Java Programming [CSE201] Enrolment No.:23DCS012

CHAROTAR UNIVERSITY OF SCIENCE & TECHNOLOGY

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

Department of Computer Science & Engineering

Subject Name: Java Programming

Semester: 3rd

Subject Code: CSE201

Academic year: 2024-25

Part - 3

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| **No.** | **Object Oriented Programming: Classes, Methods, Constructors** |
| 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:**  public class prec12 {      public static void main(String []args)      {          int a = Integer.parseInt(args[0]);            int c = a\*100;          System.out.println(c + " Pound");      }  }  **OUTPUT:**    **CONCLUSION:** Learnt about the working of command line argument. |
| 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 Employee’s yearly salary again.  **PROGRAM CODE:**  import java.util.Scanner;  class employee {      String fn, ln;      double salary;      Scanner s = new Scanner(System.in);      employee() {      }        employee(String f, String l, double sl) {          fn = f;          ln = l;          salary = sl;      }      void setfirstname()      {          System.out.println("Enter Employee's First Name : ");          fn=s.nextLine();      }      void setlastname()      {          System.out.println("Enter Employee's Last Name : ");          ln=s.nextLine();      }      void setsalary()      {          System.out.println("Enter Employee's Salary : ");          salary=s.nextDouble();          if(salary<0)          {              salary=0;          }      }      String getfirstname()      {          return fn;      }      String getlastname()      {          return ln;      }      double getsalary()      {          return salary;      }  }  public class prec13 {      public static void main(String[] args) {          employee e1=new employee();          employee e2=new employee();          e1.setfirstname();          e1.setlastname();          e1.setsalary();          System.out.println("First Name : " + e1.getfirstname());          System.out.println("Last Name : " + e1.getlastname());          System.out.println("Salary : " + e1.getsalary());          System.out.println("New Salary : " + (e1.getsalary()+(e1.getsalary()\*0.1)));          System.out.println("-------------------------------------------------------------------------");          e2.setfirstname();          e2.setlastname();          e2.setsalary();          System.out.println("First Name : " + e2.getfirstname());          System.out.println("Last Name : " + e2.getlastname());          System.out.println("Salary : " + e2.getsalary());          System.out.println("New Salary : " + (e2.getsalary()+(e2.getsalary()\*0.1)));      }  }  **OUTPUT:**    **CONCLUSION:** In this practical we learnt about constructors and methods. |
| 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 {      int date, month, year;      Scanner s = new Scanner(System.in);      date() {      }      date(int dt, int m, int ye) {          date = dt;          month = m;          year = ye;      }      void setdate() {          System.out.println("Enter Date : ");          date = s.nextInt();      }      void setmonth() {          System.out.println("Enter Month : ");          month = s.nextInt();      }      void setyear() {          System.out.println("Enter Year : ");          year = s.nextInt();      }      void putdate() {          System.out.println(date + "/" + month + "/" + year);      }  }  public class prec14 {      public static void main(String[] args) {          date d1 = new date();          d1.setdate();          d1.setmonth();          d1.setyear();          d1.putdate();      }  }  **OUTPUT:**    **CONCLUSION:** In this practical we created class by which we can see date in DD/MM/YY format. |
| 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 CODE:**  class area {      int length, breadth;      area() {      }      area(int len, int brth) {          length=len;          breadth=brth;      }      int getarea()      {          return length\*breadth;      }  }  public class prec15 {      public static void main(String[] args) {          area a1=new area(50, 20);          System.out.println("Area : "+ a1.getarea());      }  }  **OUTPUT:**    **CONCLUSION:** In this practical we created a class by which we can calculate area of rectangle. |
| 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 CODE:**  import java.util.Scanner;  class complex  {      int r,i;      Scanner s=new Scanner(System.in);      void getvalue()      {          System.out.println("Enter Real Part ");          r=s.nextInt();          System.out.println("Enter Imaginary Part ");          i=s.nextInt();      }      void add(complex cx)      {          int sumr=r+cx.r;          int sumi=i+cx.i;          System.out.println("Sum :" + sumr + "+" + sumi + "i");      }      void sub(complex cx)      {          int sumr=r-cx.r;          int sumi=i-cx.i;          System.out.println("Subtraction :" + sumr + "+" + sumi + "i");      }      void mul(complex cx)      {          int sumr=(r\*cx.r)-(i\*cx.i);          int sumi=(r\*cx.r)+(i\*cx.i);          System.out.println("multiplication :" + sumr + "+" + sumi + "i");      }  }  public class prec16 {      public static void main(String[] args) {          complex c1=new complex();          complex c2=new complex();          c1.getvalue();          c2.getvalue();          c1.add(c2);          c1.sub(c2);          c1.mul(c2);          }  }  **OUTPUT:**    **CONCLUSION:** In this practical we created a class by which we can do addition, subtraction and multiplication of complex numbers. |