Experiment 1:

WRITE A PROGRAM TO DEMONSTRATE STATUS OF KEY ON AN APPLET WINDOW SUCH AS KEY PRESSED,KEY RELEASED,KEY UP AND KEY DOWN.

SOURCE CODE:

```
import java.awt.*;
import java.applet.*;
import java.awt.event.*;

@SuppressWarnings("serial")
public class KeyboardDemo extends Applet implements KeyListener
{
    String msg = "";

    public void init()
    {
        addKeyListener(this);
    }

    public void keyReleased(KeyEvent k)
    {
        msg="Key Released";
       showStatus("Key Released");
        repaint();
    }

    public void keyTyped(KeyEvent k)
    {
       msg="Key Typed";
        showStatus("Key Typed");
        repaint();
```

```
}

public void keyPressed(KeyEvent k)
{


   msg="Key Pressed";
   showStatus("Key Pressed");
    repaint();
    int key=k.getKeyCode();
    switch(key)
    {
    case KeyEvent.VK_F1:
         msg=msg+":F1";
         break;
    case KeyEvent.VK_F2:
         msg=msg+":F2";
         break;
    case KeyEvent.VK_F3:
         msg=msg+":F3";
         break;
    case KeyEvent.VK_F4:
         msg=msg+":F4";
         break;
    case KeyEvent.VK_UP:
         msg=msg+":KEY UP";
         break;
    case KeyEvent.VK_DOWN:
         msg=msg+":KEY Down ";
         break;
    case KeyEvent.VK_LEFT:
```

```
                msg=msg+":KEY LEFT";
                break;
            case KeyEvent.VK_RIGHT:
                msg=msg+":KEY RIGHT ";
                break;


            }
        }

        public void paint(Graphics g)
        {
            g.drawString(msg, 10, 10);
        }
    }
```

Experiment 2:

WRITE A PROGRAM TO CREATE A FRAME USING AWT. IMPLEMENT MOUSECLICKED, MOUSEENTERED() AND

MOUSEEXITED() EVENTS.

SOURCE CODE:

```
import java.awt.*;
import java.awt.event.*;
public class MouseDemo extends Frame implements MouseListener {
Label l;
MouseDemo() {
super("AWT Frame");
l = new Label();
l.setFont(new Font("Courier New", Font.ITALIC, 20));
```

```
l.setBackground(Color.GREEN);
l.setBounds(25, 60, 250, 30);
l.setAlignment(Label.CENTER);
this.add(l);
this.setSize(300, 300);
this.setLayout(null);
this.setVisible(true);
this.addMouseListener(this);
this.addWindowListener(new WindowAdapter() {
public void windowClosing(WindowEvent e) {
dispose();
}
}
}
public static void main(String[] args) {
new MouseDemo();
}

public void mouseClicked(MouseEvent e) {
l.setText("Mouse Clicked");
}

public void mousePressed(MouseEvent e) {
      l.setText("Mouse Pressed");
}

public void mouseReleased(MouseEvent e) {
l.setText("Mouse Released");
```

```
}

public void mouseEntered(MouseEvent e) {
l.setText("Mouse Entered");

}

public void mouseExited(MouseEvent e) {
l.setText("Mouse Exited");
}
}
```

Experiment 3:

DEVELOP A GUI WHICH ACCEPTS THE INFORMATION REGARDING THE MARKS FOR ALL THE SUBJETS OF A STUDENT IN THE EXAMINATION.DISPLAY THE RESULT FOR A STUDENT IN A SEPARATE WINDOW.

SOURCE CODE:

```
import java.awt.*;
import java.awt.event.*;
import javax.swing.*;
public class Gui_Demo extends JFrame{

JPanel jp = new JPanel();
JLabel lname = new JLabel();
JButton bsubmit = new JButton("Submit");
JTextField tname = new JTextField(20);
JLabel lMath = new JLabel();
JTextField tMath = new JTextField(20);
```

```
JLabel lScience = new JLabel();
JTextField tScience = new JTextField(20);
JLabel lEnglish = new JLabel();
JTextField tEnglish = new JTextField(20);

public Gui_Demo()
{
        lname.setText("Enter Name");
        jp.add(lname);
        jp.add(tname);
        lMath.setText("Enter Math Marks");
        jp.add(lMath);
        jp.add(tMath);
        lScience.setText("Enter Science Marks");
        jp.add(lScience);
        jp.add( tScience);
        lEnglish.setText("Enter English Marks");
        jp.add(lEnglish);
        jp.add(tEnglish);
        jp.add(bsubmit);
        add(jp);

        bsubmit.addActionListener (new ActionListener (){
                public void actionPerformed(ActionEvent arg0) {
                String val=tname.getText();
                JLabel l1 = new JLabel( "Welcome "+val);
                int sub1 = Integer.parseInt(tMath.getText());
```

```
                int sub2 = Integer.parseInt(tScience.getText());
                int sub3 = Integer.parseInt(tEnglish.getText());
                int sum = sub1+sub2+sub3;
                float average = sum/3;
                JLabel l2 = new JLabel("Average "+ average);
                JPanel jip = new JPanel();
                jip.add(l1);
                jip.add(l2);

                JFrame inf = new JFrame();
                inf.setVisible(true);
                inf.add(jip);
                inf.setSize(300, 200);
                }
        }
}

public static void main(String[] args)
{
Gui_Demo rc = new Gui_Demo();
rc.setSize(300, 400);
rc.setVisible(true);
}
}
```

Experiment 4:

WRITE A PROGRAM TO INSERT AND RETRIEVE THE DATA FROM THE DATABASE USING JDBC.

SOURCE CODE:

```
import java.sql.*;

public class Jdbc_demo

{

public static void main(String[] args)

 {

   try

{

Class.forName("com.mysql.jdbc.Driver");

Connection con = DriverManager.getConnection("jdbc:mysql://localhost/skn", "root",
"root");

Statement s = con.createStatement();

                    s.execute("create table student ( stud_id integer,stud_name
varchar(20),stud_address varchar(30) )");

            s.execute("insert into student values(001,'Arman','Delhi')");

            s.execute("insert into student values(002,'Robert','Canada')");

            s.execute("insert into student values(003,'Ahuja','Karnal')");

            ResultSet rs = s.executeQuery("select * from student");

            if (rs != null)

                while (rs.next())

            {

                System.out.println("_____________________________________");

                System.out.println("Id of the student: " + rs.getString(1));

                System.out.println("Name of student: " + rs.getString(2));

                System.out.println("Address of student: " + rs.getString(3));

                System.out.println("_____________________________________");

            }

            s.close();
```

```
            con.close();
        } catch (SQLException err) {
            System.out.println("ERROR: " + err);
        } catch (Exception err) {
            System.out.println("ERROR: " + err);
        }
    }
}
```

Experiment 5:

WRITE A PROGRAM TO Develop an RMI application which accepts a string or a number and checks that string or number is palindrome or not.

SOURCE CODE:

//1st code:Palinterface.java(create interface not class)

```
import java.rmi.Remote;
import java.rmi.RemoteException;

public interface Palinterface extends Remote {
        public int palin(String a) throws RemoteException;

}
```

//2nd code: Palindrome.java(class file)

```
import java.rmi.server.UnicastRemoteObject;

import java.rmi.*;
import java.lang.*;
```

```
import java.rmi.server.*;
public class Palindrome extends UnicastRemoteObject implements Palinterface
{
   public Palindrome() throws RemoteException { }
   public int palin(String a) throws RemoteException
   {
      System.out.println("Hello");
      StringBuffer str = new StringBuffer(a);
      String str1 = str.toString();
      System.out.println("Print : " + str1.toString());
      StringBuffer str2 = str.reverse();
      System.out.println("Print : " + str2.toString());
      int b = str1.compareTo(str2.toString());
      System.out.println("Print : " + b);
      if (b == 0)
         return 1;
      else
         return 0;
   }
}
```

// 3rd code : rmiserver.java(class file)

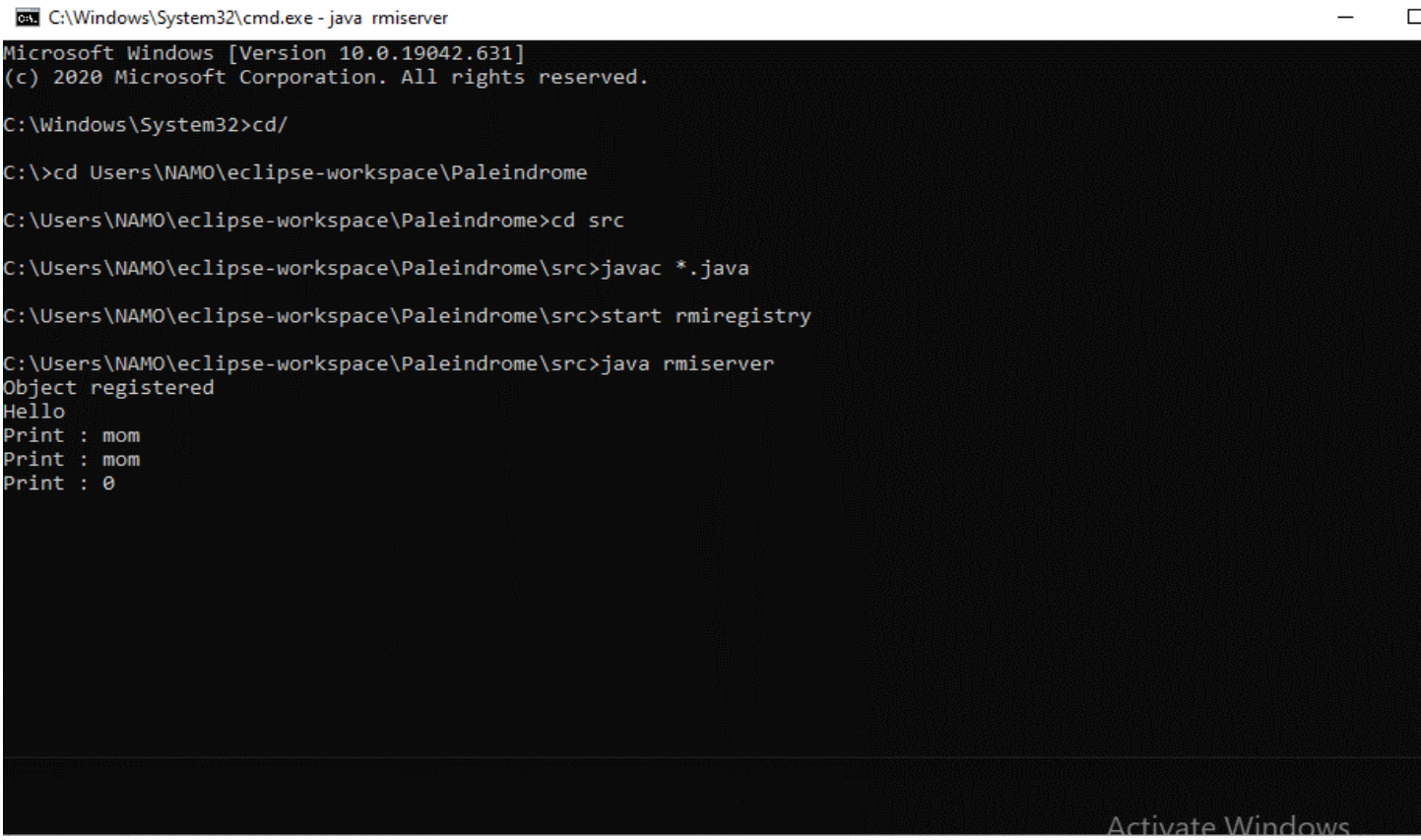
```
import java.io.*;
import java.rmi.*;
import java.net.*;
public class rmiserver
{
   public static void main(String args[]) throws Exception
   {
```

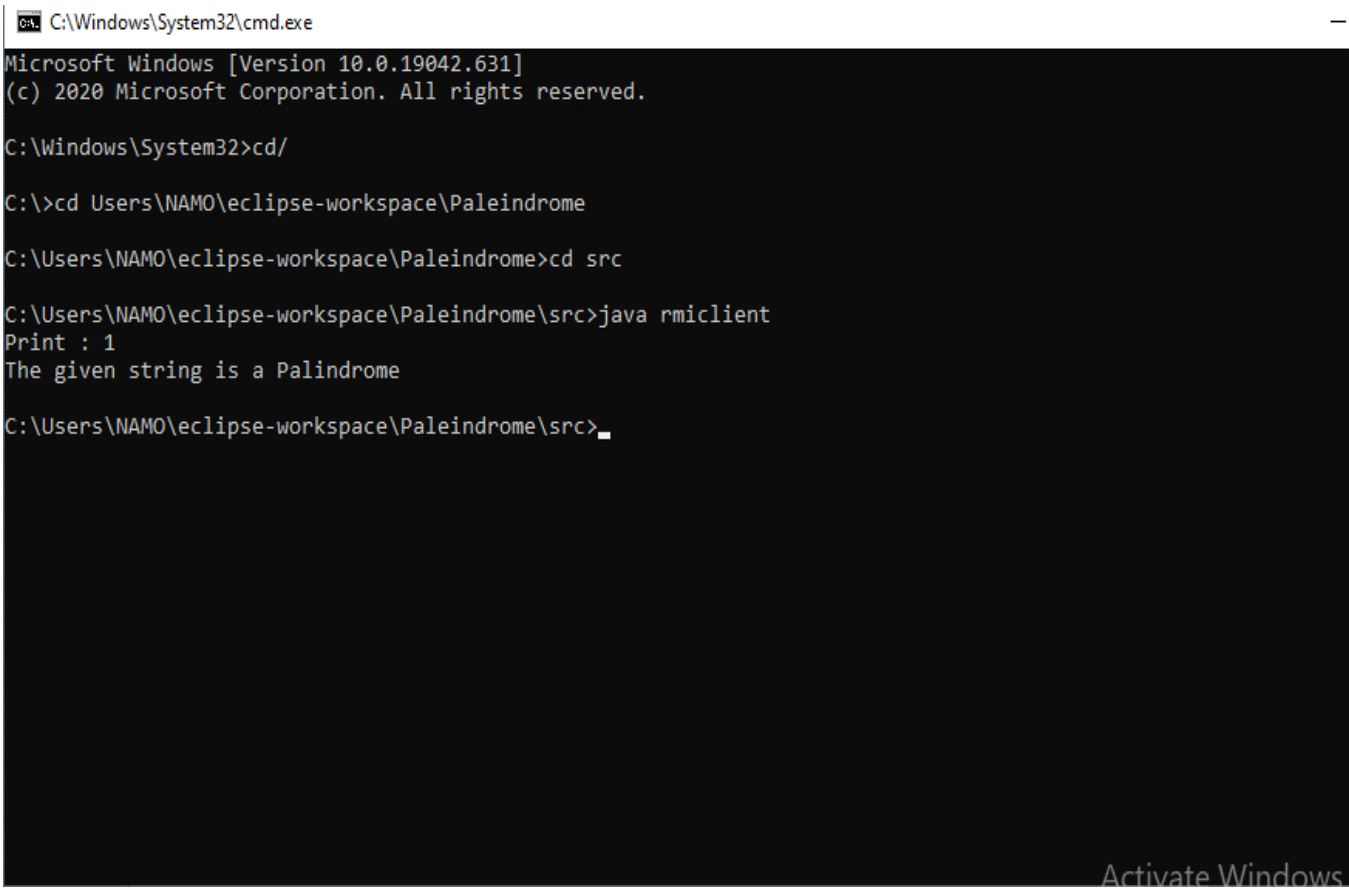
```
    try
    {
       Palindrome twox = new Palindrome();
       Naming.bind("palin", twox);
       System.out.println("Object registered");
    }
    catch(Exception e)
    {
       System.out.println("Exception" + e);
    }
  }
}
```

//4th code: rmiclient.java(class file)

```
import java.io.*;
import java.rmi.*;
import java.net.*;
public class rmiclient
{
    public static void main(String args[]) throws Exception
    {
        try
        {
            String s1 = "rmi://localhost/palin";
            Palinterface onex = (Palinterface)Naming.lookup(s1);
            int m = onex.palin("madam");
            System.out.println("Print : " + m);
            if (m == 1)
            {
                System.out.println("The given string is a Palindrome");
            }
            else
            {
                System.out.println("The given string is not a Palindrome");
            }
        }
        catch (Exception e)
        {
```

```
            System.out.println("Exception" + e);
        }
    }
}
```





Experiment 6:

WRITE A PROGRAM TO Demonstrate the use of InetAddress class and its factory method

SOURCE CODE:

Code1:

```
import java.io.*;
import java.net.*;
public class InetDemo{
public static void main(String[] args){
try{
InetAddress ip=InetAddress.getByName("localhost");

System.out.println("Host Name: "+ip.getHostName());
```

```
System.out.println("IP Address: "+ip.getHostAddress());
}catch(Exception e){System.out.println(e);}

}
}
```

Code2:

```
import java.io.*;
import java.net.*;
public class InetDemo{
public static void main(String[] args){
try{
InetAddress ip=InetAddress.getByName("www.google.com");

System.out.println("Host Name: "+ip.getHostName());
System.out.println("IP Address: "+ip.getHostAddress());
}catch(Exception e){System.out.println(e);}
}
}
```

Experiment 7:

WRITE A Servlet to display username and password accepted from the cient/server

SOURCE CODE:

input.html

```
<!DOCTYPE html>
<html>
<head>
<meta charset="UTF-8">
<title>Login Page</title>
</head>
<body>
<form method="get" action="HelloServlet">
<pre>
Enter your name: <input type="text" name=t1>
<input type=submit>
<input type=reset>
</pre>
</form>
</body>
</html>
```

HelloServlet.java

```
import java.io.IOException;
import java.io.PrintWriter;
import javax.servlet.ServletException;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;

/**
 * Servlet implementation class HelloServlet
 */
public class HelloServlet extends HttpServlet {
private static final long serialVersionUID = 1L;

    /**
     * @see HttpServlet#HttpServlet()
     */
    public HelloServlet() {
        super();
        // TODO Auto-generated constructor stub
    }

/**
 * @see HttpServlet#doGet(HttpServletRequest request, HttpServletResponse response)
 */
```

```
	protected void doGet(HttpServletRequest request, HttpServletResponse response)
	throws ServletException, IOException {
		// TODO Auto-generated method stub
		PrintWriter pw=response.getWriter();
		String s=request.getParameter("t1");
		pw.println("<h1>Hello,"+s);
		pw.close();
	}

	/**
	 * @see HttpServlet#doPost(HttpServletRequest request, HttpServletResponse
	response)
	 */
	protected void doPost(HttpServletRequest request, HttpServletResponse response)
	throws ServletException, IOException {
		// TODO Auto-generated method stub
		doGet(request, response);
	}

}
```

Experiment No: 8

Write a database application that uses any JDBC Driver:

SOURCE CODE:

Databasecreation.java:

```
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.SQLException;
```

```
import java.sql.Statement;

public class Databasecreation {
   static final String DB_URL = "jdbc:mysql://localhost:3306/";
   static final String USER = "root";
   static final String PASS = "root123";

   public static void main(String[] args) throws ClassNotFoundException {
      // Open a connection
      try
      {
         Class.forName("com.mysql.jdbc.Driver");
   Connection conn=DriverManager.getConnection(
               DB_URL, USER, PASS);

   Statement stmt=conn.createStatement();
         String sql = "CREATE DATABASE STUDENTS2";
         stmt.executeUpdate(sql);
         System.out.println("Database created successfully...");
      } catch (SQLException e) {
         e.printStackTrace();
      }
   }
}
```

Tablecreation.java:

```
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.SQLException;
import java.sql.Statement;

public class Tablecreation {
   static final String DB_URL = "jdbc:mysql://localhost:3306/STUDENTS2";
   static final String USER = "root";
   static final String PASS = "root123";

   public static void main(String[] args) throws ClassNotFoundException {
      // Open a connection
      try
      {
         Class.forName("com.mysql.jdbc.Driver");
   Connection conn=DriverManager.getConnection(
               DB_URL, USER, PASS);

   Statement stmt=conn.createStatement();
          String sql = "CREATE TABLE REG " +
                   "(id INTEGER not NULL, " +
                   " first VARCHAR(255), " +
                   " last VARCHAR(255), " +
                   " age INTEGER, " +
                   " PRIMARY KEY ( id ))";

         stmt.executeUpdate(sql);
         System.out.println("Created table in given database...");
```

```
      } catch (SQLException e) {
         e.printStackTrace();
      }
   }
}
```

Insertingdata.java:

```
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.SQLException;
import java.sql.Statement;

public class Insertingdata {
        static final String DB_URL = "jdbc:mysql://localhost:3306/STUDENTS2";
        static final String USER = "root";
        static final String PASS = "root123";
  public static void main(String[] args) throws ClassNotFoundException {
     // Open a connection
try
      {
       Class.forName("com.mysql.jdbc.Driver");
        Connection conn=DriverManager.getConnection(
                    DB_URL, USER, PASS);

        Statement stmt=conn.createStatement();
        // Execute a query
        System.out.println("Inserting records into the table...");
        String sql = "INSERT INTO REG VALUES (100, 'Zara', 'Ali', 18)";
        stmt.executeUpdate(sql);
        sql = "INSERT INTO REG VALUES (101, 'Mahnaz', 'Fatma', 25)";
        stmt.executeUpdate(sql);
        sql = "INSERT INTO REG VALUES (102, 'Zaid', 'Khan', 30)";
        stmt.executeUpdate(sql);
        sql = "INSERT INTO REG VALUES(103, 'Sumit', 'Mittal', 28)";
        stmt.executeUpdate(sql);
        System.out.println("Inserted records into the table...");
     } catch (SQLException e) {
        e.printStackTrace();
     }
  }
}
```

Displaydata.java:

```
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.SQLException;
import java.sql.Statement;

public class Insertingdata {
```

```
            static final String DB_URL = "jdbc:mysql://localhost:3306/STUDENTS2";
            static final String USER = "root";
            static final String PASS = "root123";
      public static void main(String[] args) throws ClassNotFoundException {
         // Open a connection
try
      {
       Class.forName("com.mysql.jdbc.Driver");
        Connection conn=DriverManager.getConnection(
                    DB_URL, USER, PASS);

        Statement stmt=conn.createStatement();
        // Execute a query
        System.out.println("Inserting records into the table...");
        String sql = "INSERT INTO REG VALUES (100, 'Zara', 'Ali', 18)";
        stmt.executeUpdate(sql);
        sql = "INSERT INTO REG VALUES (101, 'Mahnaz', 'Fatma', 25)";
        stmt.executeUpdate(sql);
        sql = "INSERT INTO REG VALUES (102, 'Zaid', 'Khan', 30)";
        stmt.executeUpdate(sql);
        sql = "INSERT INTO REG VALUES(103, 'Sumit', 'Mittal', 28)";
        stmt.executeUpdate(sql);
        System.out.println("Inserted records into the table...");
      } catch (SQLException e) {
         e.printStackTrace();
      }
   }
}
```

Experiment No: 9

WRITE a simple JSP page to display a simple message:

SOURCE CODE:

Hello.jsp

```
<%@ page language="java" contentType="text/html; charset=ISO-8859-1"
    pageEncoding="ISO-8859-1"%>

    <%@ page import="java.util.Date" %>

<!DOCTYPE html PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
"http://www.w3.org/TR/html4/loose.dtd">

<html>
<head>
```

```
<meta http-equiv="Content-Type" content="text/html; charset=ISO-8859-1">
<title>JSP - Hello World Tutorial - Programmer Gate</title> </head>

<body>
 <h1>Hello World!</h1>

 <h2>Welcome to JSP</h2>
 <%

  Date date = new Date();

%>

<p>The current date and time is: <%= date %></p>
</body>

</html>
```

Experiment No: 10

Create a simple calculator application using servlet

SOURCE CODE:

index.html

```
<html>

<head>

<title>Calculator App</title>
</head>

<body>

<form action="CalServlet" method="post" >


Enter First Number <input type="text" name="txtN1" ><br> Enter Second Number
<input type="text" name="txtN2" ><br> Select an Operation


<input type="radio" name="opr" value="+">ADDTION
```

```
<input type="radio" name="opr" value="*">MULTIPLY <input type="radio"
name="opr" value="/">DIVIDE

<input type="radio" name="opr" value="-">
 Substraction <br> <input type="reset">


<input type="submit" value="Calculate" >

</form>
</body>

</html>
```

CalServlet.java

```
import java.io.IOException;

import java.io.PrintWriter;


import javax.servlet.ServletException;

import javax.servlet.http.HttpServlet;

import javax.servlet.http.HttpServletRequest;

import javax.servlet.http.HttpServletResponse;



/**
```

- Servlet implementation class CalServlet

```
*/

public class CalServlet extends HttpServlet {
```

```
private static final long serialVersionUID = 1L;

    /**
     • @see HttpServlet#HttpServlet()
     */
    public CalServlet() {
        super();
        // TODO Auto-generated constructor stub
    }

/**
 • @see HttpServlet#doGet(HttpServletRequest request, HttpServletResponse response)
 */
protected void doGet(HttpServletRequest request, HttpServletResponse response) throws
ServletException, IOException {
        // TODO Auto-generated method stub
        //response.getWriter().append("Served at: ").append(request.getContextPath());
        response.setContentType("text/html;charset=UTF-8");
                PrintWriter out = response.getWriter();



                out.println("<html><head><title>Servlet
CalServlet</title></head><body>"); double n1 =
Double.parseDouble(request.getParameter("txtN1"));
```

```
                double n2 = Double.parseDouble(request.getParameter("txtN2"));
                double result =0;

                String opr=request.getParameter("opr");
                if(opr.equals("+")) result=n1+n2;
                if(opr.equals("-")) result=n1-n2;
                if(opr.equals("*")) result=n1*n2;
                if(opr.equals("/")) result=n1/n2;

                out.println("<h1> Result = "+result);
                 out.println("</body></html>");
}

/**
 • @see HttpServlet#doPost(HttpServletRequest request, HttpServletResponse response)
 */
protected void doPost(HttpServletRequest request, HttpServletResponse response) throws
ServletException, IOException {
        • TODO Auto-generated method stub
        doGet(request, response);
}

}
```