Experiment No. 1

Code:

```
package practicals;

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

public class Practical_1 extends Applet implements KeyListener
{
 String msg = "key pressed is : ";

public void init()
{
            addKeyListener(this);

}

public void keyPressed(KeyEvent k)
{
   int key = k.getKeyCode();
  switch(key)
  {
            case KeyEvent.VK_RIGHT:
        msg = msg + "RIGHT ";
        break;
    case KeyEvent.VK_LEFT:
        msg = msg + "LEFT ";
        break;
    case KeyEvent.VK_UP:
              msg = msg + "UP ";
```

```
            break;
   case KeyEvent.VK_DOWN:
            msg = msg + "DOWN ";
            break;

 }
 repaint();
}


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

public void keyTyped(KeyEvent k){
          showStatus("Key pressed");
repaint();}

public void paint(Graphics g)
{
 g.drawString(msg, 10, 10);
}
}
/*
  <applet code="keyEventDemo" height=400 width=400>
  </applet>
*/
```

Experiment No 2

Code:

```
package practicals;
import java.awt.*;
import java.awt.event.*;
public class Practical_2 extends Frame implements MouseListener {
Label l;
Practical_2() {
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 Practical_2();
}
@Override
public void mouseClicked(MouseEvent e) {
l.setText("Mouse Clicked");
```

```
}
@Override
public void mousePressed(MouseEvent e) {
}
@Override
public void mouseReleased(MouseEvent e) {
}
@Override
public void mouseEntered(MouseEvent e) {
l.setText("Mouse Entered");
}
@Override
public void mouseExited(MouseEvent e) {
l.setText("Mouse Exited");
}
}
```

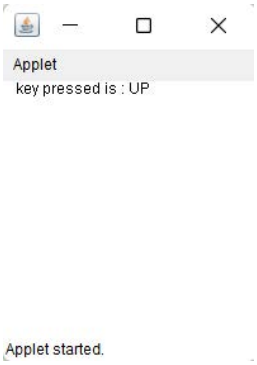
Experiment No. 3

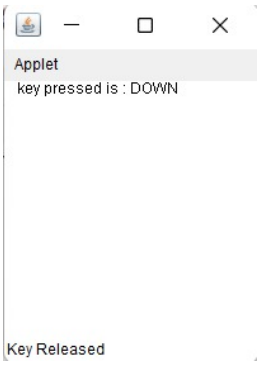
Code:

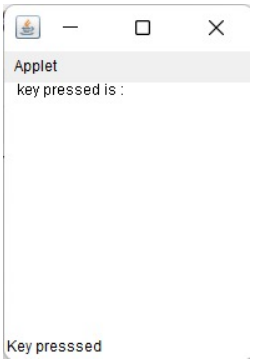
```
package practicals;

import java.awt.event.ActionEvent;
import java.awt.event.ActionListener ;
import javax.swing.JButton ;
import javax.swing.JLabel ;
import javax.swing.JFrame;
import javax.swing.JPanel ;
import javax.swing.JTextField;
public class Practical_3 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 Practical_3(){
 lname.setText("Enter name :");
 jp.add(lname) ;
 jp.add(tname) ;
 lMath.setText("Enter Maths Marks :");
 jp.add(lMath) ;
 jp.add(tMath) ;
 lScience.setText("Enter Science Marks :");
 jp.add(lScience) ;
```

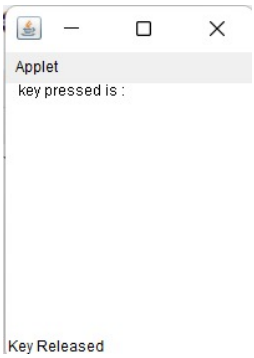
```
jp.add(tScience) ;
lEnglish.setText("Enter English Marks :");
jp.add(lEnglish) ;
jp.add(tEnglish) ;
jp.add(bsubmit) ;
add(jp) ;
bsubmit.addActionListener(new ActionListener(){
public void actionPerformed(ActionEvent arg0){
String val = tname.getText() ;
JLabel l1 = new JLabel("Welcome "+ val) ;
int 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 , 100);
}
});
}
public static void main(String[] args) {
Practical_3 rp = new Practical_3() ;
rp.setSize(300 , 200);
rp.setVisible(true);
}}
```

Output:







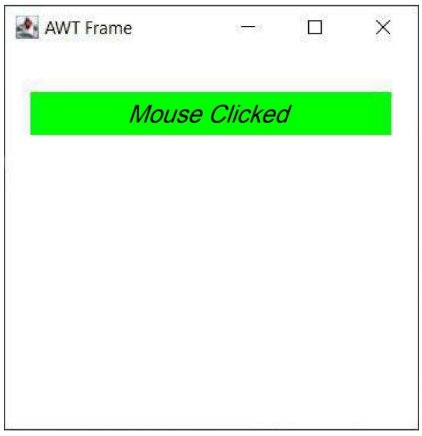


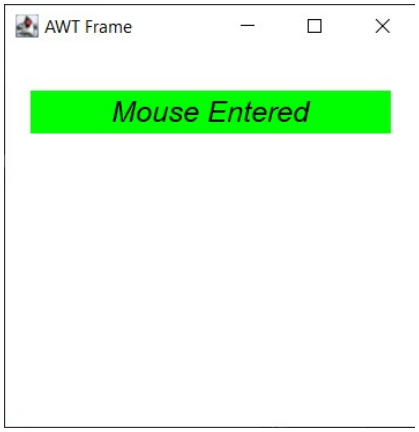
Conclusions:

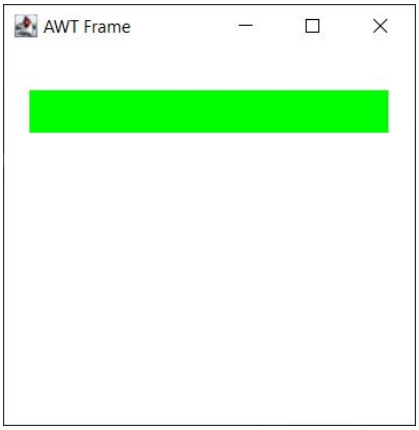
Questions:

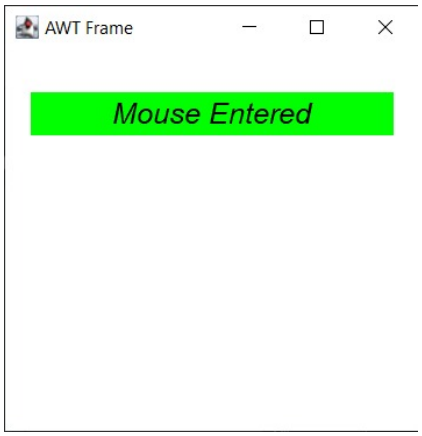
1. What is an Applet?
2. What is the difference between an applet and a Java application?
3. Explain the life cycle of an Applet.
4. What are the restrictions imposed on java applets?
5. What are the advantages and disadvantages of applets?

Output:







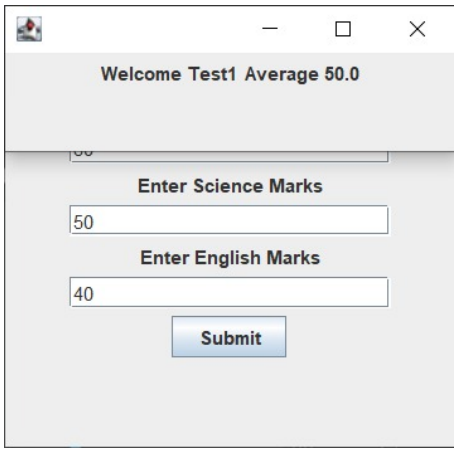


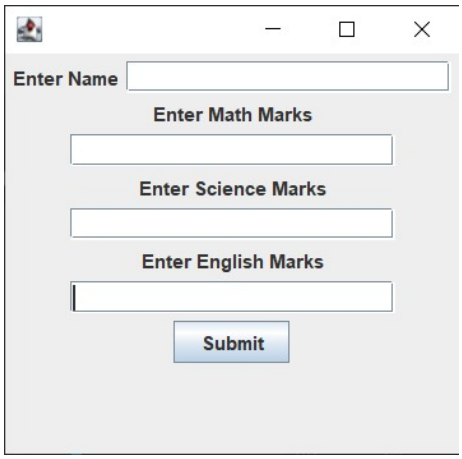
Conclusions:

Questions:

1. What Are The Component And Container Class?
2. What is the difference between the paint() and repaint() methods?
3. What Are The Subclasses Of The Container Class?
4. What are the methods of MouseListener ?
5. Explain the the hierarchy of Java AWT classes.

Output:





Conclusions:

Questions:

1. Write the constructors of JPanel, JTextField, JButton and JLabel?
2. What are the important classes of Swing API?
3. Write about java Swing API hierarchy?

i/p

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

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

o/p

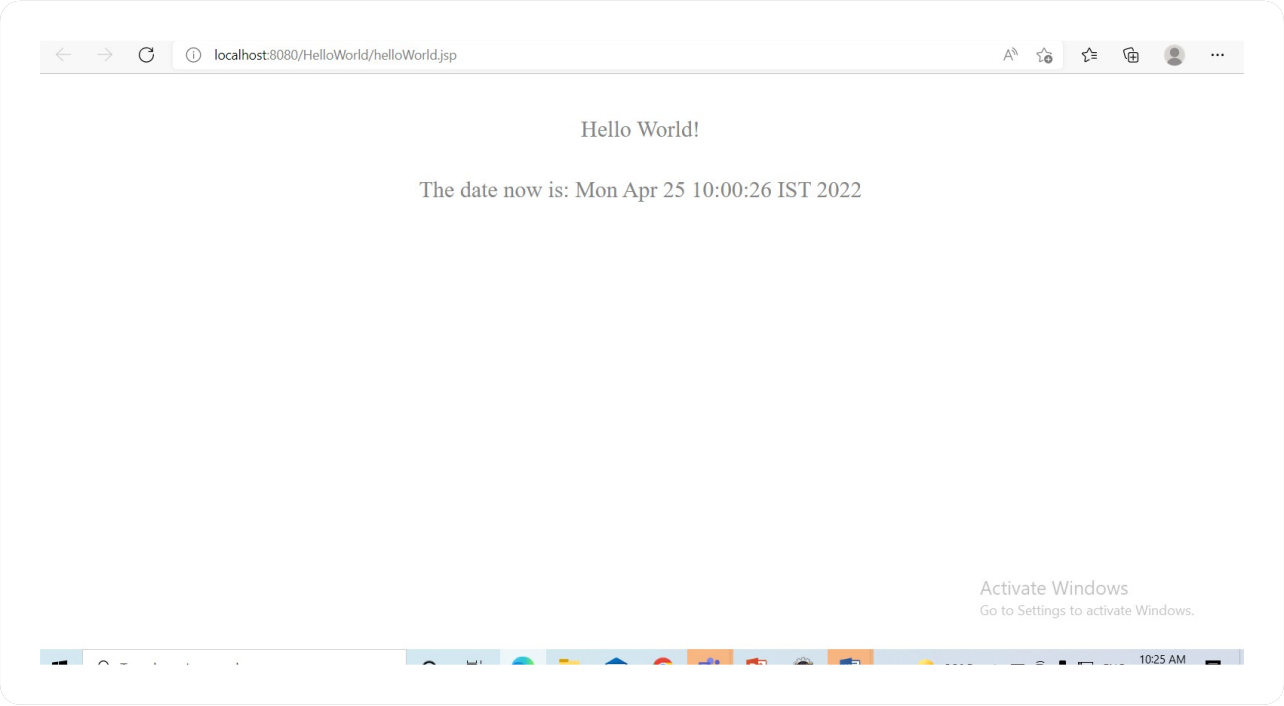
```
Host Name: www.amazon.com
IP Address: 13.227.140.95
```

Exp.9 _Source Code:

HelloWorld.jsp

```
<%@ page language="java" contentType="text/html; charset=ISO-8859-1"
    pageEncoding="ISO-8859-1"%>
<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<title>Insert title here</title>
</head>
<body>
<font color="gray" size="5">

<%= "Hello World!" %>
</font>
</body>
<center>
<br><br>
<font color="gray" size="5">
  The date now is: <%= new java.util.Date() %>
</font>
<center>
<body>
</html>
</html>
```

Output:



Source Code Exp8:

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 = "admin";


   public static void main(String[] args) {
      // Open a connection
      try(Connection conn = DriverManager.getConnection(DB_URL, USER,
PASS);
         Statement stmt = conn.createStatement();
      ) {
         String sql = "CREATE DATABASE STUDENTS1";
         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/STUDENTS";
                                static final String USER = "root";
                                static final String PASS = "admin";


   public static void main(String[] args) {
      // Open a connection
      try(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/STUDENTS";
                                static final String USER = "root";
                                static final String PASS = "admin";
   public static void main(String[] args) {
     // Open a connection
     try(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.ResultSet;
import java.sql.SQLException;
import java.sql.Statement;
public class Displaydata {
                                static final String DB_URL =
"jdbc:mysql://localhost:3306/STUDENTS";
                                static final String USER = "root";
                                static final String PASS = "admin";
   static final String QUERY = "SELECT id, first, last, age FROM REG";
   public static void main(String[] args) {
      // Open a connection
      try(Connection conn = DriverManager.getConnection(DB_URL, USER,
PASS);
         Statement stmt = conn.createStatement();
         ResultSet rs = stmt.executeQuery(QUERY);
      ) {
         while(rs.next()){
            //Display values
            System.out.print("ID: " + rs.getInt("id"));
            System.out.print(", Age: " + rs.getInt("age"));
            System.out.print(", First: " + rs.getString("first"));
            System.out.println(", Last: " + rs.getString("last"));
         }
      } catch (SQLException e) {
         e.printStackTrace();
      }
   }
}
```

Output Exp8:

```
Database created successfully...


Connecting to a selected database...

Connected database successfully...


Created table in given database...


Inserting records into the table...
Inserted records into the table...


ID: 100, Age: 18, First: Zara, Last: Ali
ID: 101, Age: 25, First: Mahnaz, Last: Fatma
ID: 102, Age: 30, First: Zaid, Last: Khan
ID: 103, Age: 28, First: Sumit, Last: Mittal
```

Source Code Exp10:

Index.html

```
<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<title>Calculator</title>
</head>
<body>
<center>
<form method =get action=Calculator>
Number-1<input type=text name =t1><br><br>
Number-2<input type=text name =t2><br><br>
<input type =submit value = "+" name =btn>
<input type =submit value = "-" name =btn>
<input type =submit value = "*" name =btn>
<input type =submit value = "/" name =btn>
</form>
<center>
</body>
</html>
```

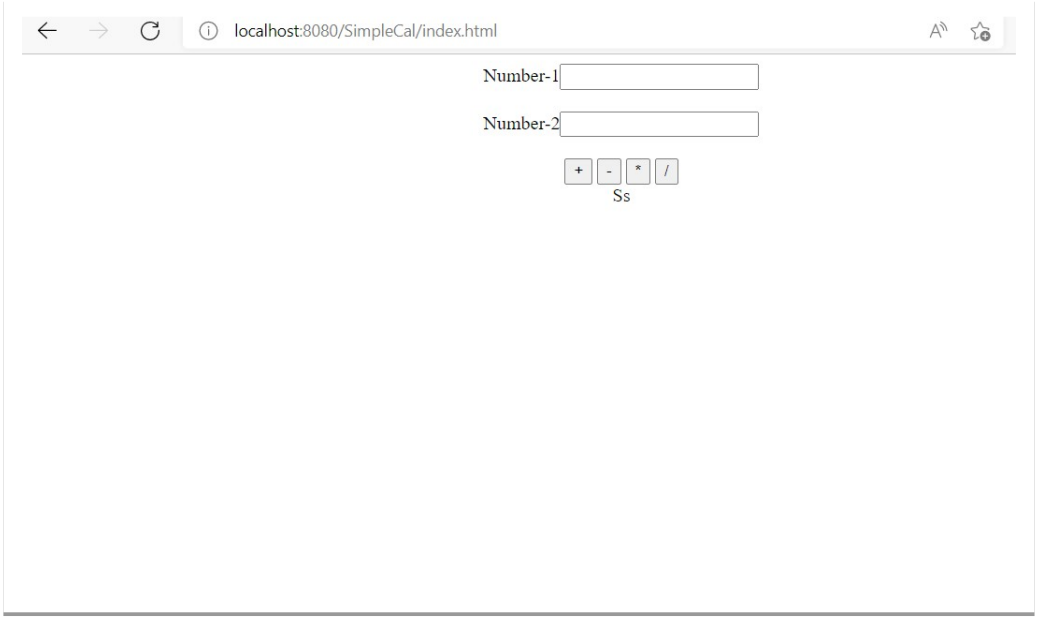
Calculator.html

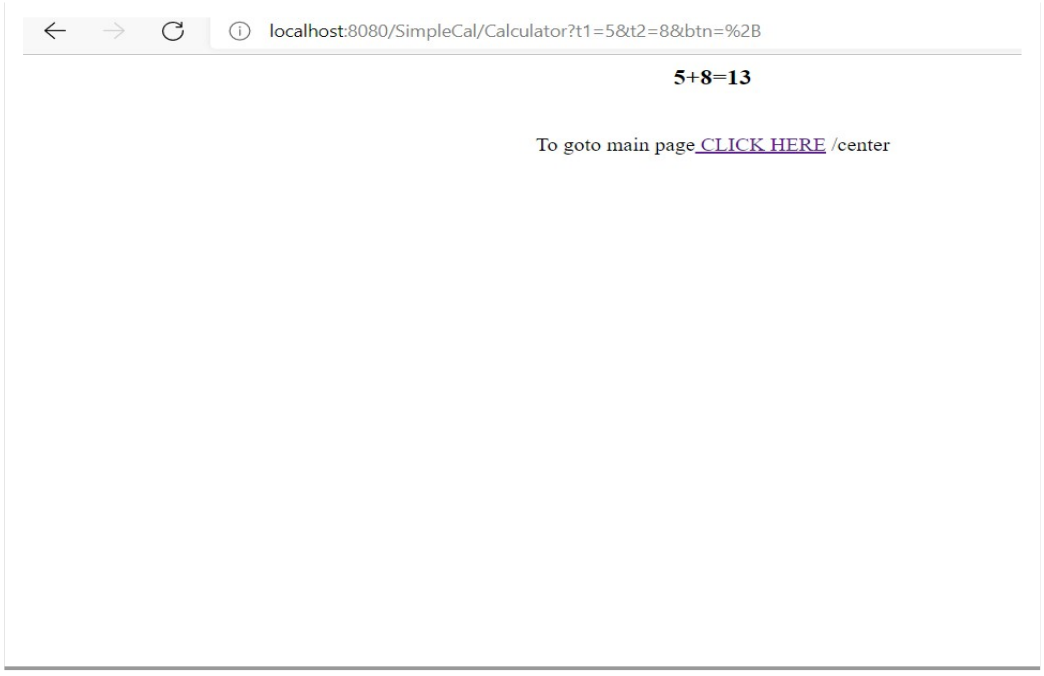
```
package Perform;

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;

public class Calculator extends HttpServlet {
                        private static final long serialVersionUID = 1L;

                        protected void doGet(HttpServletRequest request,
HttpServletResponse response) throws ServletException, IOException {
```

```
                response.setContentType("text/html");
                PrintWriter out=null;
                try
                {
                        out=response.getWriter();
                        out.println("<center>");
                        int
a=Integer.parseInt(request.getParameter("t1"));
                        int
b=Integer.parseInt(request.getParameter("t2"));
                        int c=0;
                        String op=request.getParameter("btn");
                        if (op.equals("+")) c= a+b;
                        if (op.equals("-")) c= a-b;
                        if (op.equals("*")) c= a*b;
                        if (op.equals("/")) c= a/b;

out.println("<h3>"+a+op+b+"="+c+"</h3>");
                }
                catch (Exception e)
                {
                        out.println("Error:"+e.getMessage());


                }
                finally {
                        out.println("<br>");
                        out.println("To goto main page<a
href=index.html> CLICK HERE</a>");
                        out.println("/center");
                }
               }
```

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

}
```

Output Exp10:





Source Code Exp.7:

Home.jsp:

```
<%@ page language="java" contentType="text/html; charset=ISO-8859-1"
    pageEncoding="ISO-8859-1"%>
<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<title>Insert title here</title>
</head>
<body>
<a href="http://localhost:8080/SimpleLogin/home.jsp"> Home</a>
<a href="http://localhost:8080/SimpleLogin/login.jsp"> Login</a>
</body>
</html>
```

Login.jsp:

```
<%@ page language="java" contentType="text/html; charset=ISO-8859-1"
    pageEncoding="ISO-8859-1"%>
<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<title>Insert title here</title>
</head>
<body>
<form action="LoginCheck" method="post">
<pre>

UserName :<input type="text" name="name">

Password: <input type="text" name=pass>

          <input type="Submit" value="Submit">
</pre>
</form>
</body>
</html>
```

Welcome.jsp:

```
<%@ page language="java" contentType="text/html; charset=ISO-8859-1"
    pageEncoding="ISO-8859-1"%>
<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<title>Insert title here</title>
</head>
<body>
<center>
<br><br>
 <font color="gray" size="5">
 Welcome!
 </font>
 </center>
```

```
 <font color="gray" size="5">
 User Name is :${name}<br/>
 </font>
 <font color="gray" size="5">
 Password is :${pass}
 </font>


</body>
</html>
```

Error.jsp:

```
<%@ page language="java" contentType="text/html; charset=ISO-8859-1"
    pageEncoding="ISO-8859-1"%>
<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<title>Insert title here</title>
</head>
<body>
Unsuccessful login!
</body>
</html>
```

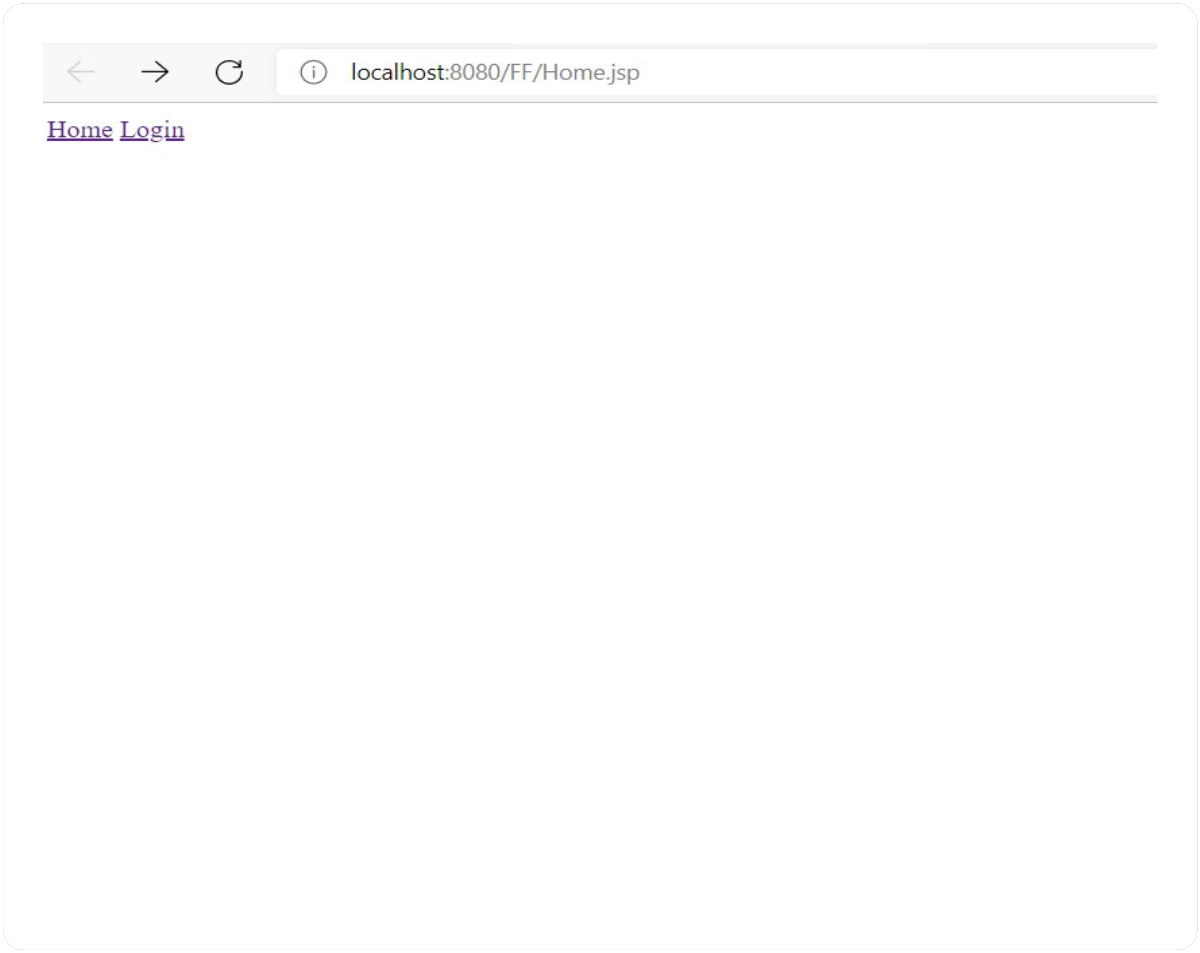
LoginServlet:

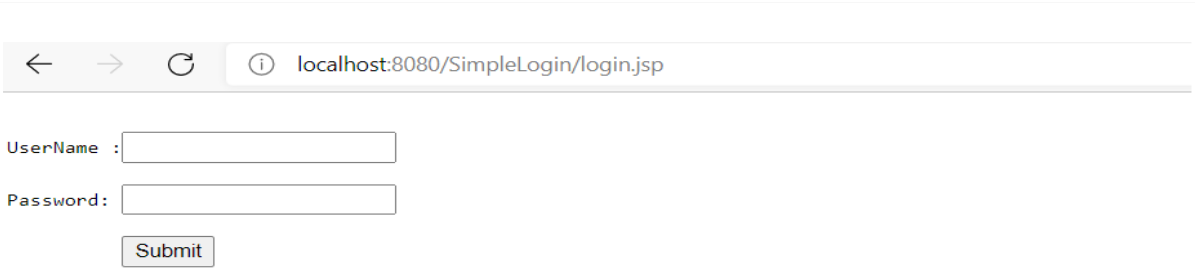
```
import java.io.IOException;
import javax.servlet.ServletException;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;
import javax.servlet.http.HttpSession;

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

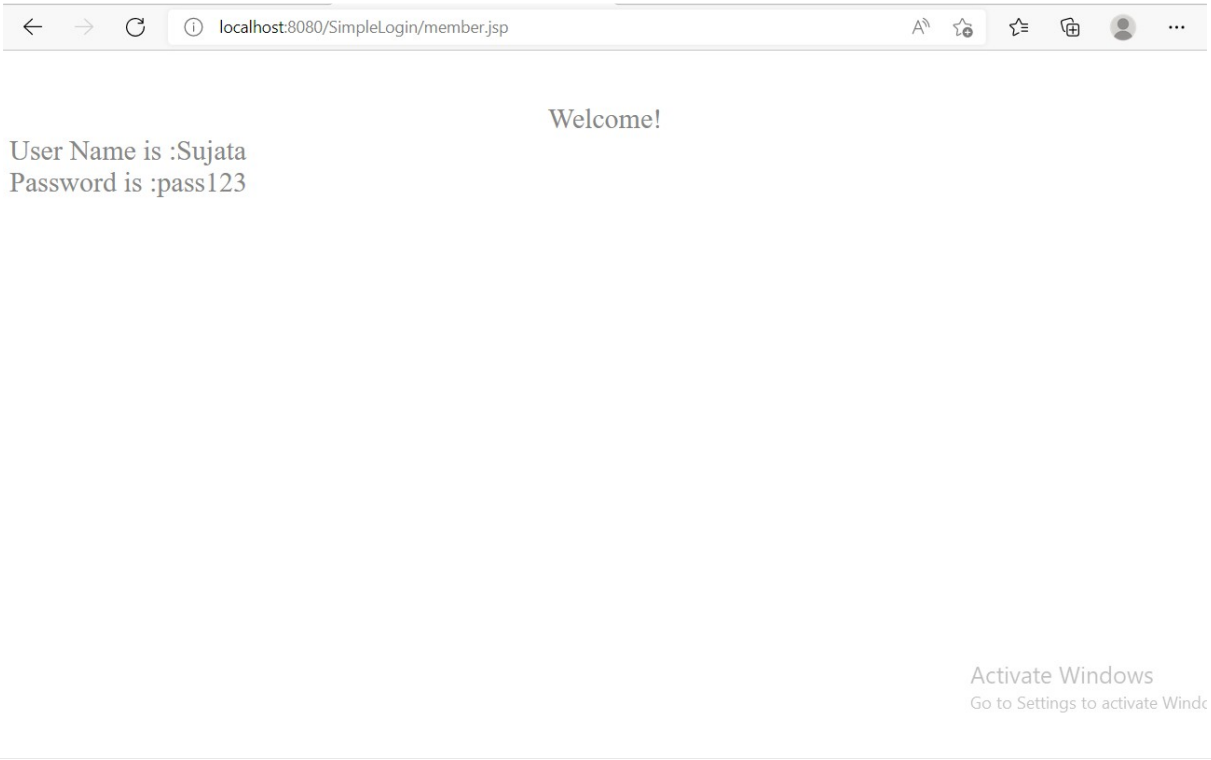
```
    /**
     * @see HttpServlet#HttpServlet()
     */
    public LoginCheck() {
        super();
        // TODO Auto-generated constructor stub
    }


        /**
         * @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());
        }


        /**
         * @see HttpServlet#doPost(HttpServletRequest request,
HttpServletResponse response)
         */
        protected void doPost(HttpServletRequest request,
HttpServletResponse response) throws ServletException,
IOException {
                doGet(request, response);
```

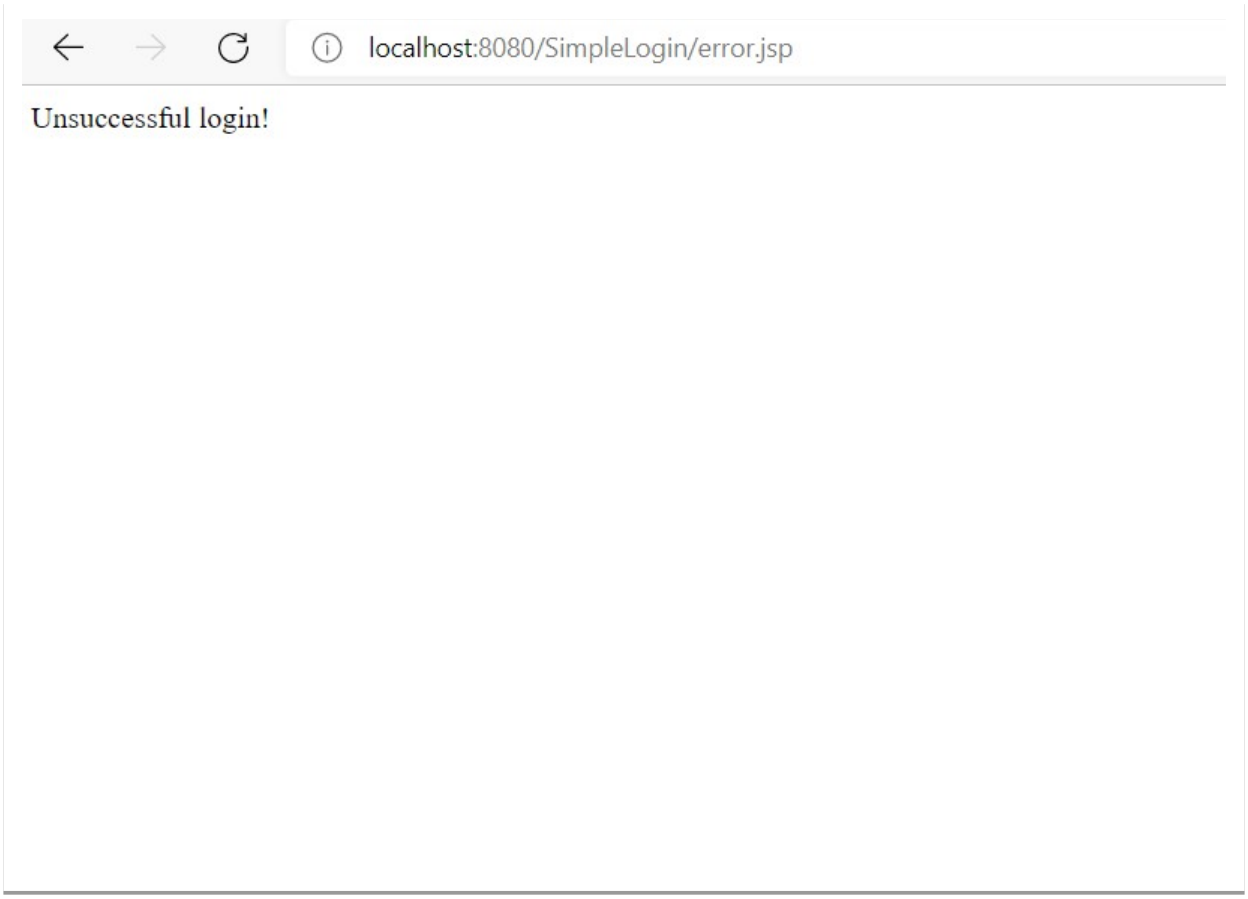
```
		String name=request.getParameter("name");
		String pass=request.getParameter("pass");
		if(name.equals("Sujata") && pass.equals("pass123"))
		{
			HttpSession session=request.getSession();
			session.setAttribute("name", name);

			session.setAttribute("pass", pass);
			response.sendRedirect("member.jsp");

		}
		else
		{
			response.sendRedirect("error.jsp");
		}
			}

}
```

Output Exp.7:




localhost:8080/SimpleLogin/login.jsp
UserName :
Password:
Submit


localhost:8080/SimpleLogin/member.jsp
Welcome!
User Name is :Sujata
Password is :pass123
Activate Windows
Go to Settings to activate Windc


localhost:8080/SimpleLogin/error.jsp
Unsuccessful login!

Source Code Exp.4:

```
 package exp4;


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


public class po{
   static final String DB_URL =
"jdbc:mysql://localhost:3306/sonoo";
   static final String USER = "root";
   static final String PASS = "admin";


   public static void main(String[] args) {
      // Open a connection
           System.out.println("Database Connected
Successfully...");
      try(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 Registration VALUES (142,
'Anisha')";
         stmt.executeUpdate(sql);
```

```
      sql = "INSERT INTO Registration VALUES (215, 'Araya')";
      stmt.executeUpdate(sql);
      sql = "INSERT INTO Registration VALUES (221, 'Bhavan')";
      stmt.executeUpdate(sql);
      sql = "INSERT INTO Registration VALUES(221, 'Ishika')";
      stmt.executeUpdate(sql);
      System.out.println("Inserted records into the table...");
      String query = "SELECT * FROM Registration ";
      Statement st = conn.createStatement();
      ResultSet rs = st.executeQuery(query);
      while (rs.next())
      {
        int id = rs.getInt("p");
        String Name = rs.getString("n");

        // print the results
        System.out.format("%s, %s\n", id, Name);
      }
      st.close();
    }
   catch (Exception e)
   {
     System.err.println("Got an exception! ");
     System.err.println(e.getMessage());
   }
  }
}
```

Output Exp.4:

```
Database Connected Successfully...

Inserting records into the table...

Inserted records into the table...

142, Anisha
215, Araya
221, Bhavan
221, Ishika
```

Source Code Exp.5:

RMI_SER.java

```
import java.io.*;
import java.rmi.*;
import java.net.*;
public class RMI_SER
{
   public static void main(String args[]) throws Exception
   {
      try
      {
         palendrome twox = new palendrome();
         Naming.bind("palin", twox);
         System.out.println("Object registered");
      }
      catch(Exception e)
      {
         System.out.println("Exception" + e);
      }
   }
}
```

Palinterface.java:

```
import java.rmi.Remote;
import java.rmi.RemoteException;
interface PalInterface extends Remote
```

```
{

    public int palin(String a) throws RemoteException;
}
```

Palindrome.java

```
import java.rmi.*;
import java.lang.*;
import java.rmi.server.*;
public class palendrome extends UnicastRemoteObject
implements PalInterface
{
    public palendrome() 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;
```

```
    }
}
```

Palclient.java

```
import java.io.*;
import java.rmi.*;
import java.net.*;
public class palclient
{
    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);
    }
  }
}
```

Output Exp.5:

```
Object registered
Print : 1
The given string is a Palindrome
```