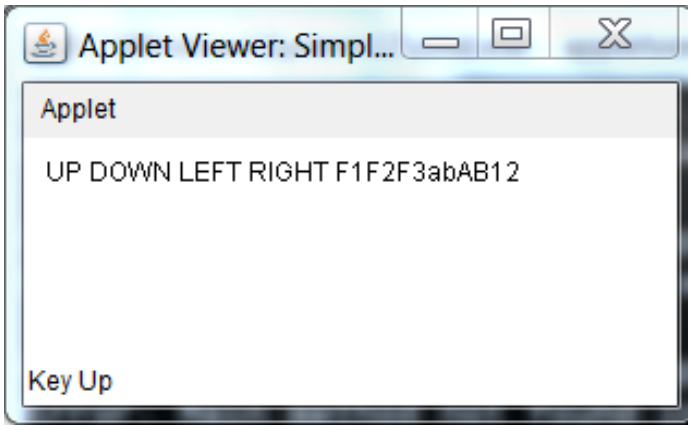
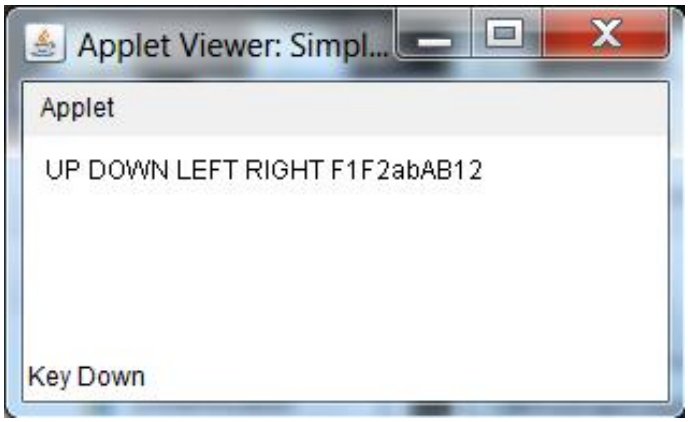
EXPERIMENT 1

```
import java.awt.*;
import java.awt.event.*;
import java.applet.*;
/*
<applet code="SimpleKey1.class" width=300 height=100>
</applet>
*/
public class SimpleKey1 extends Applet implements KeyListener
{
String msg = "";
int X = 10, Y = 20; // output coordinates

public void init()
{
addKeyListener(this);
}
public void keyPressed(KeyEvent k)
{
showStatus("Key Down");
 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_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 ke)
{
showStatus("Key Up");
}
public void keyTyped(KeyEvent ke)
{
msg += ke.getKeyChar();
repaint();
}
// Display keystrokes.
public void paint(Graphics g)
{
g.drawString(msg, X, Y);
}
}
```

OUTPUT

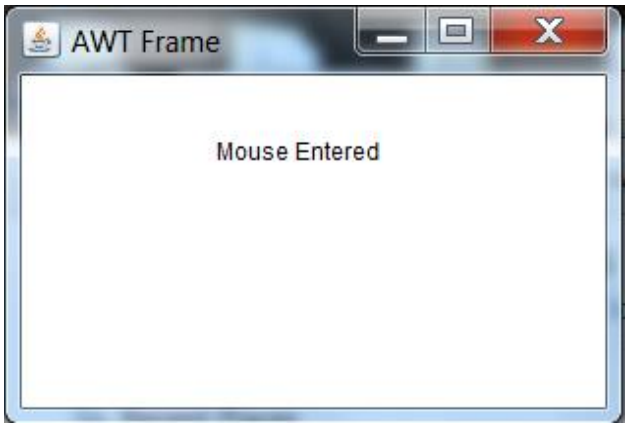

Applet Viewer: Simpl...
Applet
UP DOWN LEFT RIGHT F1F2F3abAB12
Key Up

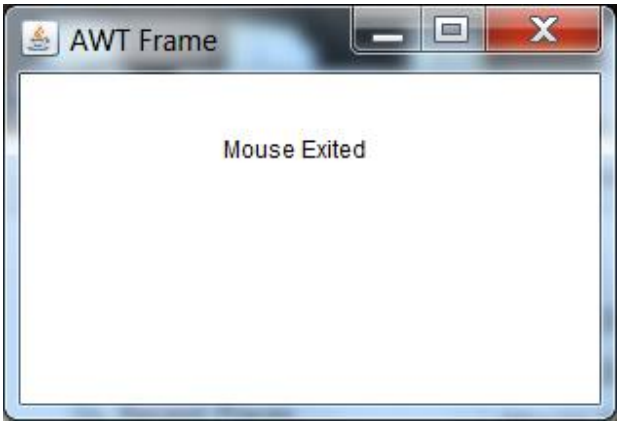

Applet Viewer: Simpl...
Applet
UP DOWN LEFT RIGHT F1F2abAB12
Key Down

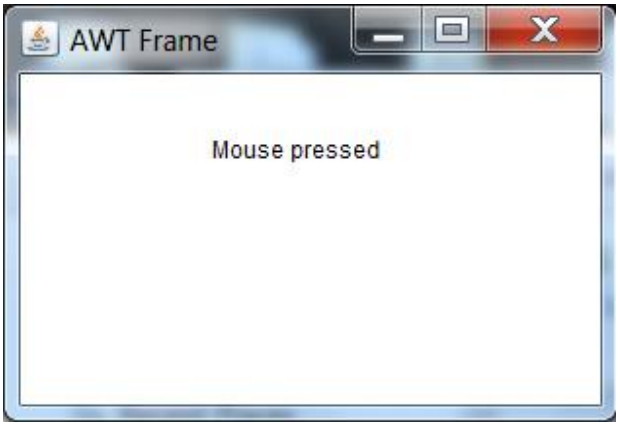
EXPERIMENT 2

```
//**** Mouse_Exp2.java ****//
// Program we want to check events like Mouse click, mouse entered and mouse exited
import java.awt.*;
import java.awt.event.*;

public class Mouse_Exp2 extends Frame implements MouseListener {
Label l;
Mouse_Exp2() {
super("AWT Frame");
l = new Label();
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 Mouse_Exp2();
}
@Override
public void mouseClicked(MouseEvent e) {
l.setText("Mouse Clicked");
}
@Override
public void mousePressed(MouseEvent e) {
l.setText("Mouse pressed");
}
@Override
public void mouseReleased(MouseEvent e) {
l.setText("Mouse released");
}
@Override
public void mouseEntered(MouseEvent e) {
l.setText("Mouse Entered");
}
@Override
public void mouseExited(MouseEvent e) {
l.setText("Mouse Exited");}}
```

OUTPUT


AWT Frame
Mouse Entered


AWT Frame
Mouse Exited

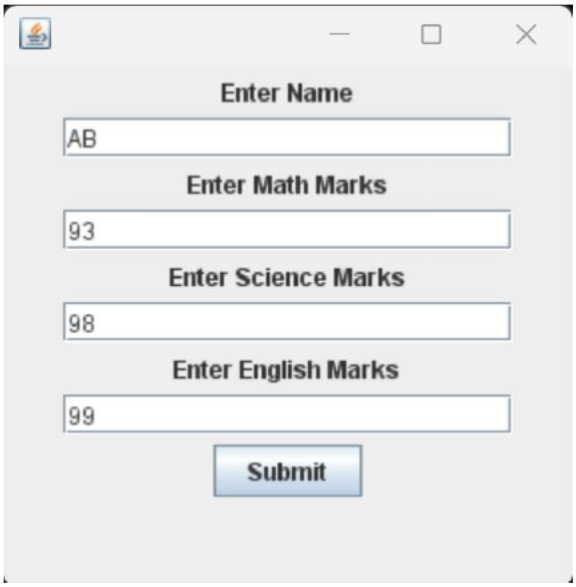

AWT Frame
Mouse pressed

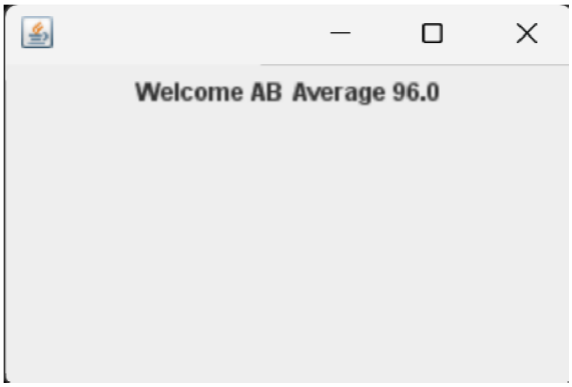
EXPERIMENT 3

```
import java.awt.BorderLayout;
import java.awt.GridLayout;
import java.awt.event.ActionEvent;
import java.awt.event.ActionListener;

import javax.swing.JButton;
import javax.swing.JFrame;
import javax.swing.JLabel;
import javax.swing.JPanel;
import javax.swing.JTextField;

public class ReportCard 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 ReportCard()
	{
		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, 100);
                        }

                });

        }

        public static void main(String[] args) {
                ReportCard rc = new ReportCard();
                rc.setSize(300, 200);
                rc.setVisible(true);
        }
}
```

OUTPUT


Enter Name
AB
Enter Math Marks
93
Enter Science Marks
98
Enter English Marks
99
Submit


Welcome AB Average 96.0

EXPERIMENT 4

4.1] SQL SELECT Statement

```
import java.sql.*;
// User class
public class SQLStatementSelect{
public static void main(String args[]){
try{
Class.forName("com.mysql.jdbc.Driver"); // register the driver class
Connection
con=DriverManager.getConnection("jdbc:mysql://localhost:3306/pqr?characterEncoding=latin1","ro
ot","root");
Statement stmt=con.createStatement();
ResultSet rs=stmt.executeQuery("select * from pqrs1");
while(rs.next())
//System.out.println("Success");
System.out.println(rs.getString(1)+" "+rs.getString(2)+" "+rs.getString(3));
con.close();
}catch(Exception e){
System.out.println(e);}
}
}
```

4.2] SQL INSERT Statement

```
//Program to insert new record into the table
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.PreparedStatement;
import java.sql.ResultSet;
import java.sql.Statement;

public class SQLPreparedStatementInsert{
	public static void main(String[] args) {
		try{
			Class.forName("com.mysql.jdbc.Driver");
			Connection
con=DriverManager.getConnection("jdbc:mysql://localhost:3306/pqr","root","root");

	PreparedStatement stmt = con.prepareStatement("insert into pqrs1 values (?,?,?)");
			stmt.setString(1,"5");
			stmt.setString(2,"pqr@gmail.com");
			stmt.setString(3,"Baramati");
			//stmt.setString(4, "India");
			//stmt.setString(4,"India");
			int i = stmt.executeUpdate();
			System.out.println(i + "Records inserted..");
			con.close();
		}
		catch(Exception e){
			System.out.println(e);
		}

	}

}
```

4.3] SQL UPDATE Statement

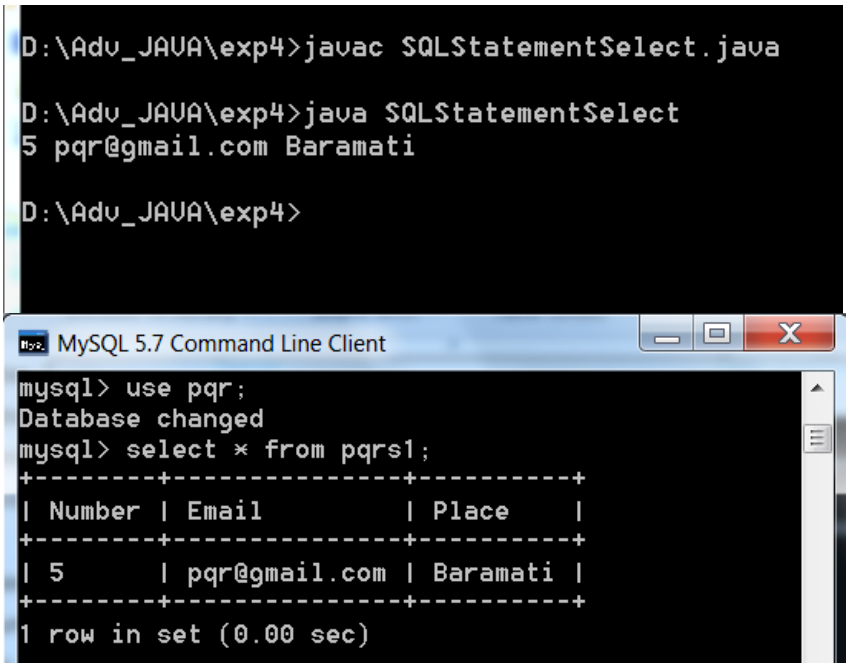
```
//Program to update any field of the record
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.PreparedStatement;
import java.sql.ResultSet;
import java.sql.Statement;
public class SQLPreparedStatementUpdate{
	public static void main(String[] args) {
		try{
			Class.forName("com.mysql.jdbc.Driver");
	Connection
con=DriverManager.getConnection("jdbc:mysql://localhost:3306/pqr","root","root");

     PreparedStatement stmt = con.prepareStatement("update pqrs1 set  user=? where emailid=? ");
		stmt.setString(1,"5");
		stmt.setString(2,"santosh@gmail.com");

			int i = stmt.executeUpdate();
			System.out.println(i + "Records updated");
			con.close();
		}
		catch(Exception e){
			System.out.println(e);
		}

	}

}
```

4.4] SQL DELETE Statement

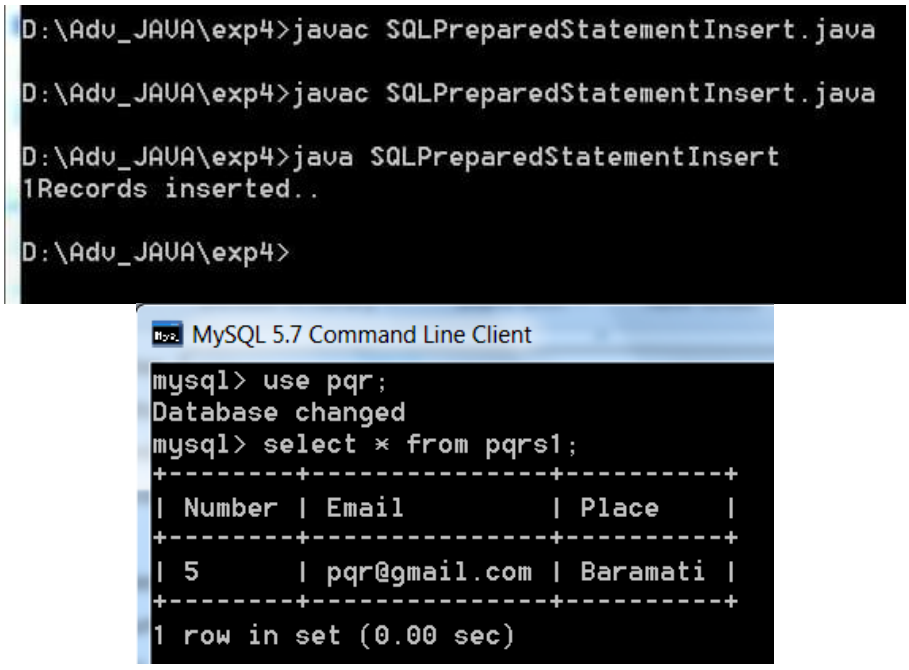
```
//Program to delete record from the table
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.PreparedStatement;
import java.sql.ResultSet;
import java.sql.Statement;

public class SQLPreparedStatementDelete{
        public static void main(String[] args) {
                try{
                        Class.forName("com.mysql.jdbc.Driver");
                        Connection
con=DriverManager.getConnection("jdbc:mysql://localhost:3306/pqr","root","root");

                        PreparedStatement stmt = con.prepareStatement("delete from pqrs1 where
emailid =?");
                        stmt.setString(5," pqr@gmail.com ");

                        int i = stmt.executeUpdate();
                        System.out.println(i + "Records deleted");
                        con.close();
                }
                catch(Exception e){
                        System.out.println(e);
                } } }
```

OUTPUT

1. SQL Select Statement



2. SQL Insert Statement



3. SQL Update Statement

```
D:\Adv_JAVA\exp4>javac SQLPreparedStatementUpdate.java

D:\Adv_JAVA\exp4>java SQLPreparedStatementUpdate
1Records updated

D:\Adv_JAVA\exp4>
```

MySQL 5.7 Command Line Client

```
mysql> select * from pqrs1;
+--------+---------------+----------+
| Number | Email         | Place    |
+--------+---------------+----------+
| 6      | pqr@gmail.com | Baramati |
+--------+---------------+----------+
1 row in set (0.00 sec)
```

4. SQL Delete Statement

C:\Windows\System32\cmd.exe

```
D:\Adv_JAVA\exp4>set classpath=C:\Program Files\Java\jdk1.8.0_321\lib\mysql-conn
ector-java-5.0.8-bin.jar;.;

D:\Adv_JAVA\exp4>javac SQLPreparedStatementDelete.java

D:\Adv_JAVA\exp4>javac SQLPreparedStatementDelete.java

D:\Adv_JAVA\exp4>java SQLPreparedStatementDelete
1Records deleted

D:\Adv_JAVA\exp4>
```

MySQL 5.7 Command Line Client

```
mysql> select * from pqrs1;
Empty set (0.00 sec)

mysql>
```

EXPERIMENT 5

CLIENT

```
import java.rmi.*;
public class PalClient {
	public static void main(String args[])
		{
		try
			{
			String palServerURL = "rmi://" + args[0] + "/PAL-SERVER";
			PalServerIntf palServerIntf = (PalServerIntf)Naming.lookup(palServerURL);
			int n = 515;
			int m=palServerIntf.pal(n);
			if(m==1)
				System.out.println("Palindrome Number ");
			else
				System.out.println("Not Palindrome Number ");
			}
		catch(Exception e)
			{
			System.out.println("Exception: " + e);
			}
		}
}
```

SERVER

```
import java.net.*;
import java.rmi.*;
public class PalServer {
public static void main(String args[])
	{
	try {
		PalServerImpl palServerImpl = new PalServerImpl();
		Naming.rebind("PAL-SERVER", palServerImpl);
		}
	catch(Exception e) {
		System.out.println("Exception: " + e);
		}
	}
}
```

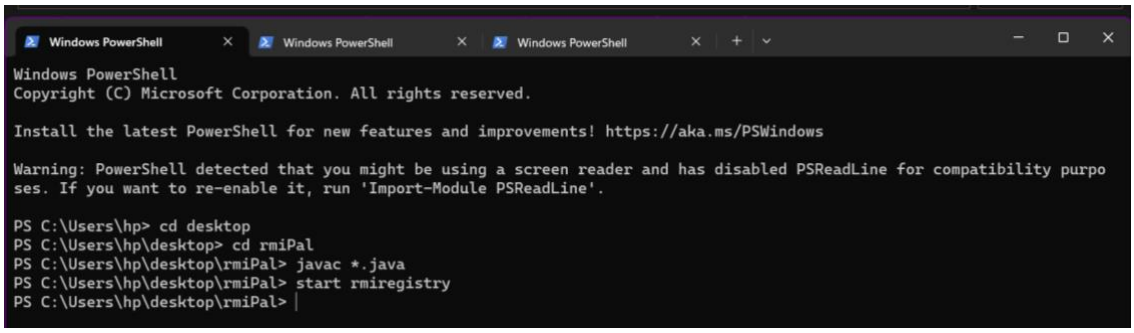
SERVER IMPLEMENTATION

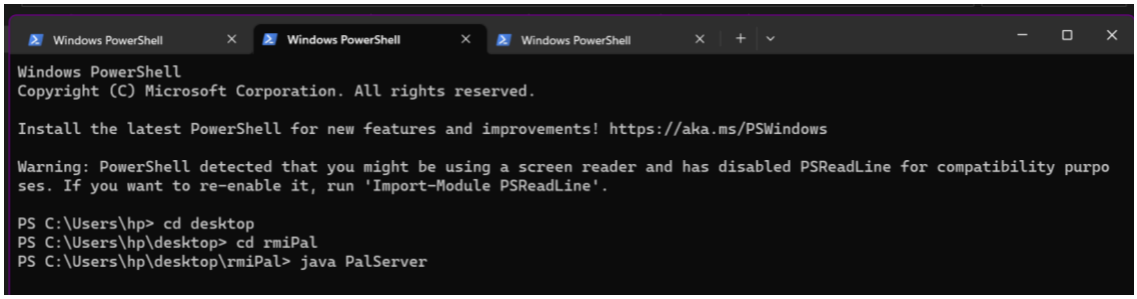
```
import java.rmi.*;
import java.rmi.server.*;
public class PalServerImpl extends UnicastRemoteObject implements PalServerIntf {
	public PalServerImpl() throws RemoteException {
                                                                }
	public int pal(int n) throws RemoteException
	{
		int r,sum=0,temp;
		temp=n;
		while(n>0)
			{
			r=n%10;  //getting remainder
			sum=(sum*10)+r;
			n=n/10;
			}
		if(temp==sum)
			{
			//System.out.println("palindrome number ");
			return 1;
			}
		else
			{
			//System.out.println("not palindrome");
			return 0;
			}

	}
}
```

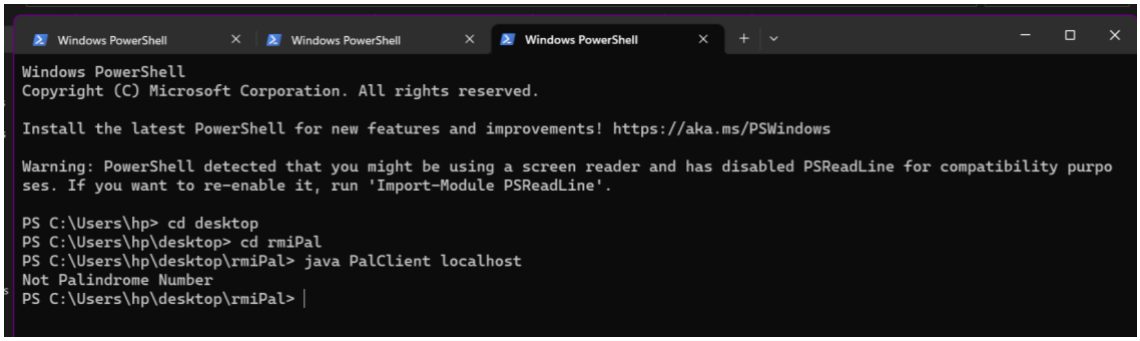
REMOTE INTERFACE

```
import java.rmi.*;
public interface PalServerIntf extends Remote {
	int pal(int n) throws RemoteException;
}
```

Output:


Windows PowerShell
Windows PowerShell
Windows PowerShell
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.
Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows
Warning: PowerShell detected that you might be using a screen reader and has disabled PSReadLine for compatibility purpo
ses. If you want to re-enable it, run 'Import-Module PSReadLine'.
PS C:\Users\hp> cd desktop
PS C:\Users\hp\desktop> cd rmiPal
PS C:\Users\hp\desktop\rmiPal> javac *.java
PS C:\Users\hp\desktop\rmiPal> start rmiregistry
PS C:\Users\hp\desktop\rmiPal>

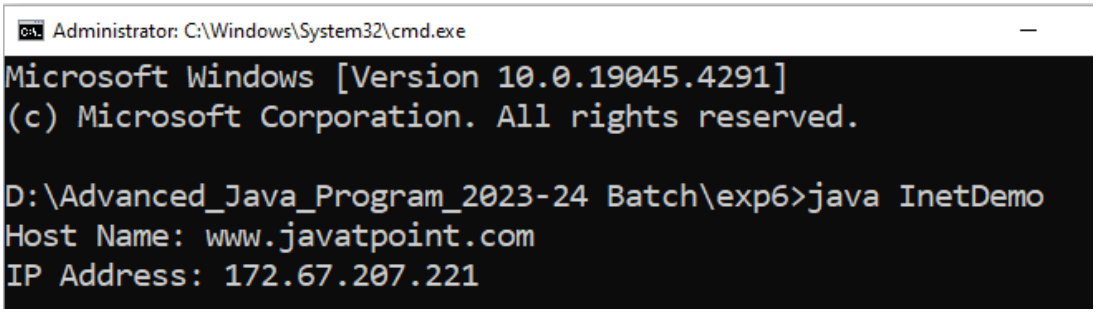

Windows PowerShell
Windows PowerShell
Windows PowerShell
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.
Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows
Warning: PowerShell detected that you might be using a screen reader and has disabled PSReadLine for compatibility purpo
ses. If you want to re-enable it, run 'Import-Module PSReadLine'.
PS C:\Users\hp> cd desktop
PS C:\Users\hp\desktop> cd rmiPal
PS C:\Users\hp\desktop\rmiPal> java PalServer


Windows PowerShell
Windows PowerShell
Windows PowerShell
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.
Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows
Warning: PowerShell detected that you might be using a screen reader and has disabled PSReadLine for compatibility purpo
ses. If you want to re-enable it, run 'Import-Module PSReadLine'.
PS C:\Users\hp> cd desktop
PS C:\Users\hp\desktop> cd rmiPal
PS C:\Users\hp\desktop\rmiPal> java PalClient localhost
Not Palindrome Number
PS C:\Users\hp\desktop\rmiPal>

EXPERIMENT 6

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

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

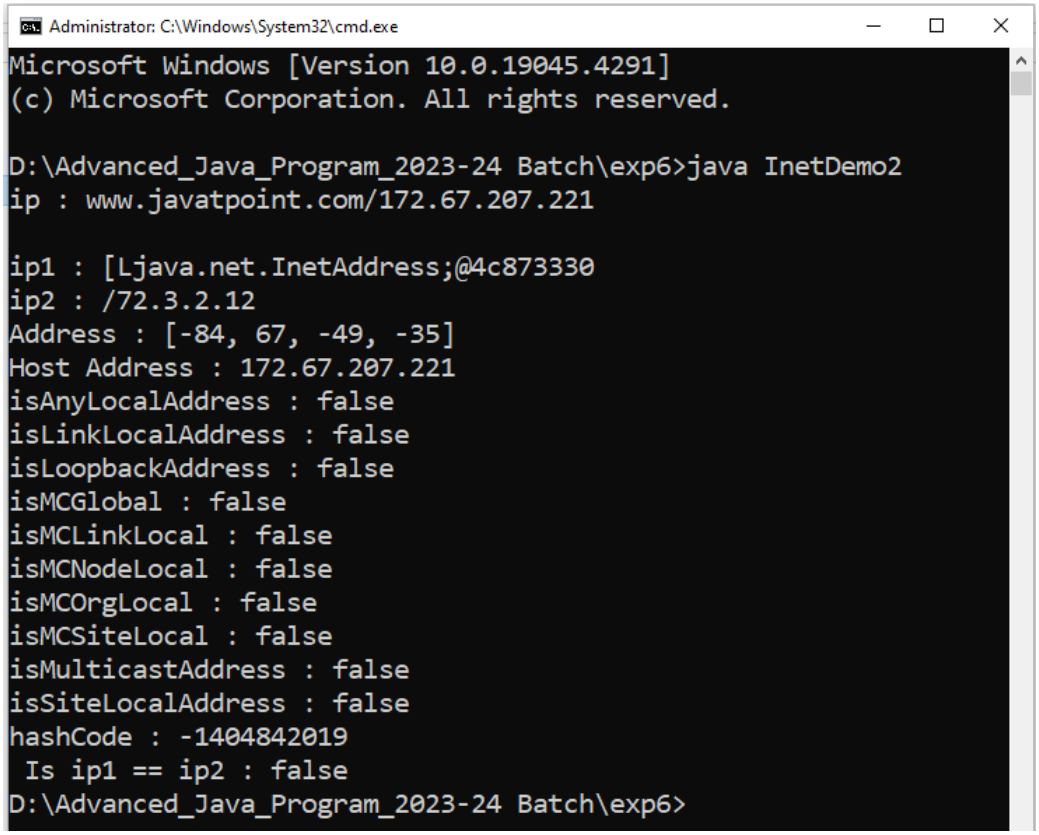
OUTPUT


Administrator: C:\Windows\System32\cmd.exe
Microsoft Windows [Version 10.0.19045.4291]
(c) Microsoft Corporation. All rights reserved.
D:\Advanced_Java_Program_2023-24 Batch\exp6>java InetDemo
Host Name: www.javatpoint.com
IP Address: 172.67.207.221

EXPERIMENT 6

```
import java.net.Inet4Address;
import java.util.Arrays;
import java.net.InetAddress;
public class InetDemo2
{
public static void main(String[] arg) throws Exception
{
InetAddress ip = Inet4Address.getByName("www.javatpoint.com");
InetAddress ip1[] = InetAddress.getAllByName("www.javatpoint.com");
byte addr[]={72, 3, 2, 12};
System.out.println("ip : "+ip);
System.out.print("\nip1 : "+ip1);
InetAddress ip2 = InetAddress.getByAddress(addr);
System.out.print("\nip2 : "+ip2);
System.out.print("\nAddress : " +Arrays.toString(ip.getAddress()));
System.out.print("\nHost Address : " +ip.getHostAddress());
System.out.print("\nisAnyLocalAddress : " +ip.isAnyLocalAddress());
System.out.print("\nisLinkLocalAddress : " +ip.isLinkLocalAddress());
System.out.print("\nisLoopbackAddress : " +ip.isLoopbackAddress());
System.out.print("\nisMCGlobal : " +ip.isMCGlobal());
System.out.print("\nisMCLinkLocal : " +ip.isMCLinkLocal());
System.out.print("\nisMCNodeLocal : " +ip.isMCNodeLocal());
System.out.print("\nisMCOrgLocal : " +ip.isMCOrgLocal());
System.out.print("\nisMCSiteLocal : " +ip.isMCSiteLocal());
System.out.print("\nisMulticastAddress : " +ip.isMulticastAddress());
System.out.print("\nisSiteLocalAddress : " +ip.isSiteLocalAddress());
System.out.print("\nhashCode : " +ip.hashCode());
System.out.print("\n Is ip1 == ip2 : " +ip.equals(ip2));
}
}
```

OUTPUT


Administrator: C:\Windows\System32\cmd.exe
Microsoft Windows [Version 10.0.19045.4291]
(c) Microsoft Corporation. All rights reserved.
D:\Advanced_Java_Program_2023-24 Batch\exp6>java InetDemo2
ip : www.javatpoint.com/172.67.207.221
ip1 : [Ljava.net.InetAddress;@4c873330
ip2 : /72.3.2.12
Address : [-84, 67, -49, -35]
Host Address : 172.67.207.221
isAnyLocalAddress : false
isLinkLocalAddress : false
isLoopbackAddress : false
isMCGlobal : false
isMCLinkLocal : false
isMCNodeLocal : false
isMCOrgLocal : false
isMCSiteLocal : false
isMulticastAddress : false
isSiteLocalAddress : false
hashCode : -1404842019
Is ip1 == ip2 : false
D:\Advanced_Java_Program_2023-24 Batch\exp6>

EXPERIMENT 7

A] LoginServlet.java

```
package com.example;

import java.io.*;
import jakarta.servlet.http.*;
import jakarta.servlet.*;

public class LoginServlet extends HttpServlet  {

   protected void doPost(HttpServletRequest request, HttpServletResponse response) throws
IOException, ServletException {
      try {
         response.setContentType("text/html");
         PrintWriter out = response.getWriter();
         out.println("<h1>Server side code.</h1>");
         out.println("Username : " + request.getParameter("user"));
         out.println("Password : " + request.getParameter("pass"));
         out.close();
      } catch (Exception ex) {
         ex.printStackTrace(System.err);
      }
   }

   protected void doGet(HttpServletRequest request, HttpServletResponse response) throws
IOException, ServletException {
      try {
         response.setContentType("text/html");
         PrintWriter out = response.getWriter();
         out.println("<h1>Not supported.</h1>");
         out.close();
      } catch (Exception ex) {
         ex.printStackTrace(System.err);
      }
   }

}
```

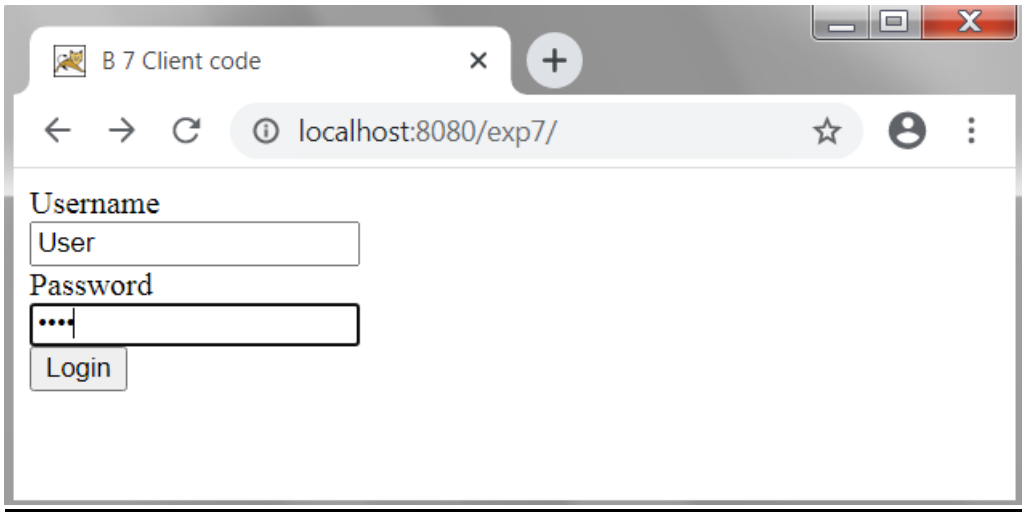
B] login.html

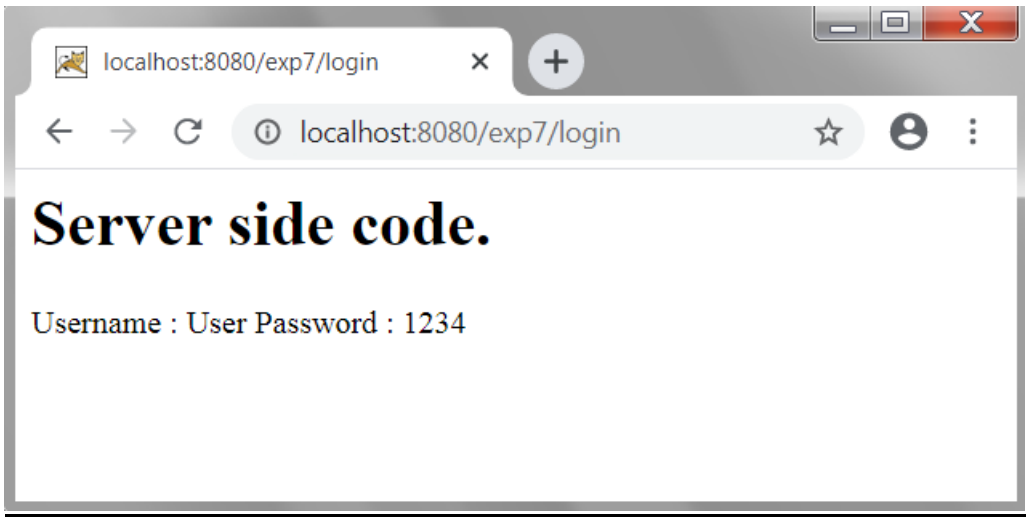
```
<!DOCTYPE html>
<html>
  <head>
    <title>B 7 Client code</title>
    <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.0-alpha3/dist/css/bootstrap.min.css"
rel="stylesheet" integrity="sha384-
KK94CHFLLe+nY2dmCWGMq91rCGa5gtU4mk92HdvYe+M/SXH301p5ILy+dN9+nJOZ"
crossorigin="anonymous">
  </head>
  <body>
    <div class="container pt-5">
      <form action="login" method="post">
        <div class="row">
          <div class="col-md-4">
            <label for="username">Username</label>
          </div>
          <div class="col-md-4">
            <input class="form-control" id="username" type="text" name="user" />
          </div>
        </div>

        <div class="row pt-2">
          <div class="col-md-4">
            <label for="password">Password</label>
          </div>
          <div class="col-md-4">
            <input class="form-control" id="password" type="password" name="pass" />
          </div>
        </div>
        <div class="row pt-5">
          <div class="col-md-4"></div>
          <div class="col-md-4"><button class="btn btn-success rounded-pill px-3" type="submit"
name="submit">Login</button></div>
          <div class="col-md-4"></div>
        </div>
      </form>
    </div>
  </body>
</html>
```

C] index.html

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <title>B 7 Client code</title>
  </head>
  <body>
    <div class="container">
      <form action="login" method="POST">
        <div class="row">
          <div class="col-md-4">
            <label for="username">Username</label>
          </div>
          <div class="col-md-4">
            <input id="username" type="text" name="username" />
          </div>
        </div>
        <div class="row">
          <div class="col-md-4">
            <label for="password">Password</label>
          </div>
          <div class="col-md-4">
            <input id="password" type="text" name="password" />
          </div>
        </div>
      </form>
    </div>
  </body>
</html>
```

OUTPUT

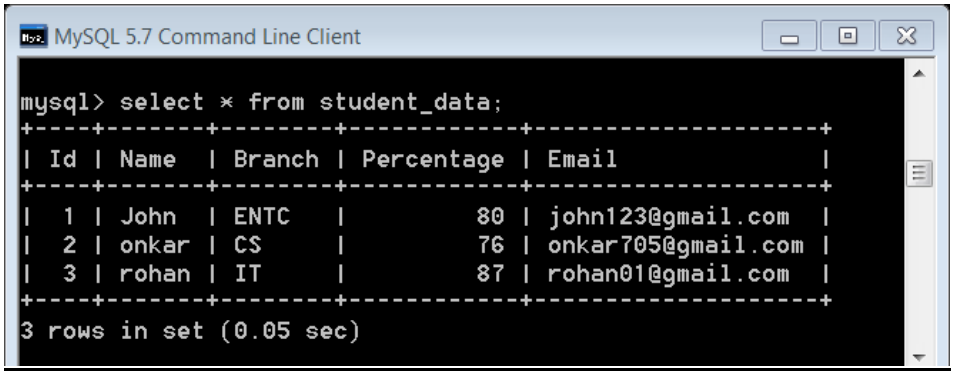

B 7 Client code
localhost:8080/exp7/
Username
User
Password
Login

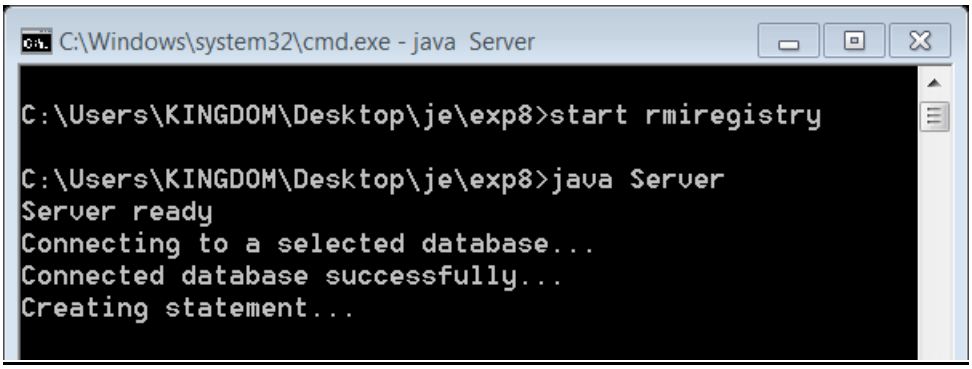

localhost:8080/exp7/login
localhost:8080/exp7/login
Server side code.
Username : User Password : 1234

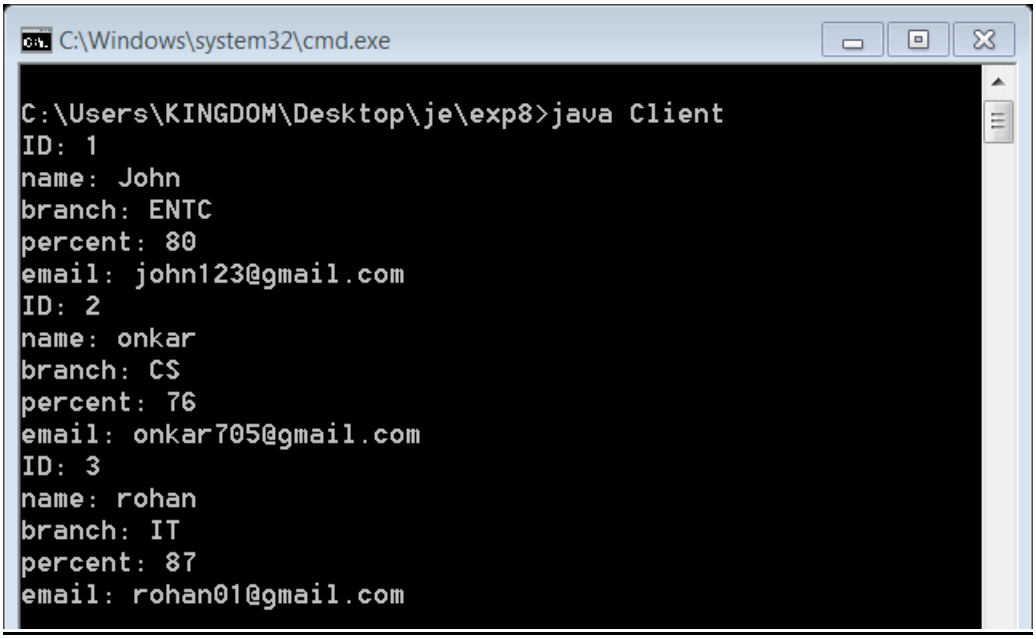
EXPERIMENT 8

```
public class Student implements java.io.Serializable {
 private int id, percent;
 private String name, branch, email;

 public int getId() {
 return id;
 }
 public String getName() {
 return name;
 }
 public String getBranch() {
 return branch;
 }
 public int getPercent() {
 return percent;
 }
 public String getEmail() {
 return email;
 }
 public void setID(int id) {
 this.id = id;
 }
 public void setName(String name) {
 this.name = name;
 }
 public void setBranch(String branch) {
 this.branch = branch;
 }
 public void setPercent(int percent) {
 this.percent = percent;
 }
 public void setEmail(String email) {
 this.email = email;
 }
}
```

OUTPUT


MySQL 5.7 Command Line Client
mysql> select * from student_data;
+----+-------+--------+------------+--------------------+
| Id | Name | Branch | Percentage | Email |
+----+-------+--------+------------+--------------------+
1	John	ENTC	80	john123@gmail.com
2	onkar	CS	76	onkar705@gmail.com
3	rohan	IT	87	rohan01@gmail.com
+----+-------+--------+------------+--------------------+
3 rows in set (0.05 sec)


C:\Windows\system32\cmd.exe - java Server
C:\Users\KINGDOM\Desktop\je\exp8>start rmiregistry
C:\Users\KINGDOM\Desktop\je\exp8>java Server
Server ready
Connecting to a selected database...
Connected database successfully...
Creating statement...


C:\Windows\system32\cmd.exe
C:\Users\KINGDOM\Desktop\je\exp8>java Client
ID: 1
name: John
branch: ENTC
percent: 80
email: john123@gmail.com
ID: 2
name: onkar
branch: CS
percent: 76
email: onkar705@gmail.com
ID: 3
name: rohan
branch: IT
percent: 87
email: rohan01@gmail.com

EXPERIMENT 9

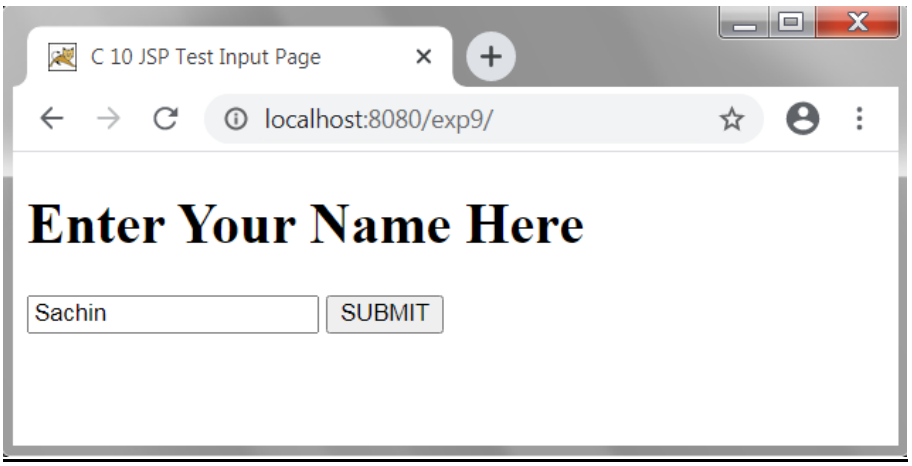
1] index.jsp

```
<!DOCTYPE html>
<html lang="en">
  <head>
  <title>C 10 JSP Test Input Page</title>
  </head>
  <body>
    <form action="home.jsp" method="POST">
      <h1>Enter Your Name Here</h1>
      <input type="text" name="name" />
      <button type-"submit" >SUBMIT</button>
    </form>
  </body>
</html>
```

2] home.jsp

```
<!DOCTYPE html>
<html lang="en">
  <head>
  <title>C 10 JSP Test Home Page</title>
  </head>
  <body>
  <%
  System.out.println("----------1");
  out.println("<h1>Sample message in jsp</h1>");
  %>
  <h2>Hello <%=request.getParameter("name") %></h2>
  </body>
</html>
```

OUTPUT


C 10 JSP Test Input Page
localhost:8080/exp9/
Enter Your Name Here
Sachin
SUBMIT


C 10 JSP Test Home Page
localhost:8080/exp9/home.jsp
Sample message in jsp
Hello Sachin

EXPERIMENT 10

A] LOG IN

```
package com.example;

import java.io.*;
import jakarta.servlet.*;
import jakarta.servlet.http.*;

public class LoginServlet extends HttpServlet {

   protected void service(HttpServletRequest request, HttpServletResponse response) throws
IOException {
      String username = request.getParameter("username");
      String password = request.getParameter("password");
      if("admin".equals(username) && "secret".equals(password)) {
         HttpSession session = request.getSession();
         session.setAttribute("loggedIn", "true");
         response.sendRedirect("home.jsp");
      } else {
         PrintWriter writer = response.getWriter();
         response.setContentType("text/html");
         writer.println("Invalid credentials.");
         writer.println("<a href='index.jsp'>Back to Login</a>");
      }
   }

}
```

B] LOG OUT

```
package com.example;

import java.io.*;
import jakarta.servlet.*;
import jakarta.servlet.http.*;

public class LogoutServlet extends HttpServlet {

   protected void service(HttpServletRequest request, HttpServletResponse response) throws
IOException {
      HttpSession session = request.getSession(true);
      session.removeAttribute("loggedIn");
      response.sendRedirect("index.jsp");
   }

}
```

3] index.jsp

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <title>C 11 Login Page</title>
  </head>
  <body>
    <div class="container">
      <form action="doLogin" method="POST">
        <div class="row">
          <div class="col-md-4">
            <label for="username">Username</label>
          </div>
          <div class="col-md-4">
            <input id="username" type="text" name="username" />
          </div>
        </div>
        <div class="row">
          <div class="col-md-4">
            <label for="password">Password</label>
          </div>
          <div class="col-md-4">
            <input id="password" type="password" name="password" />
          </div>
        </div>
        <div class="row">
          <button type="submit" name="submit">Login</button>
        </div>
      </form>
    </div>
  </body>
</html>
```

4[home.jsp

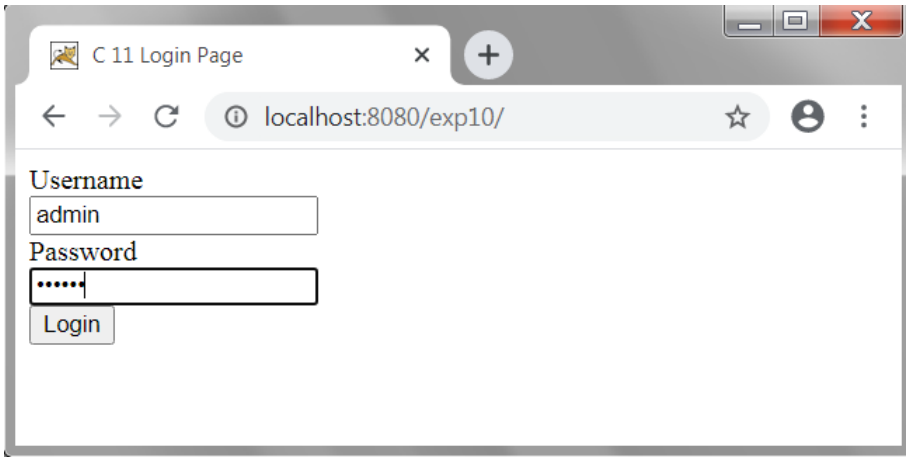
```
<%
if(session.getAttribute("loggedIn") == null) {
  response.sendRedirect("error.jsp");
  return;
}
%>
<!DOCTYPE html>
<html lang="en">
  <head>
    <title>C 11 Home page</title>
  </head>
  <body>
```

```
      <div class="container">
         <h1>Welcome to home page</h1>
         <a href="logout">Logout</a>
      </div>
   </body>
</html>
```

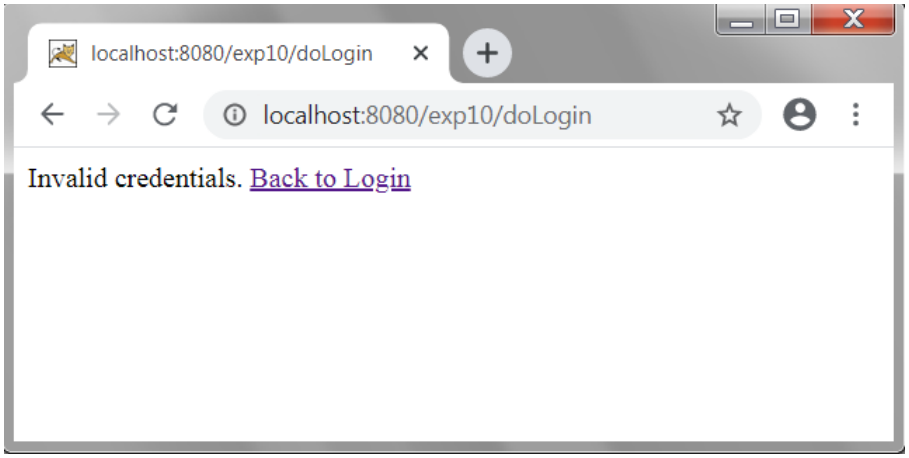
2

```
<!DOCTYPE html>
<html lang="en">
   <head>
      <title>C 11 Error page</title>
   </head>
   <body>
      <div class="container">
         No Session Present <a href="index.jsp">Back To Login</a>
      </div>
   </body>
</html>
```

OUTPUT


C 11 Login Page
localhost:8080/exp10/
Username
admin
Password
Login


C 11 Home page
localhost:8080/exp10/home.jsp
Welcome to home page
Logout


localhost:8080/exp10/doLogin
localhost:8080/exp10/doLogin
Invalid credentials. Back to Login