ");  r=s.nextInt();  System.out.println("Enter i: ");  i=s.nextInt();  }  void sum(complex c)  {  int sumr=r+c.r;  int sumi=i+c.i;  System.out.println("The sum is: "+sumr+"+"+sumi+"i");  }  void sub(complex c)  {  int subr=r-c.r;  int subi=i-c.i;  System.out.println("The difference is: "+subr+"+"+subi+"i");  }  void mul(complex c)  {  int mulr=r\*c.r;  int muli=i\*c.i;  System.out.println("The product is: "+mulr+"+"+muli+"i");  }    }  class complexTest  {  public static void main(String a[])  {      complex c1=new complex();  complex c2=new complex();  c1.readdata();  c2.readdata();  c1.sum(c2);  c1.sub(c2);  c1.mul(c2);  }  }  **OUTPUT:**    **CONCLUSION:**  This Java code provides a user-friendly way to work with complex numbers. You can enter two complex numbers, and the program calculates their sum, difference, and product, presenting the results in a clear format. |