**Course Outcome 1 (CO1):**

**1. Define a class ‘product’ with data members pcode, pname and price. Create 3 objects of**

**the class and find the product having the lowest price.**

public class Product {

    int pcode,pprice;

    String pname;

    Product(int a,int b,String c){

        pcode=a;

        pprice=b;

        pname=c;

    }

    public int lowest(){

        return pprice;

    }

    public void display(){

        System.out.println("product code:"+pcode);

        System.out.println("product name:"+pname);

         System.out.println("product code:"+pprice);

    }

    public static void main(String[] args) {

        Product p1=new Product(1001,5000,"Bag");

        Product p2= new Product(1002,12000,"watch");

        Product p3=new Product(1003,120,"book");

        if(p1.lowest() < p2.lowest()){

            if(p1.lowest() < p3.lowest()){

              // System.out.println("lowest"+p1.lowest());

              System.out.println("Produtc having lowest price :\n");

               p1.display();

            }

            else{

               //System.out.println("lowest"+p3.lowest());

                System.out.println("Produtc having lowest price :\n");

                p3.display();

            }

        }

        else if (p2.lowest( ) < p3.lowest()){

           // System.out.println("lowest"+p2.lowest());

            System.out.println("Produtc having lowest price :\n");

            p2.display();

        }

        else{

         //   System.out.println("lowest"+p3.lowest());

          System.out.println("Produtc having lowest price :\n");

            p3.display();

        }

    }

}

OUTPUT

Produtc having lowest price :

product code:1003

product name:book

product code:120

**2. Read 2 matrices from the console and perform matrix addition.**

import java.util.Scanner;

public class Matrix\_obj {

    int row,col;

    int m[][]=new int[10][10];

    Matrix\_obj(int r,int c){

    row=r;

    col=c;

    }

    public void readMat(){

        Scanner sc=new Scanner(System.in);

        System.out.println("Enter the elements for matrix");

        for(int i=0;i<row;i++){

            for(int j=0;j<col;j++){

                m[i][j]=sc.nextInt();

            }

        }

    }

    public void printMat(){

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

        for(int i=0;i<row;i++){

            for(int j=0;j<col;j++){

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

            }

            System.out.println();

        }

    }

    public void add(Matrix\_obj m2){

        int sum[][]=new int[row][col];

         if(this.row!=m2.row && this.col!=m2.col){

             System.out.println("\nAddition not possible");

    }

         else{

             for(int i=0;i<row;i++){

            for(int j=0;j<col;j++){

               sum[i][j]=this.m[i][j]+m2.m[i][j];

            }

        }

             System.out.println("\nMatrix after addition :\n");

             for(int i=0;i<row;i++){

            for(int j=0;j<col;j++){

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

            }

            System.out.println();

        }

         }

    }

    public static void main(String[] args) {

        int m,n,p,q;

        Scanner sc =new Scanner(System.in);

        System.out.println("Enter the no of rows and cols for first matrix");

        m=sc.nextInt();

        n=sc.nextInt();

       Matrix\_obj m1=new Matrix\_obj(m,n);

       m1.readMat();

       m1.printMat();

        System.out.println("Enter the no of rows and cols for second matrix");

        p=sc.nextInt();

        q=sc.nextInt();

       Matrix\_obj m2=new Matrix\_obj(p,q);

       m2.readMat();

       m2.printMat();

       m1.add(m2);

    }

}

OUTPUT

Enter the no of rows and cols for first matrix

3

3

Enter the elements for matrix

1

4

5

6

7

3

2

9

8

The matrix is:

1 4 5

6 7 3

2 9 8

Enter the no of rows and cols for second matrix

3

3

Enter the elements for matrix

2

4

5

1

6

7

8

3

1

The matrix is:

2 4 5

1 6 7

8 3 1

Matrix after addition :

3 8 10

7 13 10

10 12 9

**3. Add complex numbers**

import java.util.Scanner;

public class Complexnum {

    int real,img;

    Complexnum(){

    }

    Complexnum(int realn,int imgn){

        real=realn;

        img=imgn;

    }

    public Complexnum add(Complexnum c1,Complexnum c2){

        Complexnum c=new Complexnum();

        c.real=c1.real+c2.real;

        c.img=c1.img+c2.img;

        return c;

    }

    public static void main(String[] args) {

        int real1,img1,real2,img2;

        Scanner sc=new Scanner(System.in);

        System.out.println("Enter first number real part");

        real1=sc.nextInt();

        System.out.println("Enter the first number imaginary part");

        img1=sc.nextInt();

        System.out.println("Enter second number real part");

        real2=sc.nextInt();

        System.out.println("Enter the second number imaginary part");

        img2=sc.nextInt();

        Complexnum c1=new Complexnum(real1,img1);

        Complexnum c2=new Complexnum(real2,img2);

        Complexnum c3=new Complexnum();

        c3=c3.add(c1,c2);

        System.out.println("\ncomplex no 1:"+real1+"+i"+img1);

        System.out.println("\ncomplex no 2:"+real2+"+i"+img2);

        System.out.println("\nThe sum of numbers = "+c3.real+"+i"+c3.img);

    }

}

OUTPUT

Enter first number real part

3

Enter the first number imaginary part

7

Enter second number real part

5

Enter the second number imaginary part

9

complex no 1:3+i7

complex no 2:5+i9

The sum of numbers = 8+i16

**4. Create CPU with attribute price. Create inner class Processor (no. of cores, manufacturer)and static nested class RAM (memory, manufacturer). Create an object of CPU and print information of Processor and RAM.**

public class Cpu {

    double price;

    class Processor{

        double cores;

        String manufacturer;

        double getCache(){

            return 4.3;

        }

    }

    protected class RAM{

        double memory;

        String manufacturer;

        double getClockSpeed(){

            return 5.5;

        }

    }

    public static void main(String[] args) {

        Cpu cpu = new Cpu();

        Cpu.Processor processor = cpu.new Processor();

        Cpu.RAM ram = cpu.new RAM();

        System.out.println("Processor Cache = " + processor.getCache());

        System.out.println("Ram Clock speed = " + ram.getClockSpeed());

    }

    }

OUTPUT

Processor Cache = 4.3

Ram Clock speed = 5.5

**Course Outcome 2 (CO2)**

1. **Program to Sort strings.**

import java.util.Scanner;

import java.util.Arrays;

public class StringSort {

     int n;

     String temp;

     String a[]=new String[10];

     Scanner sc=new Scanner(System.in);

    StringSort(int size){

        n=size;

    }

    public void read(){

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

        for(int i=0;i<n;i++){

          a[i]=sc.nextLine();

        }

    }

    public void sort(){

        for(int i=0;i<n;i++){

            for(int j=i+1;j<n;j++){

                if(a[i].compareTo(a[j])>0){

                    temp = a[i];

                    a[i] = a[j];

                    a[j] = temp;

                }

            }

        }

        System.out.println("\n Sorted Strings:");

        for(int i=0;i<n;i++){

            System.out.println("\n"+a[i]);

        }

    }

    public static void main(String[] args) {

        int n;

        Scanner sc=new Scanner(System.in);

        System.out.println("Enter the no of strings");

        n=sc.nextInt();

        StringSort s1=new StringSort(n);

        s1.read();

        s1.sort();

    }

}

OUTPUT

Enter the no of strings

4

Enter the strings:

Ann

Zyan

Monica

Ross

Sorted Strings:

Ann

Monica

Ross

Zyan

**2. Perform string manipulations**

import java.util.Scanner;

public class StringManip {

    String str1,str2;

    StringManip(String s1){

        str1=s1;

    }

    public void strLen(){

        System.out.println("The length of string :"+str1.length());

    }

    public void strConcat(){

        System.out.println("Concatenated String 'HELLO':"+(str1.concat("HELLO")));

    }

    public void charpos(){

        System.out.println("Character at position 3 in string:"+(str1.charAt(2)));

    }

    public void compare(){

        System.out.println("Compare to 'JAVA '"+(str1.compareTo("JAVA")));

    }

    public static void main(String[] args) {

        String str;

        Scanner sc =new Scanner(System.in);

        System.out.println("Enter the String");

        str=sc.nextLine();

        StringManip s1=new StringManip(str);

                s1.strLen();

                s1.strConcat();

                s1.charpos();

                s1.compare();

    }

}

OUTPUT

Enter the String

Welcome

The length of string :7

Concatenated String 'HELLO':welcomeHELLO

Character at position 3 in string:l

Compare to 'JAVA '45

**3. Program to create a class for Employee having attributes eNo, eName eSalary. Read n**

**employ information and Search for an employee given eNo, using the concept of Array of**

**Objects.**

import java.util.Scanner;

public class Emp

{

int eno;

String ename;

double esalary;

public void Emp(int no,String s,double sal)

{

eno=no;

ename=s;

esalary=sal;

}

void getdata()

{

Scanner sc=new Scanner(System.in);

System.out.println("enter employee id,:");

eno=sc.nextInt();

System.out.println("enter employee name :");

ename=sc.next();

System.out.println("enter employee salary:");

esalary=sc.nextDouble();

}

void display()

{

System.out.println("employee id is : "+ eno);

System.out.println("employee name is : "+ ename);

System.out.println("employee salary is : "+ esalary);

}

public static void main(String[] args)

{

int a,i,fl;

System.out.println("enter the number of employees:");

Scanner sc1=new Scanner(System.in);

int n=sc1.nextInt();

Emp e1[]=new Emp[n];

for(i=0;i<n;i++)

{

System.out.println("Enter details of employee "+(i+1));

e1[i]=new Emp();

e1[i].getdata();

}

System.out.println("Employee details are:");

for ( i = 0; i <n; i++)

{

System.out.println("details of employee "+i+ "are:");

e1[i].display();

}

System.out.println("Enter employe id to be searched for:");

a=sc1.nextInt();

for(i=0;i<n;i++)

{

if(a==e1[i].eno)

{

fl=1;

break;

}

}

System.out.println("details of corresponding employee are:");

e1[i].display();

}

}

OUTPUT

enter the number of employees:

2

Enter details of employee 1

enter employee id,:

101

enter employee name :

Joseph

enter employee salary:

30000

Enter details of employee 2

enter employee id,:

102

enter employee name :

Priya

enter employee salary:

35000

Employee details are:

details of employee 0are:

employee id is : 101

employee name is : Joseph

employee salary is : 30000.0

details of employee 1are:

employee id is : 102

employee name is : Priya

employee salary is : 35000.0

Enter employe id to be searched for:

102

details of corresponding employee are:

employee id is : 102

employee name is : Priya

employee salary is : 35000.0

**Course Outcome 3(CO3):**

**1. Area of different shapes using overloaded functions**

import java.util.Scanner;

public class ShapesOver {

    float side,length,breadth;

    double radius;

    public void area(float s){

        side=s;

        System.out.println("Area of square :"+(side\*side));

    }

    public void area(float l,float b){

        length=l;

        breadth=b;

        System.out.println("Area of rectangle :"+(length\*breadth));

    }

    public void area(double r){

        double area;

        radius=r;

        area=2\*Math.PI\*radius;

        System.out.println("Area of circle :"+Math.round(area));

    }

    public static void main(String[] args) {

        float l,b,s;

        double r;

        Scanner sc=new Scanner(System.in);

        ShapesOver s1=new ShapesOver();

        System.out.println("enter the side of square");

        s=sc.nextFloat();

         System.out.println("enter the length and breadth of rectangle");

         l=sc.nextFloat();

         b=sc.nextFloat();

        System.out.println("enter the radius of circle");

        r=sc.nextDouble();

        s1.area(s);

        s1.area(l,b);

        s1.area(r);

    }

}

OUTPUT

enter the side of square

4

enter the length and breadth of rectangle

3

7

enter the radius of circle

6

Area of square :16.0

Area of rectangle :21.0

Area of circle :38

**2. Create a class ‘Person’ with data members Name, Gender, Address, Age and a constructor to initialize the data members and another class ‘Employee’ that inherits the properties of class Person and also contains its own data members like Empid, Company\_name, Qualification, Salary and its own constructor. Create another class ‘Teacher’ that inherits the properties of class Employee and contains its own data members like Subject, Department, Teacherid and also contain constructors and methods to display the data members. Use array of objects to display details of N teachers.**

import java.util.Scanner;

class Person{                        // first class

String Name, Gender , Address ;

protected int Age ;

public Person ( ) {

}

public Person ( String n , String g , String addr , int a )  //constructor1

{

this . Name = n ;

this . Gender = g ;

this . Address =addr ;

this . Age = a ;

}

public void displayPerson ( ) {

System.out.println ( "\nName: "+Name ) ;

System.out.println ( "Gender : " + Gender ) ;

System.out.println ( " Address : " + Address ) ;

System.out.println ( "Age : " + Age ) ;

}

}

class Employee extends Person {                  // class 2

int Empid , Salary ;

String Companyname , Qualification ;

public Employee ( ) {

}

public Employee ( String n , String g , String addr , int a , int eid , String cname , String qual , int sal)  //constr2

{

super ( n , g , addr , a ) ;    // calling parent class constructor==>person()

Empid = eid ;

Companyname = cname ;

Qualification= qual ;

Salary = sal ;

}

public void displayEmployee ( ) {

super . displayPerson ( ) ;           //parent class func

System.out.println ( "Empid : "+Empid ) ;

System.out.println ( "Company name : " + Companyname ) ;

System.out.println( " Qualification : " + Qualification ) ;

System.out.println ( " Salary : " + Salary ) ;

}

}

class Teacher1 extends Employee{                //class3

String Subject , Department ;

int Teacherid ;

public Teacher1 ( String n , String g , String addr , int a ,int eid , String cname , String qual , int sal ,String sub , String dept , int tid )

{

super ( n , g , addr , a , eid , cname , qual , sal ) ;         //parent constructor

Subject = sub ;

Department = dept ;

Teacherid = tid ;

}

public void displayTeacher ( ) {

super . displayEmployee ( ) ;         //parent func

System.out.println( "Teacherid : " + Teacherid ) ;

System.out.println( "Subject : " + Subject ) ;

System.out.println( "Department : " + Department ) ;

}

}

public class Inheritance

{

    public static void main(String[] args) {

        System.out.println( "Enter number of teachers " ) ;

        Scanner sc=new Scanner(System.in);

         int n = sc.nextInt ( ) ;

        Teacher1[ ] teacher1s = new Teacher1 [n] ;

        for ( int i = 0 ; i<n; i ++){

         System.out.println( "Enter name of the teacher " ) ;

         String name = sc.next ( ) ;

         System.out.println ( "Enter gender of the teacher " ) ;

         String gen = sc.next ( ) ;

         System.out.println ( "Enter address of the teacher ") ;

         String addr = sc.next( ) ;

         System.out.println( "Enter age of the teacher " ) ;

         int ag = sc.nextInt( ) ;

         System.out.println( "Enter Empid o f the teacher ") ;

         int eid = sc. nextInt( ) ;

         System.out.println ( " Enter Company name " ) ;

         String cn = sc.next ( ) ;

         System.out.println ( "Enter qualification of the teacher " ) ;

         String quali = sc . next ( ) ;

         System.out.println ( "Enter salary of the teacher " ) ;

         int sal = sc.nextInt( ) ;

         System.out.println( " Enter Teacher id " ) ;

         int tid = sc.nextInt( ) ;

         System.out.println ( " Enter Subject of the teacher " ) ;

         String sub = sc.next ( ) ;

         System.out.println ( " Enter Department of the teacher " ) ;

         String dept = sc.next( ) ;

         Teacher1 t = new Teacher1 ( name , gen , addr , ag , eid , cn , quali , sal , sub , dept , tid ) ;

         teacher1s[ i ]=t ;

        }

        for(Teacher1 t : teacher1s )

        {

           t . displayTeacher( ) ;

          }

}

}

OUTPUT

Enter number of employee

2

Enter the name

john

Enter gender

male

Enter address

xyz

Enter age

35

Enter Empid

101

 Enter Company name

TCS

Enter qualification of the teacher

MCA

Enter salary of the teacher

40000

 Enter Teacher id

1023

 Enter Subject of the teacher

Maths

 Enter Department of the teacher

Mathematics

Enter the name

sara

Enter gender

female

Enter address

ABCD

Enter age

35

Enter Empid

102

 Enter Company name

Cota

Enter qualification of the teacher

BCA

Enter salary of the teacher

30000

 Enter Teacher id

1024

 Enter Subject of the teacher

Data Structure

 Enter Department of the teacher

 Name: john

Gender : male

Address : xyz

Age : 35

Empid : 101

Company name : TCS

 Qualification : MCA

 Salary : 40000

Teacherid : 1023

Subject : Maths

Department : Mathematics

Name: sara

Gender : female

 Address : ABCD

 Age : 35

Empid : 102

Company name : Cota

 Qualification : BCA

 Salary : 30000

Teacherid : 1024

Subject : Data Structure

Department : Computer Science

**3. Create an interface having prototypes of functions area() and perimeter(). Create two**

**classes Circle and Rectangle which implements the above interface. Create a menu driven**

**program to find area and perimeter of objects.**

import java.util.\*;

 interface shapes

{

void area();

void perimeter();

}

class circle implements shapes

{

int r ;

double pi = 3.14,area,perimeter;

    public circle()

{

    Scanner inp1 = new Scanner(System.in);

System.out.println("Enter Radius : ");

r = inp1.nextInt();

}

public void area()

{

area = pi \* r  \*r;

System.out.println("Area of circle with radius "+r+" is " + area);

}

public void perimeter()

{

perimeter = 2 \* pi \* r;

System.out.println("Perimeter of circle with radius "+r+" is " + perimeter);

}

}

class rectangle implements shapes

{

   int l ,b;

   int area,perimeter;

   public rectangle()

   {

  Scanner inp2 = new Scanner(System.in);

System.out.println("Enter Length of rectangle : ");

l = inp2.nextInt();

System.out.println("Enter Breadth of rectangle : ");

b = inp2.nextInt();

   }

    public void area()

    {

area = l \*b;

System.out.println("Area of rectangle is  : " + area);

    }

    public void perimeter()

    {

    perimeter = 2 \*(l+b);

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

    }

}

public class Interfaceare  {

public static void main(String[] args)

{

int ch1,ch2;

Scanner inp3 = new Scanner(System.in);

do{

System.out.println("Select a shape \n 1.Circle \n 2.Rectangle\n 3.exit");

System.out.println("Enter Your Choice : ");

ch1 = inp3.nextInt();

  switch(ch1)

   {

   case 1 : circle objc = new circle();

   System.out.println("Find \n1.Area \n2.Perimeter");

   System.out.println("Enter Your Choice : ");

   ch2 = inp3.nextInt();

   switch(ch2)

    {

    case 1 : objc.area();

    break;

    case 2 : objc.perimeter();

    break;

    default : System.out.println("Invalid choice");

    }

    break;

    case 2 : rectangle objr = new rectangle();

    System.out.println("Find \n1.Area \n2.Perimeter");

    System.out.println("Enter Your Choice : ");

    ch2 = inp3.nextInt();

    switch(ch2)

    {

    case 1 : objr.area();

    break;

    case 2 : objr.perimeter();

    break;

    default : System.out.println("Invalid choice");

    }

    break;

    default : System.out.println("Invalid choice");

    case 3:

            return;

  }

}while(ch1!=3);

 }

}

OUTPUT

Select a shape

 1.Circle

 2.Rectangle

 3.exit

Enter Your Choice :

1

Enter Radius :

2

Find

1.Area

2.Perimeter

Enter Your Choice :

1

Area of circle with radius 2 is 12.56

Select a shape

 1.Circle

 2.Rectangle

 3.exit

Enter Your Choice :

3

**Course Outcome 4 (CO4):**

**1. Create a Graphics package that has classes and interfaces for figures Rectangle, Triangle,Square and Circle. Test the package by finding the area of these figures.**

Graphics.java

package graphics;

import java.util.Scanner;

public class Graphics {

    public static void main(String[] args) {

       double l,b,b1,h,r,a;

       Scanner sc=new Scanner(System.in);

       System.out.println("Enter the length and breadth of rectangle");

       l=sc.nextDouble();

       b=sc.nextDouble();

       System.out.println("Enter the base and height of triangle");

       b1=sc.nextDouble();

       h=sc.nextDouble();

       System.out.println("Enter the side square");

       a=sc.nextDouble();

       System.out.println("Enter the radius of circle");

       r=sc.nextDouble();

       Rectangle r1=new Rectangle();

       r1.area(l, b);

       Triangle t1=new Triangle();

       t1.area(b, h);

       Square s1=new Square();

       s1.area(a);

       Circle c1=new Circle();

       c1.area(r);

    }

}

Rectangle.java

package graphics;

public class Rectangle {

    public void area(double l,double b){

        System.out.println("Area of rectangle:"+(l\*b));

    }

}

Triangle.java

package graphics;

public class Triangle {

     public void area(double b,double h){

        System.out.println("Area of triangle:"+((b\*h)/2));

    }

}

Circle.java

package graphics;

public class Circle {

     public void area(double r){

        System.out.println("Area of circle: "+Math.PI\*(r\*r));

    }

}

Square.java

package graphics;

public class Square {

     public void area(double a){

        System.out.println("Area of square:"+(4\*a));

    }

}

OUTPUT

Enter the length and breadth of rectangle

4

5

Enter the base and height of triangle

6

7

Enter the side square

5

Enter the radius of circle

4

Area of rectangle:20.0

Area of triangle:17.5

Area of square:20.0

Area of circle: 50.26548245743669

**2. Write a user defined exception class to authenticate the user name and password.**

package exceptioncheck;

import java.util.\*;

class UsernameException extends Exception {

 public UsernameException(String msg) {

  super(msg);

 }

}

class PasswordException extends Exception {

 public PasswordException(String msg) {

  super(msg);

 }

}

public class ExceptionCheck {

    public static void main(String[] args) {

         Scanner s = new Scanner(System.in);

  String username, password;

  System.out.print("Enter username :: ");

  username = s.nextLine();

  System.out.print("Enter password :: ");

  password = s.nextLine();

  try {

   if(!username.equals("admin"))

    throw new UsernameException("Incorrect username");

   else if(!password.equals("admin"))

    throw new PasswordException("Incorrect password\nType correct password ???");

   else

    System.out.println("Login Successful !!!");

  }

  catch (UsernameException u) {

   u.printStackTrace();

  }

  catch (PasswordException p) {

   p.printStackTrace();

  }

  finally {

   System.out.println("The finally statement is executed");

  }

    }

}

OUTPUT

Enter username :: admin

Enter password :: admin

Login Successful !!!

The finally statement is executed

**Course Outcome 5 (CO5):**

**1.Program to find maximum of three numbers using AWT.**

import java.awt.\*;

import java.awt.event.\*;

public class Awtbiggest implements ActionListener {

Frame f=new Frame();

Label l1=new Label("First Number");

Label l2=new Label("Second Number");

Label l3=new Label("Third Number");

Label l4=new Label("Largest Number");

TextField t1=new TextField();

TextField t2=new TextField();

TextField t3=new TextField();

TextField t4=new TextField();

Button b1=new Button("find");

Button b2=new Button("Cancel");

Awtbiggest()

{

l1.setBounds(50,100,100,20);

l2.setBounds(50,140,100,20);

l3.setBounds(50,180,100,20);

l4.setBounds(50,220,100,20);

t1.setBounds(200,100,100,20);

t2.setBounds(200,140,100,20);

t3.setBounds(200,180,100,20);

t4.setBounds(200,220,100,20);

b1.setBounds(50,250,50,20);

b2.setBounds(110,250,50,20);

f.add(l1);

f.add(l2);

f.add(l3);

f.add(l4);

f.add(t1);

f.add(t2);

f.add(t3);

f.add(t4);

f.add(b1);

f.add(b2);

b1.addActionListener(this);

b2.addActionListener(this);

f.setLayout(null);

f.setVisible(true);

f.setSize(400,350);

}

public void actionPerformed(ActionEvent e)

{

  int n1=Integer.parseInt(t1.getText());

  int n2=Integer.parseInt(t2.getText());

  int n3=Integer.parseInt(t3.getText());

if(e.getSource()==b1)

{

    if(n1>n2){

        if(n1>n3){

            t4.setText(String.valueOf(n1));

        }

    }

    else if(n2>n3){

         t4.setText(String.valueOf(n2));

    }

    else{

        t4.setText(String.valueOf(n3));

    }

}

if(e.getSource()==b2)

{

System.exit(0);

}

}

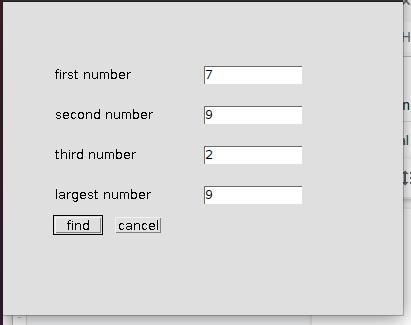
    public static void main(String[] args) {

        new Awtbiggest();

    }

}

OUTPUT



**2.Implement a simple calculator using AWT components.**

import java.awt.\*;

import java.awt.event.\*;

class Awtcalcu implements ActionListener {

    //Declaring Objects

Frame f=new Frame();

Label l1=new Label("First Number");

Label l2=new Label("Second Number");

Label l3=new Label("Result");

TextField t1=new TextField();

TextField t2=new TextField();

TextField t3=new TextField();

Button b1=new Button("Add");

Button b2=new Button("Sub");

Button b3=new Button("Mul");

Button b4=new Button("Div");

Button b5=new Button("Cancel");

Awtcalcu()

{

l1.setBounds(50,100,100,20);

l2.setBounds(50,140,100,20);

l3.setBounds(50,180,100,20);

t1.setBounds(200,100,100,20);

t2.setBounds(200,140,100,20);

t3.setBounds(200,180,100,20);

b1.setBounds(50,250,50,20);

b2.setBounds(110,250,50,20);

b3.setBounds(170,250,50,20);

b4.setBounds(230,250,50,20);

b5.setBounds(290,250,50,20);

f.add(l1);

f.add(l2);

f.add(l3);

f.add(t1);

f.add(t2);

f.add(t3);

f.add(b1);

f.add(b2);

f.add(b3);

f.add(b4);

f.add(b5);

b1.addActionListener(this);

b2.addActionListener(this);

b3.addActionListener(this);

b4.addActionListener(this);

b5.addActionListener(this);

f.setLayout(null);

f.setVisible(true);

f.setSize(400,350);

}

public void actionPerformed(ActionEvent e)

{

  int n1=Integer.parseInt(t1.getText());

  int n2=Integer.parseInt(t2.getText());

if(e.getSource()==b1)

{

t3.setText(String.valueOf(n1+n2));

}

if(e.getSource()==b2)

{

t3.setText(String.valueOf(n1-n2));

}

if(e.getSource()==b3)

{

t3.setText(String.valueOf(n1\*n2));

}

if(e.getSource()==b4)

{

t3.setText(String.valueOf(n1/n2));

}

if(e.getSource()==b5)

{

System.exit(0);

}

}

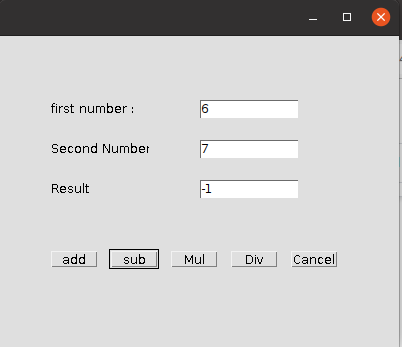
    public static void main(String[] args) {

        new Awtcalcu();

    }

}

OUTPUT



**3. Develop a program to handle all mouse events and window events**

import java.awt.\*;

import java.awt.event.\*;

public class Mouseevents extends Frame implements MouseListener {

      Label l;

    Mouseevents(){

        addMouseListener(this);

        l=new Label();

        l.setBounds(20,50,100,20);

        add(l);

        setSize(300,300);

        setLayout(null);

        setVisible(true);

    }

    public void mouseClicked(MouseEvent e) {

        l.setText("Mouse Clicked");

    }

    public void mouseEntered(MouseEvent e) {

        l.setText("Mouse Entered");

    }

    public void mouseExited(MouseEvent e) {

        l.setText("Mouse Exited");

    }

    public void mousePressed(MouseEvent e) {

        l.setText("Mouse Pressed");

    }

    public void mouseReleased(MouseEvent e) {

        l.setText("Mouse Released");

    }

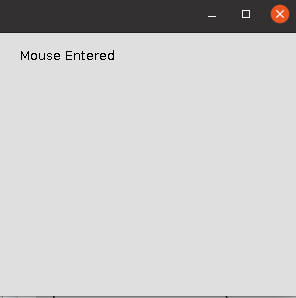
    public static void main(String[] args) {

       new  Mouseevents();

    }

}

OUTPUT



**4. Develop a program to handle Key events.**

import java.awt.\*;

import java.awt.event.\*;

public class Keyevents extends Frame implements KeyListener {

 Label l;

    TextArea area;

    Keyevents() {

        l = new Label();

        l.setBounds (20, 50, 100, 20);

        area = new TextArea();

        area.setBounds (20, 80, 300, 300);

area.addKeyListener(this);

        add(l);

add(area);

        setSize (400, 400);

        setLayout (null);

        setVisible (true);

    }

    public void keyPressed (KeyEvent e) {

        l.setText ("Key Pressed");

    }

    public void keyReleased (KeyEvent e) {

        l.setText ("Key Released");

    }

    public void keyTyped (KeyEvent e) {

        l.setText ("Key Typed");

    }

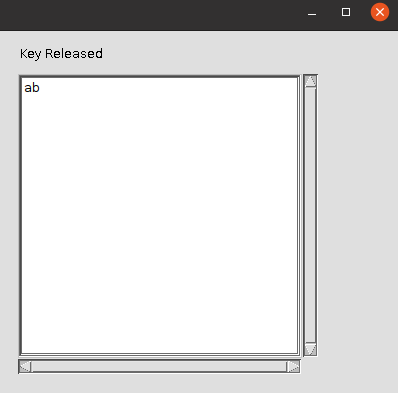
    public static void main(String[] args) {

        new Keyevents();

    }

}

OUTPUT



**Course Outcome 6 (CO6):**

**1. Write a program to write to a file, then read from the file and display the contents on**

**the console.**

import java.io.FileWriter;

import java.io.IOException;

import java.io.File;

import java.io.FileNotFoundException;

import java.util.Scanner;

public class Filewrt {

    public static void main(String[] args) {

         try {

            FileWriter dataWriter = new FileWriter("DATA.txt");

            dataWriter.write("Hai Hallo");

            dataWriter.write(" World");

            dataWriter.close();

        } catch (IOException ex) {

            System.out.println("An error occured !");

            ex.printStackTrace();

        }

try{

            File dataFile = new File("DATA.txt");

            Scanner dataRead = new Scanner(dataFile);

            while(dataRead.hasNextLine()){

                System.out.println(dataRead.nextLine());

            }

            dataRead.close();

        }catch(FileNotFoundException ex){

            System.out.println("An error occured !");

            ex.printStackTrace();

        }

    }

}

OUTPUT

Hai Hallo World

**2**.**Write a program that reads from a file having integers. Copy even numbers and odd**

**numbers to separate files.**

import java.io.FileWriter;

import java.io.IOException;

import java.io.File;

import java.io.FileNotFoundException;

import java.util.Scanner;

public class Fileoddeven {

static String data = "";

    static File dataFile = new File("example.txt");

    public static void main(String[] args) {

        try {

            FileWriter oddFile = new FileWriter("odd.txt", true);

            FileWriter evenFile = new FileWriter("even.txt", true);

            Scanner dataRead = new Scanner(dataFile);

            while (dataRead.hasNextLine()) {

  data += dataRead.nextLine();

            }

            dataRead.close();

            String values[] = data.split(" ");

            int valuesInt[] = new int[values.length + 1];

            int count = 0;

            for (String i : values) {

                valuesInt[count++] = Integer.parseInt(i);

                //System.out.println(Integer.parseInt(i));

                if (Integer.parseInt(i) % 2 == 0) {

                    evenFile.write(i+" ");

                } else {

                    oddFile.write(i+" ");

                }

}

            oddFile.close();

            evenFile.close();

        } catch (IOException ex) {

            System.out.println("An error occured !");

            ex.printStackTrace();

        } catch (Exception ex) {

            System.out.print("An error occured : ");