

Geethanjali College of Engineering and Technology

Cheeryal (V), Keesara (M), Ranga Reddy District – 501 301 (T.S)

JAVA PROGRAMMING

LABORATORY MANUAL



Geethanjali

DEPARTMENT OF
COMPUTER SCIENCE & ENGINEERING

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JAVA PROGRAMMING LAB

LIST OF LAB EXERCISES

JAVA PROGRAMMING LAB		
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2	a) Write an applet that displays a simple message. b) Develop an applet that receives an integer in one text field, and computes its factorial Value and returns it in another text field, when the button named “Compute” is clicked.	18
3	Write a program that creates a user interface to perform integer divisions. The user enters two numbers in the text fields, Num1 and Num2. The division of Num1 and Num2 is displayed in the Result field when the Divide button is clicked. If Num1 or Num2 were not an integer, the program would throw a NumberFormatException. If Num2 were Zero, the program would throw an ArithmeticException Display the exception in a message dialog box.	21
4	Write a java program that implements a multi-thread applications that has three threads. First thread generates random integer every 1 second and if the value is even, second thread computes the square of the number and prints. If the value is odd, the thread will print the value of the number.	23
5	Write a java program that connects to a database using JDBC and does add, delete, modify and retrieve operations.	26
6	Write a java program that simulates a traffic light. The program lets user select one of the three lights: red, yellow, or, green with radio buttons. On selecting a button, an appropriate message with “stop” initially, there is no message shown.	28
7	Write a java program to create an abstract class named shape that contains two integers and an empty method named printArea(). Provide three classes named Rectangle, Triangle and Circle such that classes contains only the method printArea() that prints the area of the given shape.	30

8	Suppose that a table named Table.txt is stored in a text file. The first line in the file is the header, and the remaining lines correspond to rows in the table. The elements are separated by commas. Write a java program to display the table using Labels in Grid Layout.	32
9	Write a java program that handles all mouse events and shows the event name at the center of the window when a mouse event is fired (use Adapter classes).	34
10	Write a java Program That loads names and phone numbers from a text file where the data is organized as one line per record and each filed in a record are separated by a tab (\t). It takes a name or phone number as input and prints the corresponding other value from the hash table (hint: use hash tables).	37
11	Implement the above program with database instead of a text file.	39
12	Write a java Program that takes tab separated data (one record per line) from a text file and inserts them into a database.	41
13	Write a java program that prints the meta-data of a given table.	43

ADDITIONAL PROGRAMS

Java Programming Lab		
S.no	Name of the program	S.No.
1	Design and Develop a java program to display the reverse of a given number.	46
2	Design and Develop a java program to find whether the given number is Armstrong or not.	47
3	Design and Develop a java program to read different inputs in a single line and print in separate lines.	48
4	Design and Develop a java program to read marks of a student and print the total and average of marks using scanner class.	50
5	Design and Develop a java program using try and catch.	52

Vision of the Department

To produce globally competent and socially responsible computer science engineers contributing to the advancement of engineering and technology which involves creativity and innovation by providing excellent learning environment with world class facilities.

Mission of the Department

1. To be a center of excellence in instruction, innovation in research and scholarship, and service to the stake holders, the profession, and the public.
2. To prepare graduates to enter a rapidly changing field as a competent computer science engineer.
3. To prepare graduate capable in all phases of software development, possess a firm understanding of hardware technologies, have the strong mathematical background necessary for scientific computing, and be sufficiently well versed in general theory to allow growth within the discipline as it advances.
4. To prepare graduates to assume leadership roles by possessing good communication skills, the ability to work effectively as team members, and an appreciation for their social and ethical responsibility in a global setting.

PEOs and POs

PROGRAM EDUCATIONAL OBJECTIVES

1. To provide graduates with a good foundation in mathematics, sciences and engineering fundamentals required to solve engineering problems that will facilitate them to find employment in industry and / or to pursue postgraduate studies with an appreciation for lifelong learning.
2. To provide graduates with analytical and problem solving skills to design algorithms, other hardware / software systems, and inculcate professional ethics, inter-personal skills to work in a multi-cultural team.
3. To facilitate graduates to get familiarized with the art software / hardware tools, imbibing creativity and innovation that would enable them to develop cutting-edge technologies of multi-disciplinary nature for societal development.

PROGRAM OUTCOMES

1. An ability to apply knowledge of mathematics, science and engineering to develop and analyze computing systems.
2. an ability to analyze a problem and identify and define the computing requirements appropriate for its solution under given constraints.
3. An ability to perform experiments to analyze and interpret data for different applications.
4. An ability to design, implement and evaluate computer-based systems, processes, components or programs to meet desired needs within realistic constraints of time and space.
5. An ability to use current techniques, skills and modern engineering tools necessary to practice as a CSE professional.
6. An ability to recognize the importance of professional, ethical, legal, security and social issues and addressing these issues as a professional.
7. An ability to analyze the local and global impact of systems /processes /applications /technologies on individuals, organizations, society and environment.
8. An ability to function in multidisciplinary teams.
9. An ability to communicate effectively with a range of audiences.
10. Demonstrate knowledge and understanding of the engineering, management and economic principles and apply them to manage projects as a member and leader in a team.
11. A recognition of the need for and an ability to engage in life-long learning and continuing professional development
12. Knowledge of contemporary issues.
13. An ability to apply design and development principles in producing software systems of varying complexity using various project management tools.
14. An ability to identify, formulate and solve innovative engineering problems.

Mapping of Lab Course with Programme Educational Objectives

S.No	Course component	code	Course	Semester	PEO 1	PEO 2	PEO 3
1	Professional core	A40585	Java Programming Lab	I	L	H	H

Mapping of Lab Course outcomes with Programme outcomes:

POs		1	2	3	4	5	6	7	8	9	10	11	12	13	14	
Java Programming	Exp no.															
CO40585.1: Student gains the knowledge about grid layout i.e to create a calculator arrange buttons for the digits for the +, -, *, % operations and add a text field to display the result.	1	M	L	H	H						M			M	M	
CO40585.2: Student gains the knowledge <ul style="list-style-type: none"> To write simple applets. To write a simple Hyper Text Markup Language (HTML) 	2 a,b		L	M	M			H			M			M	H	Professional core

document to load an applet into an applet container and execute the applet. <ul style="list-style-type: none"> About five methods that are called automatically by an applet container during an applet's life cycle. 																
CO40585.3: Student gains the knowledge about Exceptions like Arithmetic Exception, NumberFormatException to display the exception in a message dialog box.	3,7			L	M	M					H				M	M
CO40585.4: Student gains the knowledge to implement the concept of multi threading.	4			L	H		M			H			L	M		M
CO40585.5 Student gains the knowledge to implement the concept JDBC.	5,12			H		L	H				H				M	M

CO40585.6: Student gains the knowledge about check box group (radio button).	6					H	M					H				L	M	
CO40585.7: Student gains the knowledge to create an abstract class and abstract methods in swings	7			L	M	H	L					M				M	M	
CO40585.8. . Student gains the knowledge <ul style="list-style-type: none"> About grid layout to display tables of data. To view of your data by using grid layout. 	8			M	H		M					H				H	H	
CO40585.9: Student gains the knowledge how to invoke when the mouse button has been pressed, clicked, entered, exited and released on the source component.	9											M			H	M	M	

CO40585.10: Student gains the knowledge how to organize the data using hash table.	10		M	H		M					H				H	H	
CO40585.11 Student gains the knowledge about queries.	11,12		M	H		M					H				H	H	
CO40585.12 Student gains the knowledge how to access data from file and database.	12		M	H		M					H				H	H	
CO40585.13 Student gains the knowledge how to prints the meta-data of a given a table.	13		M	H		M					H				H	H	

WEEK 1

AIM:

Write a java program that works as a simple calculator. Use a grid layout to arrange buttons for the digits and for the +, -, *, % operations. Add a text field to display the result. Handle any possible exceptions like divided by zero.

PROGRAM:

```
import java.awt.*;
import java.awt.event.*;
import java.applet.*;
public class Calculator extends Applet
implements ActionListener
{
    String msg=" ";
    int p,q,result;
    TextField t1;
    Button b[]=new Button[10];
    Button add,sub,mul,div,clear,mod,EQ;
    char OP;
    public void init()
    {
        t1=new TextField(10);
        GridLayout gl=new GridLayout(4,5);
        setLayout(gl);
        for(int i=0;i<10;i++)
        {
            b[i]=new Button(""+i);
        }
        add=new Button("add");
        sub=new Button("sub");
        mul=new Button("mul");
        div=new Button("div");
        mod=new Button("mod");
        clear=new Button("clear");
        EQ=new Button("EQ");
        t1.addActionListener(this);
        add(t1);
        for(int i=0;i<10;i++)
        {
            add(b[i]);
        }
        add(add);
        add(sub);
        add(mul);
```

```

        add(div);
        add(mod);
        add(clear);
        add(EQ);
        for(int i=0;i<10;i++)
        {
            b[i].addActionListener(this);
        }
        add.addActionListener(this);
        sub.addActionListener(this);
        mul.addActionListener(this);
        div.addActionListener(this);
        mod.addActionListener(this);
        clear.addActionListener(this);
        EQ.addActionListener(this);
    }

    public void actionPerformed(ActionEvent ae)
    {
        String str=ae.getActionCommand();
        char ch=str.charAt(0);
        if ( Character.isDigit(ch))
            t1.setText(t1.getText()+str);
        else
            if(str.equals("add"))
            {
                p=Integer.parseInt(t1.getText());
                OP='+';
                t1.setText("");
            }
            else if(str.equals("sub"))
            {
                p=Integer.parseInt(t1.getText());
                OP='-';
                t1.setText("");
            }
            else if(str.equals("mul"))
            {
                p=Integer.parseInt(t1.getText());
                OP='*';
                t1.setText("");
            }
            else if(str.equals("div"))
            {
                p=Integer.parseInt(t1.getText());
                OP='/';
            }
    }

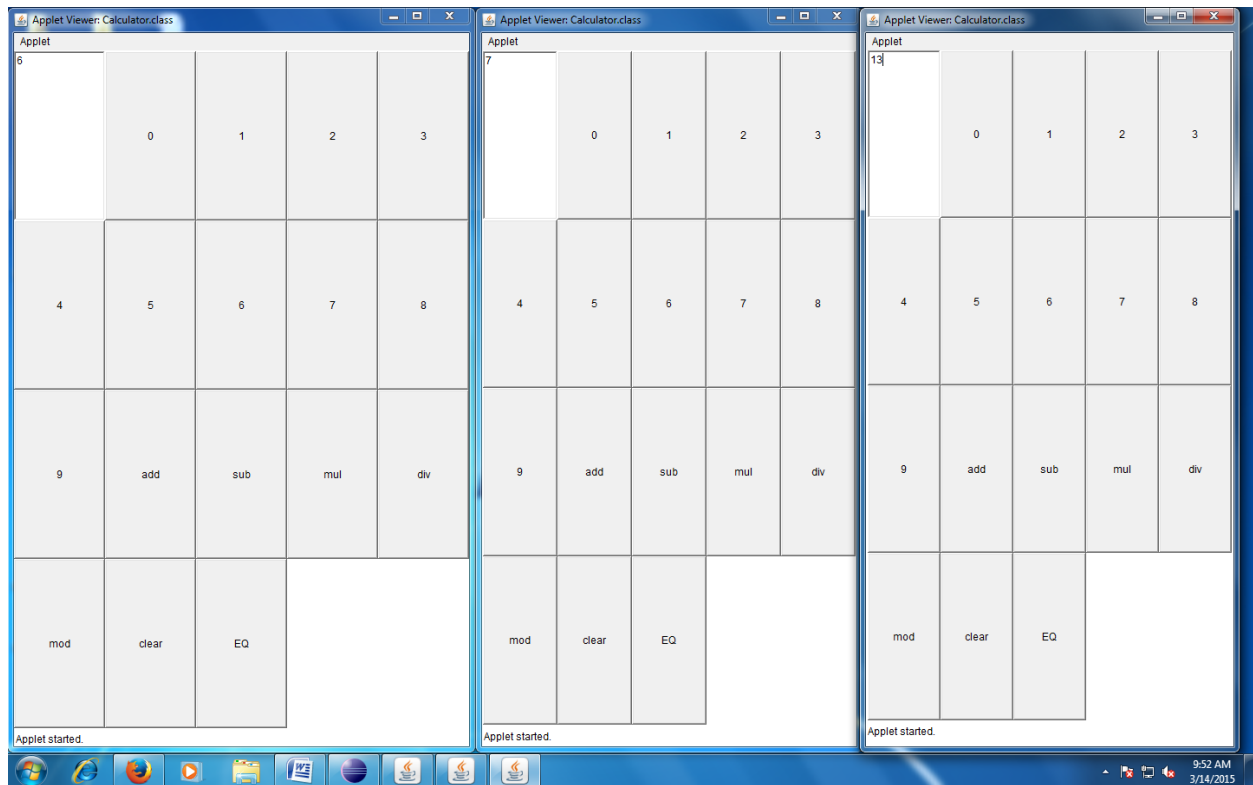
```

```

        t1.setText("");
    }
    else if(str.equals("mod"))
    {
        p=Integer.parseInt(t1.getText());
        OP='%';
        t1.setText("");
    }
    if(str.equals("EQ"))
    {
        q=Integer.parseInt(t1.getText());
        if(OP=='+')
            result=p+q;
        else if(OP=='-')
            result=p-q;
        else if(OP=='*')
            result=p*q;
        else if(OP=='/')
            result=p/q;
        else if(OP=='%')
            result=p%q;
        t1.setText(""+result);
    }
    if(str.equals("clear"))
    {
        t1.setText("");
    }
}

```

OUTPUT:



Viva Questions

- 1) **What are Looping Statements?**
- 2) **What is Layout Manager?**
- 3) **What are the different types of layout manager?**
- 4) **How do you raise an exception when a number is divided by zero?**
- 5) **What are the basic operations of a calculator**

WEEK 2

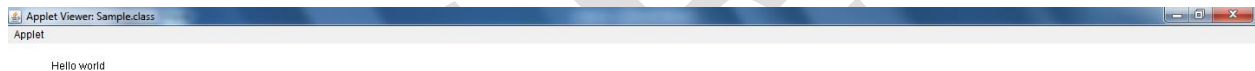
AIM:

a) Write an applet that displays a simple message.

PROGRAM:

```
import java.applet.Applet;  
import java.awt.Graphics;  
public class Hello extends Applet  
{  
    public void paint(Graphics g)  
    {  
        g.drawString("Hello world",50,30);  
    }  
}
```

OUTPUT:



b)Develop an applet that receives an integer in one text field, and computes its factorial Value and returns it in another text field, when the button named “Compute” is clicked.

PROGRAM:

```
import java.awt.*;
import java.awt.event.*;
public class factorial extends java.applet.Applet implements ActionListener
{
    TextField t1,t2;
    Label l1,l2,l3;
    Button b1;
    int fact=1,n,i;
    factorial e;
    public void init()
    {
        e=this;
        t1=new TextField(10);
        t2=new TextField(10);
        l1=new Label("factorial of a number");
        l2=new Label("enter number");
        l3=new Label("result");
        b1=new Button("compute");
        add(l1);add(l2);add(l3);add(t1);add(t2);add(b1);
        b1.addActionListener(this);
    }
    public void actionPerformed(ActionEvent ae)
    {
        String str=t1.getText();
        n=Integer.parseInt(str);
        for(i=n;i>1;i--)
        {
            fact=fact*i;
        }
        String msg="" +fact;
        t2.setText(msg);
        fact=1;
    }
}
```

OUTPUT:



Viva Questions

- 1) What is an applet?
- 2) What are the different types of applets available in java?
- 3) Why it is not possible to use remote applet than local applet?
- 4) What are the different ways of creating a button, label, text field?
- 5) What is the use of Graphics Class?

WEEK3

AIM:

Write a program that creates a user interface to perform integer divisions. The user enters two numbers in the textfields, Num1 and Num2. The division of Num1 and Num2 is displayed in the Result field when the Divide button is clicked. If Num1 or Num2 were not an integer, the program would throw a NumberFormatException. If Num2 were Zero, the program would throw an ArithmeticException Display the exception in a message dialog box.

PROGRAM:

```
import java.awt.*;
import javax.swing.*;
import java.applet.Applet;
import java.awt.event.*;
public class Division extends Applet implements ActionListener{
    TextField t1,t2,t3;
    Button b;
    Label L1,L2,L3,L4;
    String s;
    Division e;
    public void init()
    {
        e=this;
        t1=new TextField(10);
        t2=new TextField(10);
        t3=new TextField(10);
        L1=new Label("enter num1");
        L2=new Label("enter num2");
        L3=new Label("Result is");
        L4=new Label("Division of 2 numbers");
        b=new Button("Divide");
        add(L4);
        add(L1);
        add(t1);
        add(L2);
        add(t2);
        add(L3);
        add(t3);
        add(b);
```

```

b.addActionListener(this);
}
public void actionPerformed(ActionEvent ae)
{
try
{
int num1=Integer.parseInt(t1.getText());
int num2=Integer.parseInt(t2.getText());
s=""+(num1/num2);
t3.setText(s);
}
catch(ArithmeticException a)

{
JOptionPane.showMessageDialog(null,"Divide by zero");
}
catch(NumberFormatException b)
{
JOptionPane.showMessageDialog(null,"NumberFormateException");
}
}
}
}

```

OUTPUT:



Viva Questions

- 1) What is an exception?
- 2) What is the super class of all exception classes?
- 3) When does an number format exception occurs?
- 4) What are the different exceptions available in java programming language?
- 5) What is the difference between Interface and a class?

WEEK4

AIM:

Write a java program that implements a multi-thread applications that has three threads. First thread generates random integer every 1 second and if the value is even, second thread computes the square of the number and prints. If the value is odd, the thread will print the value of the number.

PROGRAM:

```
package Mthread;
import java.util.Random;
public class Mthread {
    public static void main(String args[])
    {
        A a=new A("one");
        a.start();
    }
}
class A extends Thread
{
    String tname;
    Random r;
    Thread t1,t2;
    A(String x)
    {
        this.tname=x;
    }
    public void run()
    {
        try
        {
            int num=0;
            r=new Random();
            num=r.nextInt(100);
            for(int i=0;i<10;i++)
            {
                if(num%2==0)
                {
                    t1=new Thread(new even(num));
                    t1.start();
                }
            }
        }
    }
}
```

```

    }
    else
    {
        t2=new Thread(new odd(num));
        t2.start();
    }
    Thread.sleep(1000);
}
}
catch(InterruptedException e)
{
    System.out.println("Exception is"+e);
}
Catch(Exception a)
{
    System.out.println("Exception is"+a);
} } }
class even implements Runnable
{
    int x;
    even(int x)
    {
        This.x=x;
    }
    public void run()
    {
        System.out.println("num is even"+x+"its square is"+(x*x));
    }
}
class odd implements Runnable
{
    int x;
    odd(int x)
    {
        this.x=x;
    }
    public void run()
    {
        System.out.println("num is odd"+x+"its cube is"+(x*x*x));
    }
}
}

```

OUTPUT:

num is odd 69 it is cubed 328509
num is odd 13 it is cubed 2197
num is odd 23 it is cubed 12167
num is even 32 it is squared 1024
num is odd 91 it is cubed 753571
num is odd 47 it is cubed 103823
num is odd 33 it is cubed 35937
num is even 24 it is squared 576
num is even 80 it is squared 6400
num is even 42 it is squared 1764
num is even 68 it is squared 4624
num is even 2 it is squared 4892
num is even 84 it is squared 7056
num is even 70 it is squared 4900
num is even 60 it is squared 3600
num is even 84 it is squared 7056
num is odd 51 it is cubed 132651
num is even 60 it is squared 3600

Viva Questions

- 1) What is a Thread ?
- 2) What are the different ways of using threads?
- 3) What is the difference between Runnable and Thread?
- 4) Explain the life cycle of a thread?
- 5) What is the difference between Stop and Wait?

WEEK5

AIM:

Write a java program that connects to a database using JDBC and does add, delete, modify and retrieve operations.

PROGRAM:

```
import java.sql.*;
public class JdbcExample
{
    static final String JDBC_DRIVER="com.mysql.jdbc.Driver";
    static final String DB_URL="jdbc:mysql://localhost/jdbc";
    static final String USER="root";
    static final String PASS="Gcet@05";
    public static void main(String args[])
    {
        Connection conn=null;
        Statement stmt=null;
        try
        {
            System.out.println("connecting to database--");
            conn=DriverManager.getConnection(DB_URL,USER,PASS);
            System.out.println("creating statement--");
            stmt=conn.createStatement();
            String sql,sql1,sql2,sql3;
            Sql1="insert into employee values(23,'bob','s',20)";
            int s1= stmt.executeUpdate(sql1);
            sql2="update employee set age=18 where id=3";
            int s2= stmt.executeUpdate(sql2);
            sql3="delete from employee where id=24";
            int s3= stmt.executeUpdate(sql3);
            sql="SELECT id,first,last,age FROM employee";
            ResultSet rs=stmt.executeQuery(sql);
            while(rs.next())
            {
                int id=rs.getInt("id");
                int age=rs.getInt("age");
                String first=rs.getString("first");
                String last=rs.getString("last");
                System.out.println("ID:"+id);
                System.out.println("Age:"+age);
                System.out.println("First:"+first);
                System.out.println("Last:"+last);
            }
        }
        catch (SQLException se)
        {
            se.printStackTrace();
        }
    }
}
```

```

    }
    rs.close();
    stmt.close();
    conn.close();
}
catch(SQLException se)
{
    se.printStackTrace();
}

    System.out.println("Goodbye");
}
}

```

MYSQL:

```

MYSQL>create database jdbc;
MYSQL> use jdbc;
MYSQL>create table employee(id int,first varchar(20),last varchar(20),age int);
MYSQL>insert into employee values(2,'siri','m',23);
MYSQL>select * from employee

```

Id	first	last	age
2	siri	m	23
3	deep	v	20
24	sagar	k	24

OUTPUT:

```

connecting to database—
creating statement—
id:2   first:siri      last:m  age:23
id:3   first:deep     last:v  age:18
id:23  first:bob       last:s  age:20
Goodbye

```

Viva Questions

- 1) What is a database? Why do we need our program to communicate with the database?
- 2) Explain the concept of Jdbc?
- 3) What are the different types of driver available in java?
- 4) What is the use of Prepared Statement and a Statement object?
- 5) What is the use of Database Url ?

WEEK6

AIM:

Write a java program that simulates a traffic light. The program lets user select one of the three lights: red, yellow, or, green with radio buttons. On selecting a button, an appropriate message with “stop” initially, there is no message shown.

PROGRAM:

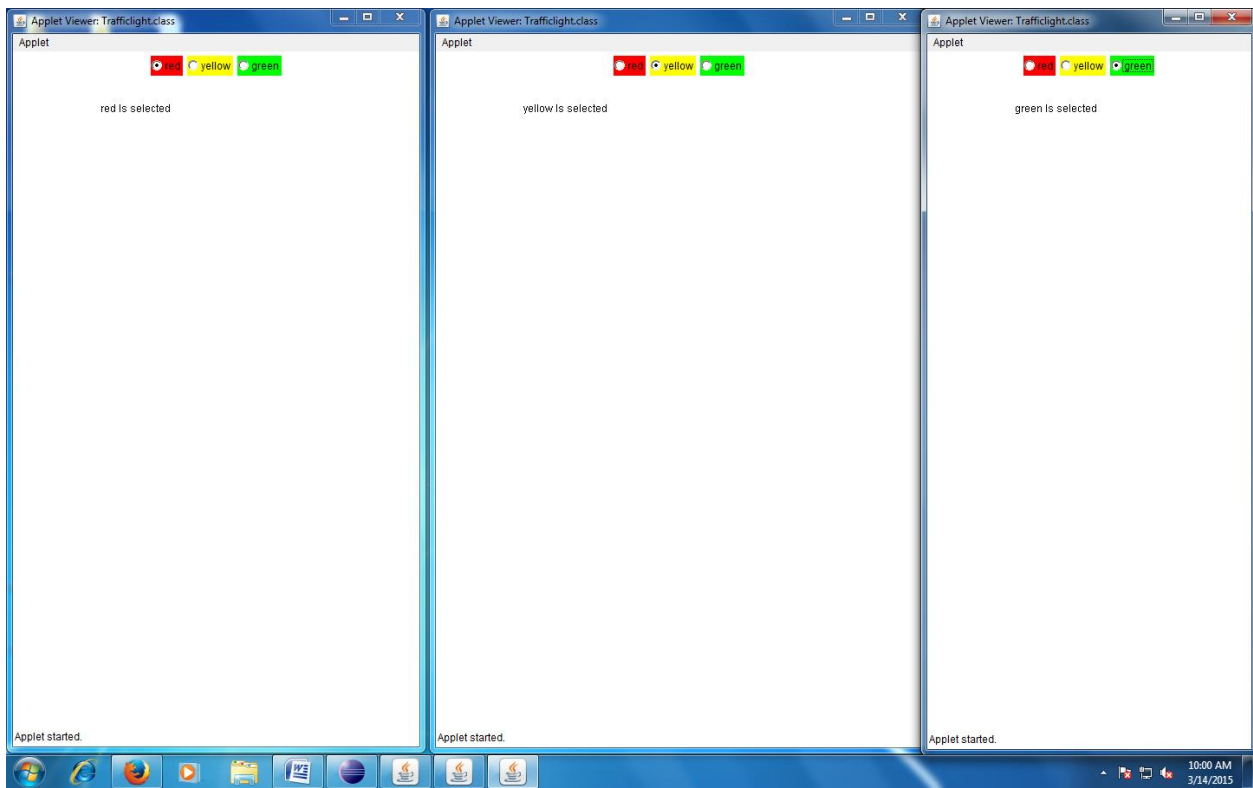
```
import java.applet.Applet;
import java.awt.Checkbox;
import java.awt.CheckboxGroup;
import java.awt.Color;
import java.awt.Graphics;
import java.awt.event.ItemEvent;
import java.awt.event.ItemListener;
public class Trafficlights extends Applet implements ItemListener{
String msg="";
Checkbox red,yellow,green;
CheckboxGroup cg=null;
public void init()
{
cg=new CheckboxGroup();
Checkbox red=new Checkbox("red",cg,true);
red.setBackground(Color.red);
Checkbox yellow=new Checkbox("yellow",cg,false);
yellow.setBackground(Color.yellow);
Checkbox green=new Checkbox("green",cg,false);
green.setBackground(Color.green);
add(red);
add(yellow);
add(green);
red.addItemListener(this);
yellow.addItemListener(this);
green.addItemListener(this);
}
public void itemStateChanged(ItemEvent ie)
{
repaint();
}
public void paint(Graphics g)
```

```

{
Checkbox chk=cg.getSelectedCheckbox();
g.drawString(chk.getLabel()+" Is selected",101,70);
}
}

```

OUTPUT:



Viva Questions

- 1) What is an applet ?
- 2) What is the difference between an application and an applet?
- 3) How do you run an applet application?
- 4) How do use threads in an applet?
- 5) What is an life cycle of an applet ?

WEEK7

AIM:

Write a java program to create an abstract class named shape that contains two integers and an empty method named printArea(). Provide three classes named Rectangle, Triangle and Circle such that classes contains only the method printArea() that prints the area of the given shape.

PROGRAM:

```
import java.util.*;
abstract class shape
{
    int x,y;
    abstract void area(double x,double y);
}
class Rectangle extends shape
{
    void area(double x,double y)
    {
        System.out.println("area of rectangle:"+x*y);
    }
}
class Circle extends shape
{
    void area(double x,double y)
    {
        System.out.println("area of circle:"+3.14*x*x);
    }
}
class Triangle extends shape
{
    void area(double x,double y)
    {
        System.out.println("area of triangle:"+0.5*x*y);
    }
}
public class AbstractDDemo
{
    public static void main(String[] args)
    {
        Rectangle r=new Rectangle();
        r.area(2,5);
        Circle c=new Circle();
        c.area(5,5);
        Triangle t=new Triangle();
    }
}
```

```
        t.area(2,5);  
    }  
}
```

OUTPUT:

area of rectangle:10.0
area of circle:78.5
area of triangle:5.0

Viva Questions

- 1) What is an abstract class?
- 2) What is the difference between abstract class and an class?
- 3) Can an abstract class have Static variable? If, yes justify
- 4) How do you use an already defined abstract class?
- 5) What is the difference between extends and implements?

WEEK8

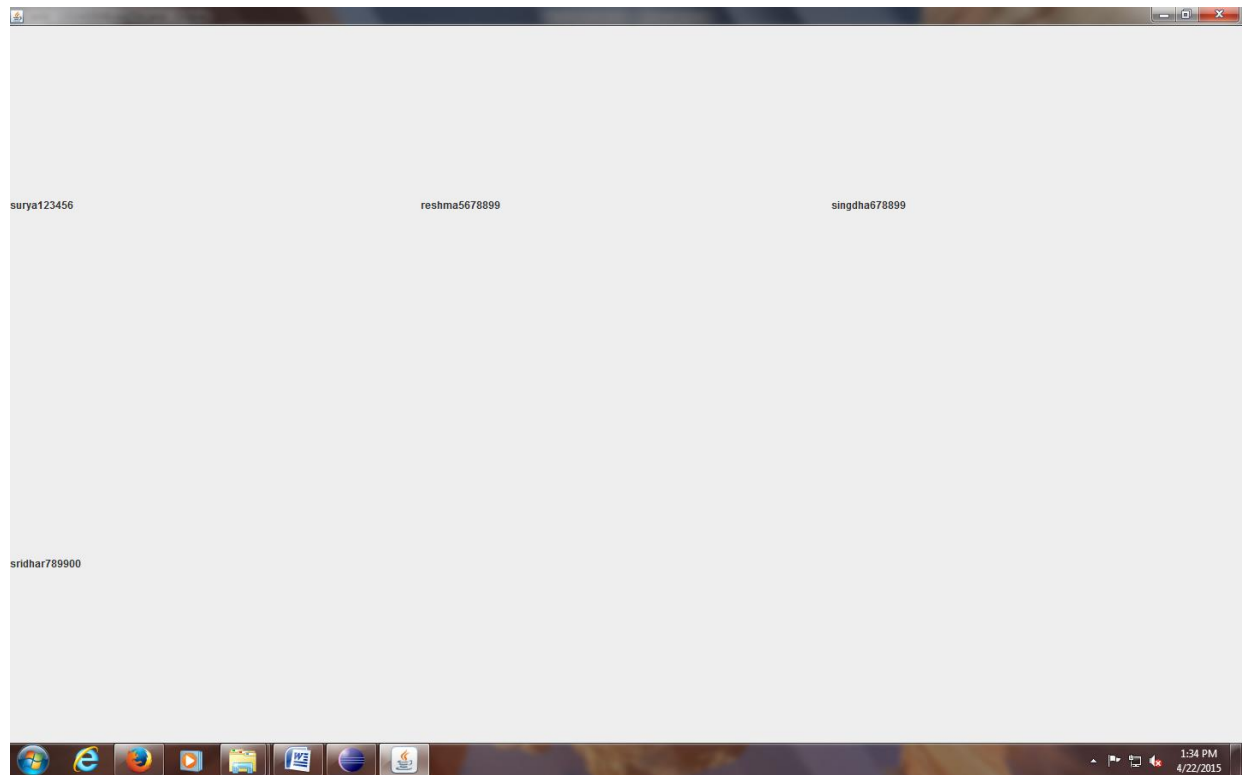
AIM:

Suppose that a table named Table.txt is stored in a text file. The first line in the file is the header, and the remaining lines correspond to rows in the table. The elements are separated by commas. Write a java program to display the table using Labels in Grid Layout.

PROGRAM:

```
import java.io.*;
import java.util.*;
import java.awt.*;
import javax.swing.*;
class A extends JFrame {
    public A() {
        setSize(400,400);
        setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        GridLayout g = new GridLayout(0,3);
        setLayout(g);
        try {
            FileInputStream fin = new FileInputStream("D:/emp.txt");
            Scanner sc = new Scanner(fin).useDelimiter(",");
            String[] arrayList;
            String a;
            while (sc.hasNextLine()) {
                a = sc.nextLine();
                arrayList = a.split(",");
                for (String i : arrayList) {
                    add(new
                        JLabel(i));
                }
            }
        } catch (Exception ex) {
        }
        setDefaultLookAndFeelDecorated(true);
        pack();
        setVisible(true);
    }
}
public class Tbl {
    public static void main(String[] args) {
        A a = new A();
    }
}
```

OUTPUT:



Viva Questions

- 1) What is layout manager?
- 2) What are the different types of layout managers available in java?
- 3) What is the difference between Grid layout and Grid Bag Layout?
- 4) How do you display a table using grid layout in java?
- 5) What is the use of JFrame.EXIT_ON_CLOSE?

WEEK9

AIM:

Write a java program that handles all mouse events and shows the event name at the center of the window when a mouse event is fired (use Adapter classes).

PROGRAM:

```
import javax.swing.event.*;
import java.awt.event.*;
import java.awt.*;
import javax.swing.JApplet;

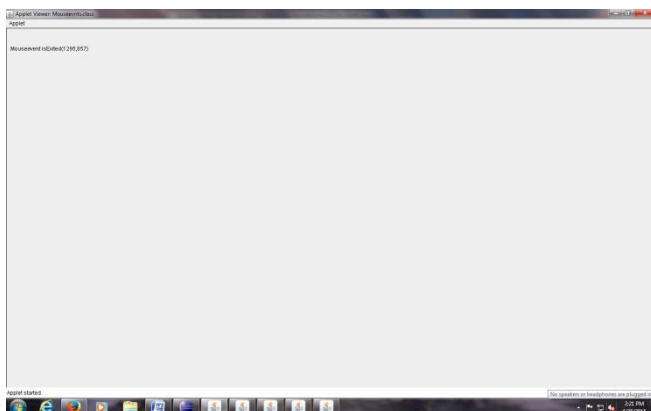
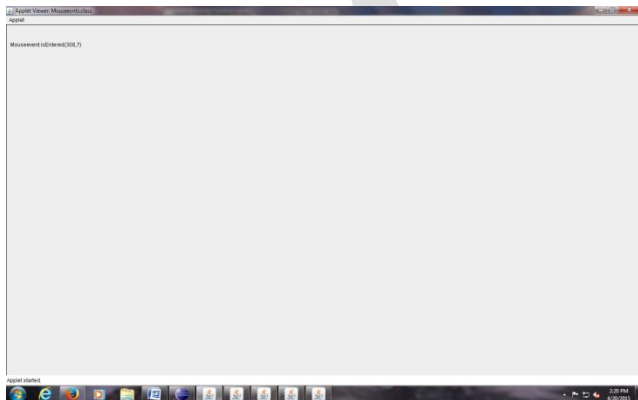
public class mouseevnts extends JApplet implements MouseListener
{
    private int x,y;
    private String event;
    public void init()
    {
        setLayout(new FlowLayout());
        x=-1;
        addMouseListener(this);
    }
    public void paint(Graphics g)
    {
        super.paint(g);
        g.drawRect(0,0,getWidth(),getHeight());
        if(x!=1)
        {
            g.drawString("Mouseevent is"+event+"("+x+","+y+")", 10,50);
        }
    }
    public void mousePressed(MouseEvent e)
    {
        x=e.getX();
        y=e.getY();
        event="pressed";
        repaint();
    }
    public void mouseClicked(MouseEvent e)
    {
        x=e.getX();
        y=e.getY();
        event="clicked";
        repaint();
    }
}
```

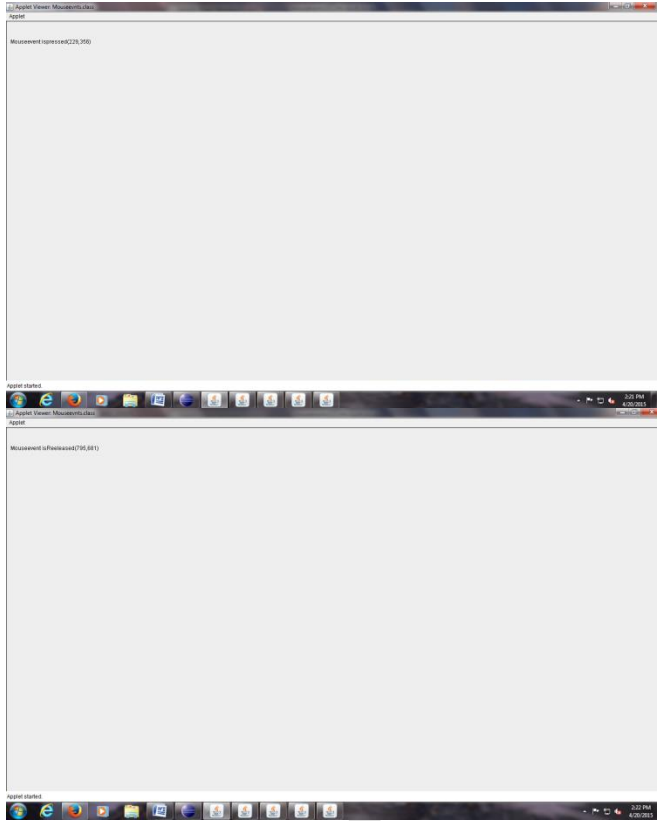
```

    }
    public void mouseReleased(MouseEvent e)
    {
        x=e.getX();
        y=e.getY();
        event="Reeleased";
        repaint();
    }
    public void mouseExited(MouseEvent e)
    {
        x=e.getX();
        y=e.getY();
        event="Exited";
        repaint();
    }
    public void mouseEntered(MouseEvent e)
    {
        x=e.getX();
        y=e.getY();
        event="Entered";
        repaint();
    }
}

```

OUTPUT:





Viva Questions

1. What is an Event? When does an Event occur?
2. What are the different types of event available in java?
3. What are the difference between Mouse events and Key Events?
4. What are the different types of methods available in Mouse Listener Interface?
5. What is the difference between List and an Interface?

WEEK10

AIM:

Write a java Program that loads names and phone numbers from a text file where the data is organized as one line per record and each filed in a record are separated by a tab (\t). It takes a name or phone number as input and prints the corresponding other value from the hash table (hint: use hash tables).

PROGRAM:

```
import java.io.*;
import java.util.*;
public class Phonebook
{
    public static void main(String args[])
    {
        Try
        {
            FileInputStream fis=new FileInputStream("//home/gcet/Desktop/myfile.txt");
            Scanner sc=new Scanner(fis).useDelimiter("\t");
            Hashtable<String,String> ht=new Hashtable<String,String> ();
            String[] strarray;
            String a,str;
            while(sc.hasNext())
            {
                a=sc.nextLine();
                strarray=a.split("\t");
                ht.put(strarray[0],strarray[1]);
                System.out.println("hash table values are"+strarray[0]+":"+strarray[1]);
            }
            Scanner s=new Scanner(System.in);
            System.out.println("enter the name as given in the phone book");
            str=s.next();
            if(ht.containsKey(str))
            {
                System.out.println("phone no is"+ht.get(str));
            }
            else
            {
                System.out.println("name is not matched");
            }
        }
        catch(Exception e)
        {
            System.out.println(e);
        }
    }
}
```

Myfile.txt

Surya 1234567
Ravi 456789
Sudha 6789900

OUTPUT:

Surya:1234567
Ravi:456789
Sudha:6789900
enter the name as given in the phone book
Ravi
phone no is: 456789
enter the name as given in the phone book
soni
name is not matched

Viva Questions

- 1) What are collection classes available in java?
- 2) What is Hash Table?
- 3) Why do you need to go for Hash table than to use Arrays?
- 4) What is the difference between Contains Key and Contains Str ?
- 5) What is the difference between hasNext and has methods?

WEEK11

AIM:

Write a java Program that loads names and phone numbers from a text file where the data is organized as one line per record and each field in a record are separated by a tab (\t). It takes a name or phone number as input and prints the corresponding other value from the hash table with database instead of a text file.

PROGRAM:

```
import java.sql.*;
public class JdbcExample
{
    static final String JDBC_DRIVER="com.mysql.jdbc.Driver";
    static final String DB_URL="jdbc:mysql://localhost/jdbc";
    static final String USER="root";
    static final String PASS="Gcet@05";
    public static void main(String args[])
    {
        Connection conn=null;
        Statement stmt=null;
        try
        {
            System.out.println("connecting to database--");
            conn=DriverManager.getConnection(DB_URL,USER,PASS);
            System.out.println("creating statement--");
            stmt=conn.createStatement();
            String sql;
            System.out.println("Enter the name as in database");
            String nm=sc.next();
            sql="SELECT phone FROM phonenum where name="+nm;
            ResultSet rs=stmt.executeQuery(sql);
            while(rs.next())
            {
                int phone=rs.getInt("phone");
                System.out.println("phone:"+phone);
            }
            rs.close();
            stmt.close();
            conn.close();
        }
        catch(SQLException se)
        {
            se.printStackTrace();}
    }
}
```

OUTPUT :

connecting to database—
creating statement—
Enter the name as in database
“surya”
Phone: 1234567

Viva Questions

- 1) What are the different types of drivers available in JDBC?
- 2) How do you link a text file to your java program?
- 3) Which is the efficient way of using an hash table with Database?
- 4) What are the different types of packages to be imported for connecting a java program to a database?
- 5) What is the use of connection statement?

WEEK12

AIM:

Write a java Program that takes tab separated data (one record per line) from a text file and inserts them into a database.

PROGRAM:

```
import java.sql.*;
import java.io.*;
import java.util.*;
public class Tbltodb {
public static void main(String[] args) {
Connection cn;
Statement st;
try
{

cn=DriverManager.getConnection("jdbc:mysql://localhost/jdbc","root","Gcet@05");
st=cn.createStatement();
String sql="";
FileInputStream fin=new FileInputStream("D:\\myfile.txt");
Scanner sc=new Scanner(fin);
String[] arrayList;
String a="";
int i=0;
while(sc.hasNext())
{
a=sc.nextLine();
arrayList =a.split("\\s+");
sql="insert into emp values("+""+arrayList[0]+",""+arrayList[1]+""");
st.execute(sql);
i++;
System.out.println(arrayList[0]+":"+arrayList[1]);
}
System.out.println(i+" Records are inserted");
st.close();
cn.close();
}
catch(Exception ex)
{
System.out.println(ex.getMessage());
}
}
```


}

Myfile.txt

Surya 1234567
Ravi 456789
Sudha 6789900

MYSQL

MYSQL>create database jdbc;

MYSQL> use jdbc;

MYSQL>create table emp(name varchar(20),phonenum int);

OUTPUT:

Surya:1234567
Ravi:456789
Sudha:6789900

Viva Questions

- 1) What is the use of File Input Stream?
- 2) What is the use of Array List class?
- 3) What is the need for Driver Manager?
- 4) What is the use of try catch block?
- 5) What is the difference between execute and execute query?

WEEK13

AIM:

Write a java program that prints the meta-data of a given table.

PROGRAM:

```
import java.sql.*;
import java.util.*;
public class Tblmdata {
    public static void main(String[] args) {
        Connection cn;
        Statement st;
        ResultSet rs, rs1;
        ResultSetMetaData rsmd;
        try {
            Scanner sc = new Scanner(System.in);
            System.out.println("-----connecting database-----");
            System.out.println("Enter Database Name");
            String dbname = sc.next();
            System.out.println("Enter Password");
            String pass = sc.next();

            cn = DriverManager.getConnection("jdbc:mysql://localhost/" + dbname, "root", pass);
            st = cn.createStatement();
            DatabaseMetaData dm = cn.getMetaData();
            rs = dm.getTables(cn.getCatalog(), "%", "%", null);
            String s = "";
            String sql = "select * from ", sql1 = "";
            System.out.println("-----Database is " + dbname);
            System.out.println("-----");
            System.out.println("Tables are");
            System.out.println("-----");
            while (rs.next()) {
                sql1 = "";
                System.out.println("-----Table Name: " + rs.getString(3) + "-----");
                sql1 = sql + rs.getString(3);
                rs1 = st.executeQuery(sql1);
                rsmd = rs1.getMetaData();
                System.out.println("Columns are ");
                System.out.println("Column Name\tColumn Type\tSize");
                for (int i = 1; i <= rsmd.getColumnCount(); i++) {
                    System.out.println(rsmd.getColumnLabel(i) + "\t" + rsmd.getColumnTypeName(i) + "\t"
                        + rsmd.getColumnDisplaySize(i));
                }
                System.out.println("-----");
            }
        } catch (Exception e) {
            e.printStackTrace();
        }
    }
}
```

```

}
rs.close();
cn.close();
} catch (Exception ex) {
System.out.println(ex.getMessage());
}
}}

```

OUTPUT:

-----connecting database-----

Enter Database Name

Jdbc

Enter Password

Gcet@05

-----Database is jdbc

Tables are

-----Table Name: emp-----

Columns are

Column Name	Column Type	Size
-------------	-------------	------

Id	Int	30
Name	varchar	20

Viva Questions

- 1) What is meant by Meta Data?
- 2) What is the difference between ResultSet and ResultSet Meta Data?
- 3) What happens to a java program when there is no database found in the system?
- 4) What is the difference between java.sql package and javax.sql package?
- 5) Why do you need to create objects for connection statements?

ADDITIONAL PROGRAMS

AIM

Write a java program to display the reverse of a given number.

PROGRAM:

```
import java.io.*;

class Reverse

{

public static void main(String args[])

{

int n=579;

int rev=0,digit;

while(n>0)

{

digit=n%10;

rev=(rev*10)+digit;

n=n/10;

System.out.println("the reverse of number is" +rev);

}

}

}
```

Output

The reverse of number is 9

The reverse of number is 97

The reverse of number is 975

AIM

Design and Develop a java program to find whether the given number is Armstrong or not.

PROGRAM:

```
import java.io.*;

public class Arm
{
    public static void main(String args[])
    {
        int k=Integer.parseInt(as[0]);
        int n=k,d=0,s=0;
        while(n>0)
        {
            d=n%10;
            s=s+(d*d*d);
            n=n/10;
        }
        if(k==s)
            System.out.println("Armstrong number");
        else
            System.out.println("Armstrong number");
    } }
```

Output

153

Armstrong number

AIM

Design and Develop a java program to read different inputs in a single line and print in separate lines.

Program:

```
import java.util.*;

import java.io.*;

class Diff

{

Public static void main(String args[])throws IOException

{

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

System.out.println("enter emp name,age,sal");

String str=br.readLine();

StringTokenizer st=new StringTokenizer(str,"");

String s1=st.nextToken();

String s2=st.nextToken();

String s3=st.nextToken();

String name=s1;

Int age=Integer.parseInt(s2);

float sal=float.parseFloat(s3);

System.out.println(" emp name is"+name);

System.out.println(" emp age is"+age);

System.out.println(" emp sal is"+sal);

}}
```

Output

enter emp name,age,sal

sneha,19,7000

emp name is sneha

emp age is 19

emp sal is 7000.0

GCEET

AIM

Design and Develop a java program to read marks of a student and print the total and average of marks using scanner class.

PROGRAM:

```
import java.util.*;

import java.io.*;

class Student

{

public static void main(String args[])

{

Scanner sc=new Scanner (System. in);

int marks[]=new int[5];

float total=0,avg;

for (int i=0;i<5;i++)

{

System.out.println ("enter marks");

marks[i]=sc.nextInt();

}

for(int i=0;i<5;i++)

{

total+=marks[i];

}

avg=total/5;

System.out.println(" total is"+total);

System.out.println(" avg is"+avg);
```

```
}  
}
```

OUTPUT

Enter marks

55

Enter marks

66

Enter marks

77

Enter marks

88

Enter marks

99

total is 385.0

avg is 77.0

AIM

Design and Develop a java program using try and catch.

PROGRAM:

```
import java.io.*;

Class TryDemo

{

public static void main(String args[])

{

int a,d,b=10;

try

{

a=0;

d=b/a;

System.out.println ("this is an exception");

}

catch (ArithmeticException e)

{

System.out.println ("ArithmeticException");

}

System.out.println ("THIS IS AFTER CATCH BLOCK");

}

}
```

OUTPUT

Arithmetic Exception THIS IS AFTER CATCH BLOCK