1. **Write a Java Program to calculate area and perimeter of the circle and triangle using multilevel inheritance**

**import java.util.Scanner;**

**public class Perimeter**

**{**

**int r, l, b, s1, s2, s3;**

**double pi = 3.14,perimeter;**

**Scanner s = new Scanner(System.in);**

**void circle()**

**{**

**System.out.print("Enter radius of circle:");**

**r = s.nextInt();**

**perimeter = 2 \* pi \* r;**

**System.out.println("Perimeter of circle:"+perimeter);**

**}**

**void rectangle()**

**{**

**System.out.print("Enter length of rectangle:");**

**l = s.nextInt();**

**System.out.print("Enter breadth of rectangle:");**

**b = s.nextInt();**

**perimeter = 2 \* (l + b);**

**System.out.println("Perimeter of rectangle:"+perimeter);**

**}**

**void triangle()**

**{**

**System.out.print("Enter length of first side of triangle:");**

**s1 = s.nextInt();**

**System.out.print("Enter length of second side of triangle:");**

**s2 = s.nextInt();**

**System.out.print("Enter length of third side of triangle:");**

**s3 = s.nextInt();**

**perimeter = s1 + s2 + s3;**

**System.out.println("Perimeter of triangle:"+perimeter);**

**}**

**public static void main(String[] args)**

**{**

**Perimeter obj = new Perimeter();**

**obj.circle();**

**obj.rectangle();**

**obj.triangle();**

**}**

**}**

4**. Write a Java Program to find number of uppercase and lowercase characters , blank spaces , digits and special characters from input string.**

**import java.io.\*;**

**class StringInfo**

**{**

**static String n;**

**static int l;**

**public static void main(String args[]) throws IOException**

**{**

**BufferedReader br = new BufferedReader(new InputStreamReader(System.in));**

**// Read the String**

**System.out.print("Enter a String : ");**

**n = br.readLine();**

**l = n.length();**

**find();**

**}**

**public static void find()**

**{**

**int a=0,b=0,c=0,d=0,e=0;**

**char ch;**

**for(int i=0;i<l;i++)**

**{**

**ch = n.charAt(i);**

**if(ch>=65 && ch<=90) // Condition for Uppercase letters**

**a++;**

**if(ch>='a' && ch <='z')**

**b++;**

**if(ch>='0' && ch<='9')**

**c++;**

**if(ch=='A' || ch=='E' || ch=='I' || ch=='O' || ch=='U' ||**

**ch=='a' || ch=='e' || ch=='i' || ch=='o' || ch=='u')**

**d++;**

**if(ch==' ') // Condition for spaces**

**e++;**

**}**

**System.out.println("\nNo. of Uppercase letters = " +a);**

**System.out.println("\nNo.of Lowercase letters = " +b);**

**System.out.println("\nNo. of Numerals = " +c);**

**System.out.println("\nNo. of Vowels = " +d);**

**System.out.println("\nNo. of Spaces = " +e);**

**System.out.println("\nNo. of Special Characters = "+(l-(a+b+c+e)));**

**}**

**}**

**5. Write a Java program to perform division of two numbers accepted from the user. Handle the IOException, NumberFormatException and ArithmeticException using multiple try, catch blocks**

import java.io.\* ;

public class FinallyPractice1

{

public static void main(String [] a) throws IOException

{

BufferedReader stdin=new BufferedReader(new InputStreamReader(System.in));

String inData; int num=0, div=0;

try

{ System.out.println("Enter the numerator:");

inData=stdin.readLine();

div=Integer.parseInt(inData);

System.out.println("Enter the divisor:");

inData=stdin.readLine();

div=Integer.parseInt(inData);

System.out.println(num+"/"+div+" is "+(num/div));

}

catch(ArithmeticException ae)

{

System.out.println("ArithmeticException by " + div);

}

catch(ArrayIndexOutOfBoundsException ae)

{

System.out.println("You can't divide "+ num + " by " + div);

}

catch(NumberFormatException ae)

{

System.out.println("NumberException");

}

finally

{

System.out.println("If the division didn't work, you entered bad data.");

}

System.out.println("Good-by");

}

}

**6.Write applets to draw a human face(smiley face)**

**import java.applet.\*;  
import java.awt.\*;  
  
/\* <applet code = "face" width = 300 height = 300> </applet> \*/  
  
public class face extends Applet  
{  
public void paint(Graphics g)  
{  
g.setColor (Color.yellow);  
g.fillOval (100,100,100,100);  
g.setColor (Color.black);  
g.fillOval (120,125,20,30);  
g.fillOval (160,125,20,30);   
g.setColor (Color.black);  
g.drawLine (150,165,150,150);  
g.setColor (Color.red);  
g.fillRect (130,170,40,10);  
g.setColor (Color.black);  
g.drawLine (131,174,169,174);  
}  
}**

**7. Develop an applet that receives three numbers from the user and then displays the larger of the three on the screen. Write a HTML page and test the applet.**

**/\* <applet code="MaxOf3No" height=150 width=400> </applet> \*/**

**import java.awt.\*;**

**import java.applet.\*;**

**publicclass MaxOf3No extends Applet**

**{**

**TextField T1,T2,T3;**

**publicvoid init(){**

**T1 = new TextField(10);**

**T2 = new TextField(10);**

**T3 = new TextField(10);**

**add(T1);**

**add(T2);**

**add(T3);**

**T1.setText("0");**

**T2.setText("0");**

**T3.setText("0");**

**}**

**publicvoid paint(Graphics g){**

**int a, b, c,result;**

**String str;**

**g.drawString("Enter value to Check the Maximum of 3 ",10,50);**

**str=T1.getText();**

**a=Integer.parseInt(str);**

**str=T2.getText();**

**b=Integer.parseInt(str);**

**str=T3.getText();**

**c=Integer.parseInt(str);**

**g.setColor(Color.blue);**

**if (a>b) {**

**if (a>c)**

**result=a;**

**else**

**result=c;**

**}**

**else{**

**if (b>c)**

**result=b;**

**else**

**result=c;**

**}**

**g.drawString("Maximnum of 3 No is "+result,10,70);**

**showStatus("MAXIMUM OF 3 NUMBERS");**

**}**

**public boolean action(Event e, Object o){**

**repaint();**

**returntrue;**

**}**

**}**

**9. Write a program that has two threads . One of the threads displays the even numbers 30 while the other displays odd numbers upto 30.**

public class Driver {

static Object lock = new Object();

public static void main(String[] args) {

Thread t1 = new Thread(new Runnable()

{

public void run()

{

for (int itr = 1; itr < 51; itr = itr + 2) {

synchronized (lock) {

System.out.print(" " + itr);

try {

lock.notify();

lock.wait();

} catch (InterruptedException e) {

e.printStackTrace();

}

}

}

}

});

Thread t2 = new Thread(new Runnable() {

public void run() {

for (int itr = 2; itr < 51; itr = itr + 2) {

synchronized (lock) {

System.out.print(" " + itr);

try {

lock.notify();

if(itr==50)

break;

lock.wait();

} catch (InterruptedException e) {

e.printStackTrace();

}

}

}

}

});

try {

t1.start();

t2.start();

t1.join();

t2.join();

System.out.println("\nPrinting over");

} catch (Exception e) {

}

}

}

**14. Write a Java method to count all vowels in a string.**

**import java.util.Scanner;**

**public class Exercise4 {**

**public static void main(String[] args)**

**{**

**Scanner in = new Scanner(System.in);**

**System.out.print("Input the string: ");**

**String str = in.nextLine();**

**System.out.print("Number of Vowels in the string: " + count\_Vowels(str)+"\n");**

**}**

**public static int count\_Vowels(String str)**

**{**

**int count = 0;**

**for (int i = 0; i < str.length(); i++)**

**{**

**if (str.charAt(i) == 'a' || str.charAt(i) == 'e' || str.charAt(i) == 'i'**

**|| str.charAt(i) == 'o' || str.charAt(i) == 'u')**

**{**

**count++;**

**}**

**}**

**return count;**

**}**

**}**

**17. Write a Program to compute area of a Rectangle and Square by using abstract class**

**import java.util.Scanner;**

**abstract class calcArea {**

**abstract void findTriangle(double b, double h);**

**abstract void findRectangle(double l, double b);**

**abstract void findSquare(double s);**

**abstract void findCircle(double r);**

**}**

**class findArea extends calcArea {**

**void findTriangle(double b, double h)**

**{**

**double area = (b\*h)/2;**

**System.out.println("Area of Triangle: "+area);**

**}**

**void findRectangle(double l, double b)**

**{**

**double area = l\*b;**

**System.out.println("Area of Rectangle: "+area);**

**}**

**void findSquare(double s)**

**{**

**double area = s\*s;**

**System.out.println("Area of Square: "+area);**

**}**

**void findCircle(double r)**

**{**

**double area = 3.14\*r\*r;**

**System.out.println("Area of Circle: "+area);**

**}**

**}**

**class area {**

**public static void main(String args[])**

**{**

**double l, b, h, r, s;**

**findArea area = new findArea();**

**Scanner get = new Scanner(System.in);**

**System.out.print("\nEnter Base & Vertical Height of Triangle: ");**

**b = get.nextDouble();**

**h = get.nextDouble();**

**area.findTriangle(b, h);**

**System.out.print("\nEnter Length & Breadth of Rectangle: ");**

**l = get.nextDouble();**

**b = get.nextDouble();**

**area.findRectangle(l, b);**

**System.out.print("\nEnter Side of a Square: ");**

**s = get.nextDouble();**

**area.findSquare(s);**

**System.out.print("\nEnter Radius of Circle: ");**

**r = get.nextDouble();**

**area.findCircle(r);**

**}**

**}**

**18. Write a program to generate Fibonacci series using constructor.**

**20. Define a class Time . It stores the time in hours and minutes . Create two objects of Time and find the difference in time between two objects using member functions**

**import java.io.\*;**

**class Time{**

**int hrs,mins;**

**Time()**

**{ DataInputStream ds1=new DataInputStream(System.in) ;**

**DataInputStream ds2=new DataInputStream(System.in) ;**

**try{**

**System.out.println("No of Hours : ");**

**hrs=Integer.parseInt(ds1.readLine() );**

**System.out.println("No of Minutes : ");**

**mins=Integer.parseInt(ds2.readLine() );**

**}**

**catch( Exception e)**

**{}**

**while(mins>=60)**

**{ hrs+=1;**

**mins-=60;**

**}}}**

**class Timedifference{**

**public static void main( String args [] )**

**{ System.out.println("Enter the Time 1 ");**

**Time t1=new Time();**

**System.out.println("Enter the Time 2 ");**

**Time t2=new Time();**

**System.out.println("Time 1 : ");**

**TimePrint(t1.hrs,t1.mins);**

**System.out.println("Time 2 : ");**

**TimePrint(t2.hrs,t2.mins);**

**System.out.println("---------------Time Difference-------------- ");**

**DifferenceInTime(t1.hrs ,t2.hrs ,t1.mins ,t2.mins);**

**}**

**static void DifferenceInTime(int t1,int t2,int m1,int m2)**

**{int total\_hrs=0,total\_mins=0;**

**if (t1>t2 )**

**{**

**System.out.println("Time 1 is more than time 2 ");**

**total\_hrs=t1-t2;**

**if(m1>=m2)**

**total\_mins=m1-m2 ;**

**else {total\_hrs-=1;**

**total\_mins=60-m2;**

**}**

**}**

**else if (t1<t2)**

**{**

**System.out.println("Time 2 is more than time 1 ");**

**total\_hrs=t2-t1;**

**if(m1>=m2)**

**total\_mins=m1-m2 ;**

**else {total\_hrs-=1;**

**total\_mins=60-m2;**

**}**

**}**

**else**

**{**

**if (m1>m2)**

**{**

**System.out.println("Time 1 is more than time 2 ");**

**total\_hrs=t1-t2;**

**total\_mins=m1-m2;**

**}**

**else if (m1<m2)**

**{**

**System.out.println("Time 2 is more than time 1 ");**

**total\_hrs=t1-t2;**

**total\_mins=m2-m1;**

**}**

**else**

**System.out.println("No Time Difference");**

**}**

**if(t1!=t2 || m1!=m2)**

**{**

**TimePrint(total\_hrs,total\_mins);**

**}**

**}**

**static void TimePrint(int h,int m){**

**System.out.println( "Time ( hrs : mins ) "+h+ " : " +m);**

**}**

**}**

**23. Write a program to check whether the given string is palindrome**

**import java.util.\*;**

**class finding**

**{**

**String str,reverse\_str="";**

**int i;**

**finding()**

**{**

**System.out.print("Enter any string:");**

**Scanner in=new Scanner(System.in);**

**str = in.nextLine();**

**}**

**void reversing()**

**{**

**int len\_str = str.length();**

**for(i=len\_str-1;i>=0;i--)**

**reverse\_str = reverse\_str+str.charAt(i);**

**System.out.println("Hence reverse of the string is:"+reverse\_str);**

**}**

**void display()**

**{**

**if(str.equals(reverse\_str))**

**System.out.println("Given string " + str + "  is palindrome");**

**else**

**System.out.println("Given string "+ str +" is not palindrome");**

**}**

**}**

**class strpalin**

**{**

**public static void main(String a[])**

**{**

**finding ob=new finding();**

**ob.reversing();**

**ob.display();**

**}**

**}**

**28. Write a program to add and subtract two matrices.**

**package matrix;**

**import java.util.Scanner;**

**public class MatrixSubtraction {**

**public static void main(String...args) {**

**Scanner scanner = new Scanner(System.*in*);**

**System.*out*.print("Enter number of rows in matrix : "); //rows and columns in matrix1 and matrix2 must be same for subtraction.**

**int rows = scanner.nextInt();**

**System.*out*.print("Enter number of columns in matrix : ");**

**int columns = scanner.nextInt();**

**int[][] matrix1 = new int[rows][columns];**

**int[][] matrix2 = new int[rows][columns];**

**System.*out*.println("Enter the elements in first matrix :");**

**for (int i = 0; i < rows; i++) {**

**for (int j = 0; j < columns; j++) {**

**matrix1[i][j] = scanner.nextInt();**

**}**

**}**

**System.*out*.println("Enter the elements in second matrix :");**

**for (int i = 0; i < rows; i++) {**

**for (int j = 0; j < columns; j++) {**

**matrix2[i][j] = scanner.nextInt();**

**}**

**}**

**//Subtraction of matrices.**

**int[][] resultMatix = new int[rows][columns];**

**for (int i = 0; i < rows; i++) {**

**for (int j = 0; j < columns; j++) {**

**resultMatix[i][j] = matrix1[i][j] - matrix2[i][j];**

**}**

**}**

**System.*out*.println("\nFirst matrix is : ");**

**for (int i = 0; i < rows; i++) {**

**for (int j = 0; j < columns; j++) {**

**System.*out*.print(matrix1[i][j] + " ");**

**}**

**System.*out*.println();**

**}**

**System.*out*.println("\nSecond matrix is : ");**

**for (int i = 0; i < rows; i++) {**

**for (int j = 0; j < columns; j++) {**

**System.*out*.print(matrix2[i][j] + " ");**

**}**

**System.*out*.println();**

**}**

**System.*out*.println("\nThe subtraction of the two matrices is : ");**

**for (int i = 0; i < rows; i++) {**

**for (int j = 0; j < columns; j++) {**

**System.*out*.print(resultMatix[i][j] + " ");**

**}**

**System.*out*.println();**

**}   } }**

**29. Write a program to delete an element in an array**

**import java.util.Scanner;**

**public class JavaProgram**

**{**

**public static void main(String args[])**

**{**

**int size, i, del, count=0;**

**int arr[] = new int[50];**

**Scanner scan = new Scanner(System.in);**

**System.out.print("Enter Array Size : ");**

**size = scan.nextInt();**

**System.out.print("Enter Array Elements : ");**

**for(i=0; i<size; i++)**

**{**

**arr[i] = scan.nextInt();**

**}**

**System.out.print("Enter Element to be Delete : ");**

**del = scan.nextInt();**

**for(i=0; i<size; i++)**

**{**

**if(arr[i] == del)**

**{**

**for(int j=i; j<(size-1); j++)**

**{**

**arr[j] = arr[j+1];**

**}**

**count++;**

**break;**

**}**

**}**

**if(count==0)**

**{**

**System.out.print("Element Not Found..!!");**

**}**

**else**

**{**

**System.out.print("Element Deleted Successfully..!!");**

**System.out.print("\nNow the New Array is :\n");**

**for(i=0; i<(size-1); i++)**

**{**

**System.out.print(arr[i]+ " ");**

**}**

**}**

**}**

**}**

**30. Write a program to transpose a matrix**

**package matrix;**

**import java.util.Scanner;**

**/\*\* Copyright (c), AnkitMittal  JavaMadeSoEasy.com \*/**

**public class TransposeMatrix {**

**public static void main(String...args) {**

**Scanner scanner = new Scanner(System.*in*);**

**System.*out*.println("Enter number of rows in matrix : ");**

**int rows = scanner.nextInt();**

**System.*out*.print("Enter number of columns in matrix : ");**

**int columns = scanner.nextInt();**

**int matrix[][] = new int[rows][columns];**

**System.*out*.println("Enter the elements in matrix :");**

**for (int i = 0; i < rows; i++) {**

**for (int j = 0; j < columns; j++) {**

**matrix[i][j] = scanner.nextInt();**

**}**

**}**

**//transpose matrix**

**int transpose[][] = new int[columns][rows];**

**for (int i = 0; i < rows; i++) {**

**for (int j = 0; j < columns; j++)**

**transpose[j][i] = matrix[i][j];**

**}**

**System.*out*.println("\nEntered Matrix is : ");**

**for (int i = 0; i < rows; i++) {**

**for (int j = 0; j < columns; j++) {**

**System.*out*.print(matrix[i][j] + " ");**

**}**

**System.*out*.println();**

**}**

**System.*out*.println("\nTranspose of entered matrix is : ");**

**for (int i = 0; i < columns; i++) {**

**for (int j = 0; j < rows; j++)**

**System.*out*.print(transpose[i][j] + " ");**

**System.*out*.println();**

**}**

**}**

**}**

**31. Write a program to swap contents of two arrays**

**import java.util.Scanner;**

**public class SwappingTwoArrays {**

**public static void main(String[] args) {**

**Scanner input\_size = new Scanner(System.in);**

**System.out.println("Enter the Size of Arrays : ");**

**int size = input\_size.nextInt();**

**int[] array1 = new int[size], array2 = new int[size], buffer = new int[size];**

**Scanner sc = new Scanner(System.in);**

**System.out.println("Enter the First Array of Elements: ");**

**for (int i = 0; i < size; i++) {**

**array1[i] = sc.nextInt();**

**}**

**System.out.println("Enter the Second Array of Elements: ");**

**for (int i = 0; i < size; i++) {**

**array2[i] = sc.nextInt();**

**}**

**System.out.println("Before Swapping");**

**System.out.println("First Array: ");**

**for (int i = 0; i < size; i++) {**

**System.out.print(array1[i]);**

**}**

**System.out.println("\nSecond Array: ");**

**for (int i = 0; i < size; i++) {**

**System.out.print(array2[i]);**

**}**

**for (int i = 0; i < size; i++) {**

**buffer[i] = array1[i];**

**array1[i] = array2[i];**

**array2[i] = buffer[i];**

**}**

**System.out.println("\nArrays after Swapping");**

**System.out.println("First Array: ");**

**for (int i = 0; i < size; i++) {**

**System.out.print(array1[i]);**

**}**

**System.out.println("\nSecond Array: ");**

**for (int i = 0; i < size; i++) {**

**System.out.print(array2[i]);**

**}**

**}**

**}**

**32. To write a java program to print the Armstrong numbers.**

**import java.io.\*;**

**class arms**

**{**

**public static void main(String args[])**

**{**

**DataInputStream ds=new DataInputStream(System.in);**

**int i=1;**

**int copy=0,sum=0;**

**int n=0,d=0;**

**try**

**{**

**System.out.println("Enter a Number");**

**n=Integer.parseInt(ds.readLine());**

**}**

**catch (Exception e)**

**{**

**}**

**for(i=100;i<=1000;i++)**

**{**

**copy=i;**

**while(i!=0)**

**{**

**d=i%10;**

**sum=sum+d\*d\*d;**

**i=i/10;**

**}**

**if(copy==sum)**

**{**

**System.out.println("Armstrong Number="+copy);**

**}**

**}**

**}**

**}**

**34. To write a java program to display total marks of 5 students using student class. Given the following attributes: Regno(int), Name(string), Marks in subjects(Integer Array), Total (int).**

**import java.io.\*;  
class Student  
{  
int rollno;  
String name;  
int number\_of\_subjects;  
int mark[];**

**Student(int roll,String stud\_name,int noofsub)throws IOException  
{  
rollno=roll;  
name=stud\_name;  
number\_of\_subjects= noofsub;  
getMarks(noofsub);  
}  
public void getMarks(int nosub ) throws IOException  
{  
mark=new int[nosub];  
BufferedReader br= new BufferedReader (new InputStreamReader(System.in));  
for (int i=0; i<nosub;i++)  
{  
System.out.println(“Enter “+i+”Subject Marks.:=> “);  
mark[i]=Integer.parseInt(br.readLine());  
System.out.println(“”);  
}**

**}  
public void calculateMarks()  
{  
double percentage=0;  
String grade;  
int tmarks=0;  
for (int i=0;i<mark.length;i++)  
{  
tmarks+=mark[i];  
}  
percentage=tmarks/number\_of\_subjects;  
System.out.println(“Roll Number :=> “+rollno);  
System.out.println(“Name Of Student is :=> “+name);  
System.out.println(“Number Of Subject :=> “+number\_of\_subjects);  
System.out.println(“Percentage Is :=> “+percentage);**

**if (percentage>=70)  
System.out.println(“Grade Is First Class With Distinction “);  
else if(percentage>=60 && percentage<70)  
System.out.println(“Grade Is First Class”);  
else if(percentage>=50 && percentage<60)  
System.out.println(“Grade Is Second Class”);  
else if(percentage>=40 && percentage<50)  
System.out.println(“Grade Is Pass Class”);  
else  
System.out.println(“You Are Fail”);  
}  
}  
class StudentDemo  
{  
public static void main(String args[])throws IOException  
{  
int rno,no,nostud;  
String name;  
BufferedReader br= new BufferedReader (new InputStreamReader(System.in));  
System.out.println(“Enter How many Students:=> “);  
nostud=Integer.parseInt(br.readLine());  
Student s[]=new Student[nostud];**

**for(int i=0;i<nostud;i++)  
{  
System.out.println(“Enter Roll Number:=> “);  
rno=Integer.parseInt(br.readLine());  
System.out.println(“Enter Name:=> “);  
name=br.readLine();  
System.out.println(“Enter No of Subject:=> “);  
no=Integer.parseInt(br.readLine());  
s[i]=new Student(rno,name,no);  
}  
for(int i=0;i<nostud;i++)  
{  
s[i].calculateMarks();  
}**

**}  
}**

**36. To write a java program to define a class that represent Complex numbers with constructor to enable an object of this class to be initialized when it is declared and a default constructor when no argument is provided and define methods to do the following by passing objects as arguments**

1. **Addition of two Complex numbers**
2. **Subtraction of two Complex numbers**
3. **Printing the Complex numbers in the form (a, b).**

**import java.io.\*;**

**class complex**

**{**

**int real,imag;**

**complex()**

**{**

**DataInputStream ds = new DataInputStream (System.in);**

**try**

**{**

**System.out.println("enter first number");**

**real=Integer.parseInt(ds.readLine());**

**imag=Integer.parseInt(ds.readLine());**

**}**

**catch(Exception e)**

**{}**

**}**

**void Add(complex ob)**

**{**

**real=real+ob.real;**

**imag=imag+ob.imag;**

**System.out.println("result=\t"+real+"\t+j"+imag);**

**}**

**void Sub(complex ob)**

**{**

**real=real-ob.real;**

**imag=imag-ob.imag;**

**System.out.println("result=\t"+real+"\t+j"+imag);**

**}**

**void Mult(complex ob)**

**{**

**real=real\*(ob.real);**

**imag=imag\*ob.imag;**

**System.out.println("result=\t"+real+"\t+j"+imag);**

**}**

**void Div(complex ob)**

**{**

**real=real/ob.real;**

**imag=imag/ob.imag;**

**System.out.println("result=\t"+real+"\t+j"+imag);**

**}**

**}**

**class passobj**

**{**

**public static void main(String args[])**

**{**

**int ch=0;**

**complex c1=new complex();**

**complex c2=new complex();**

**DataInputStream ds = new DataInputStream(System.in);**

**try**

**{**

**System.out.println("enter a OPTION");**

**ch=Integer.parseInt(ds.readLine());**

**}**

**catch(Exception e)**

**{**

**}**

**switch(ch)**

**{**

**case 1: c1.Add(c2);**

**break;**

**case 2: c1.Sub(c2);**

**break;**

**case 3: c1.Mult(c2);**

**break;**

**case 4: c1.Div(c2);**

**break;**

**default: System.out.println("invalid input");**

**}**

**}**

**}**

**\\(program is incomplete)**

**37. To write a java program to create a Player class and inherit three classes Cricket\_Player, Football\_Palyer and Hockey\_Player.**

**class player  
{  
String name;  
int age;  
player(String n,int a)  
{ name=n; age=a; }  
void show()  
{  
System.out.println("\n");  
System.out.println("Player name : "+name);  
System.out.println("Age : "+age);  
}  
}  
class criket\_player extends player  
{  
String type;  
criket\_player(String n,String t,int a)  
{  
super(n,a);  
type=t;  
}  
public void show()  
{  
super.show();  
System.out.println("Player type : "+type);  
}  
}  
class football\_player extends player  
{  
String type;  
football\_player(String n,String t,int a)  
{  
super(n,a);  
type=t;  
}  
public void show()  
{  
super.show();  
System.out.println("Player type : "+type);**

**}  
}  
class hockey\_player extends player  
{  
String type;  
hockey\_player(String n,String t,int a)  
{  
super(n,a);  
type=t;  
}  
public void show()  
{  
super.show();  
System.out.println("Player type : "+type);  
}  
}  
//--------- main -----------  
class s04\_02  
{  
public static void main(String args[])  
{  
criket\_player c=new criket\_player("Ameer","criket",25);  
football\_player f=new football\_player("arun","foot ball",25);  
hockey\_player h=new hockey\_player("Ram","hockey",25);  
c.show();  
f.show();  
h.show();  
}  
}**

**40. Write a Program to define a class Complex to represent a complex number and perform addition and subtraction operations on complex numbers . Pass objects as argument.**

**import java.io.\*;**

**class complex**

**{**

**int real,imag;**

**complex()**

**{**

**DataInputStream ds = new DataInputStream (System.in);**

**try**

**{**

**System.out.println("enter first number");**

**real=Integer.parseInt(ds.readLine());**

**imag=Integer.parseInt(ds.readLine());**

**}**

**catch(Exception e)**

**{}**

**}**

**void Add(complex ob)**

**{**

**real=real+ob.real;**

**imag=imag+ob.imag;**

**System.out.println("result=\t"+real+"\t+j"+imag);**

**}**

**void Sub(complex ob)**

**{**

**real=real-ob.real;**

**imag=imag-ob.imag;**

**System.out.println("result=\t"+real+"\t+j"+imag);**

**}**

**}**

**class passobj**

**{**

**public static void main(String args[])**

**{**

**int ch=0;**

**complex c1=new complex();**

**complex c2=new complex();**

**DataInputStream ds = new DataInputStream(System.in);**

**try**

**{**

**System.out.println("enter a OPTION");**

**ch=Integer.parseInt(ds.readLine());**

**}**

**catch(Exception e)**

**{**

**}**

**switch(ch)**

**{**

**case 1: c1.Add(c2);**

**break;**

**case 2: c1.Sub(c2);**

**break;**

**default: System.out.println("invalid input");**

**}**

**}**

**}**

**41. Write a program to search an element in an array.**

import java.io.\*;

class array

{

public static void main(String args[])

{

int a[];

int d=0,i=0;

a=new int[10];

DataInputStream ds=new DataInputStream(System.in);

try

{

System.out.println("ENTER ELEMENTS OF ARRAY");

for(i=0;i<a.length;i++)

{

a[i]=Integer.parseInt(ds.readLine());

}

System.out.println("ENTER A NUMBER");

d=Integer.parseInt(ds.readLine());

}

catch (Exception e)

{

}

for(i=0;i<a.length;i++)

{

if (a[i]==d)

{

System.out.println("NUMBER IS FOUND AT"+(i+1));

}

}

}

}

**42. Write a program to determine the greater of the two numbers using method overloading**

**import java.io.\*;**

**class overload**

**{**

**int no1,no2;**

**void object(int a,int b)**

**{**

**no1=a;**

**no2=b;**

**}**

**double object(double a,double b)**

**{**

**if(a>b)**

**{**

**System.out.println("no1 is greater"+a);**

**return a;**

**}**

**else**

**{**

**System.out.println("no2 is greater"+b);**

**return b;**

**}**

**}**

**}**

**class greater**

**{**

**public static void main(String args[])**

**{**

**overload c1=new overload();**

**c1.object(10,20);**

**c1.object(10.0,20.0);**

**}**

**}**

**43. Write a program to check whether the matrix is symmetric or not..**

**import java.util.Scanner;**

**public class SymmetricMatrixProgram**

**{**

**public static void main(String[] args)**

**{**

**Scanner sc = new Scanner(System.in);**

**System.out.println("Enter the no. of rows : ");**

**int rows = sc.nextInt();**

**System.out.println("Enter the no. of columns : ");**

**int cols = sc.nextInt();**

**int matrix[][] = new int[rows][cols];**

**System.out.println("Enter the elements :");**

**for (int i = 0; i < rows; i++)**

**{**

**for (int j = 0; j < cols; j++)**

**{**

**matrix[i][j] = sc.nextInt();**

**}**

**}**

**System.out.println("Printing the input matrix :");**

**for (int i = 0; i < rows; i++)**

**{**

**for (int j = 0; j < cols; j++)**

**{**

**System.out.print(matrix[i][j]+"\t");**

**}**

**System.out.println();**

**}**

**//Checking the input matrix for symmetric**

**if(rows != cols)**

**{**

**System.out.println("The given matrix is not a square matrix, so it can't be symmetric.");**

**}**

**else**

**{**

**boolean symmetric = true;**

**for (int i = 0; i < rows; i++)**

**{**

**for (int j = 0; j < cols; j++)**

**{**

**if(matrix[i][j] != matrix[j][i])**

**{**

**symmetric = false;**

**break;**

**}**

**}**

**}**

**if(symmetric)**

**{**

**System.out.println("The given matrix is symmetric...");**

**}**

**else**

**{**

**System.out.println("The given matrix is not symmetric...");**

**}**

**}**

**sc.close();**

**}**

**}**

**44. Write a program to print string representation of the number.**

**import java.io.\*;**

**import java.lang.\*;**

**class ArrString**

**{**

**public static void main(String args[])**

**{**

**String s[]={"zero","one","two","three","four","five","six","seven","eight","nine"};**

**int n=0,i=0;**

**DataInputStream ds=new DataInputStream(System.in);**

**try**

**{**

**System.out.println("Enter the no");**

**n=Integer.parseInt(ds.readLine());**

**}**

**catch(Exception e)**

**{}**

**for(i=0;i<s.length;i++)**

**{**

**if(n==i)**

**{**

**System.out.println(" "+s[i]);**

**}**

**}**

**}**

**}**