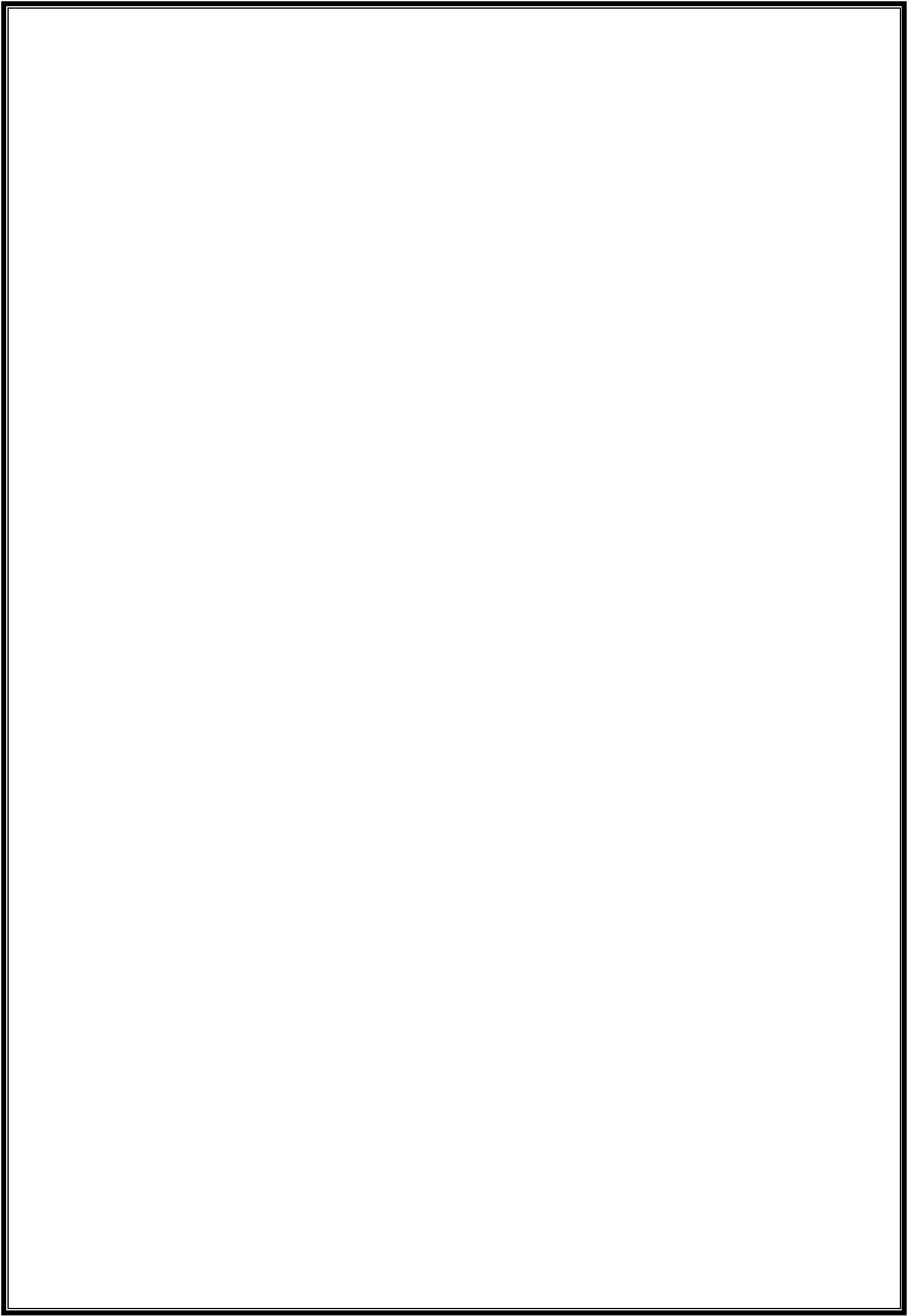


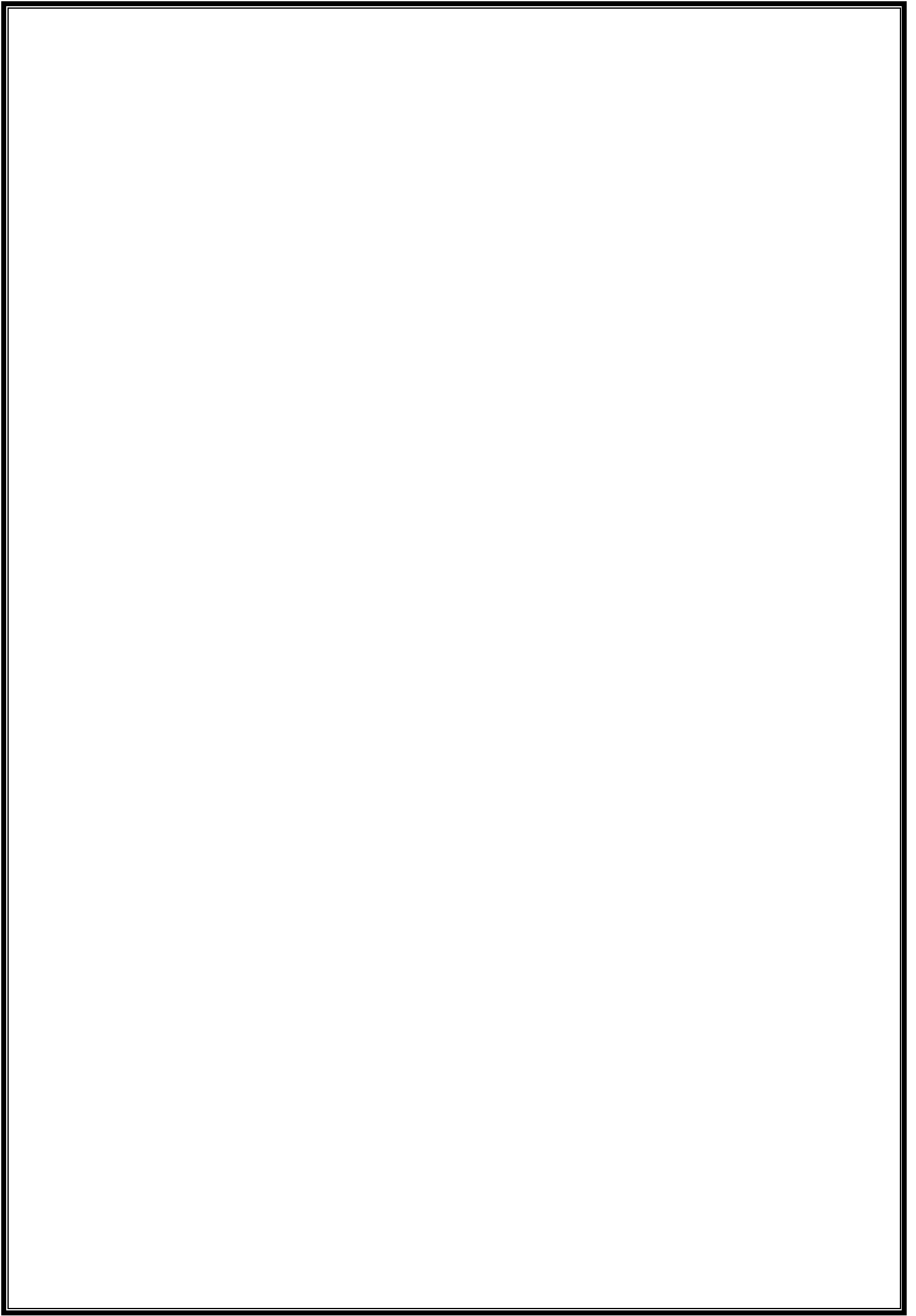
# **ADVANCED JAVA TECHNOLOGIES**



## INDEX

## PARTICULARS OF THE EXPERIMENTS PERFORMED

[illegible]





# CERTIFICATE

Class \_\_\_\_\_

Year \_\_\_\_\_

This is to certify that the work entered in this Journal is the work of

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Uni. Exam No. \_\_\_\_\_ has satisfactorily completed the  
required number of practical and worked for the 1st term / 2nd term /  
both the terms of the year 20\_\_\_\_ 20\_\_\_\_ in the college laboratory  
as laid down by the university.

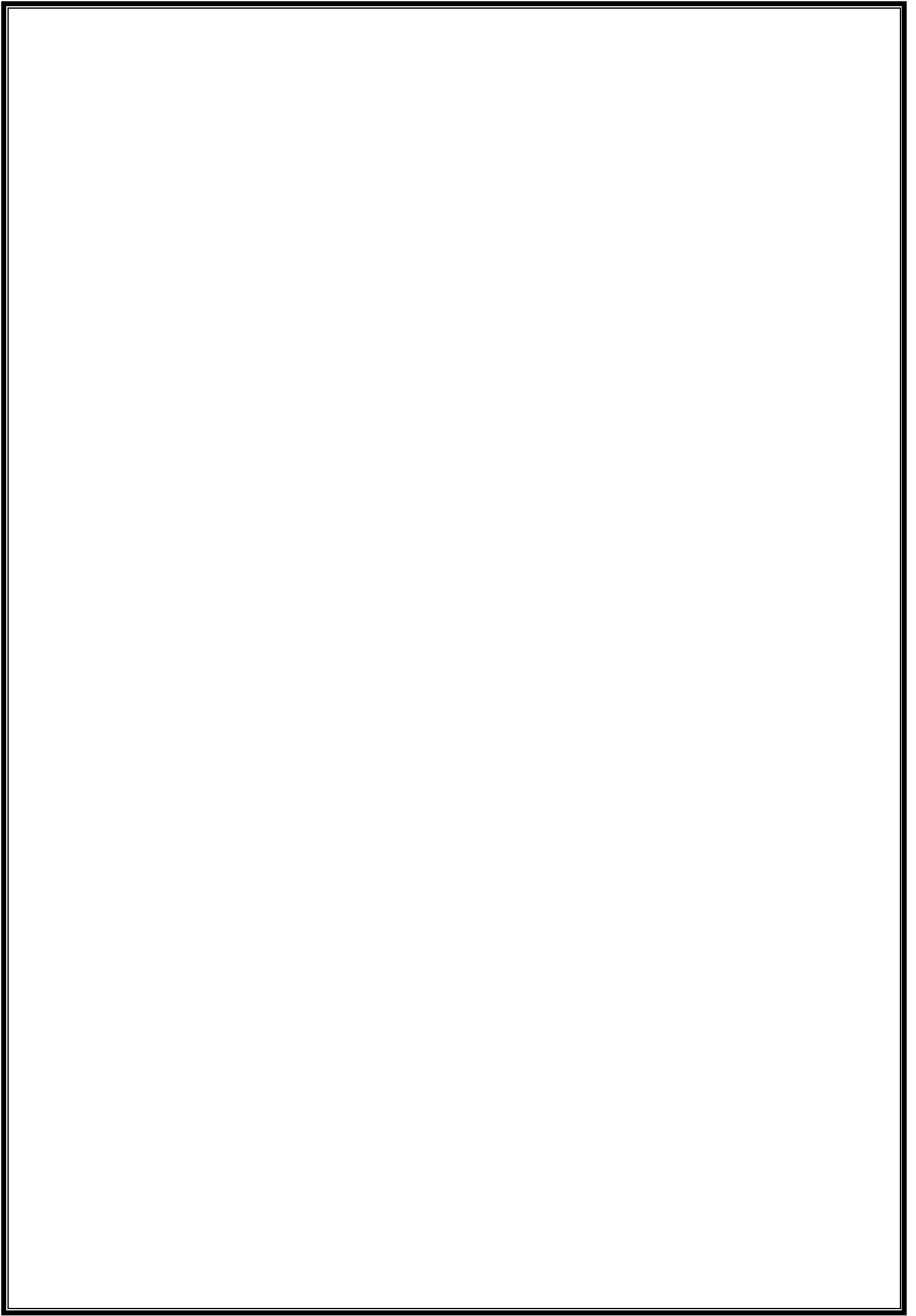
\_\_\_\_\_  
Head of the  
Department

\_\_\_\_\_  
External  
Examiner

\_\_\_\_\_  
Internal Examiner  
Subject teacher

Date :     /     / 20

Department of



## Practical No.1

**1a. Aim:** Create a simple calculator application using servlet.

**Date:** / /

### CODE:

#### index.html

```
<html><head>

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

<body>

<form action="CalServlet" >

Enter First Number <input type="text" name="txtN1" ><br>

<select name="op">

<option value="+"> + </option>

<option value="-"> - </option>

<option value="*"> * </option>

<option value="/"> / </option> </select><br>

Enter Second Number <input type="text" name="txtN2" ><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;

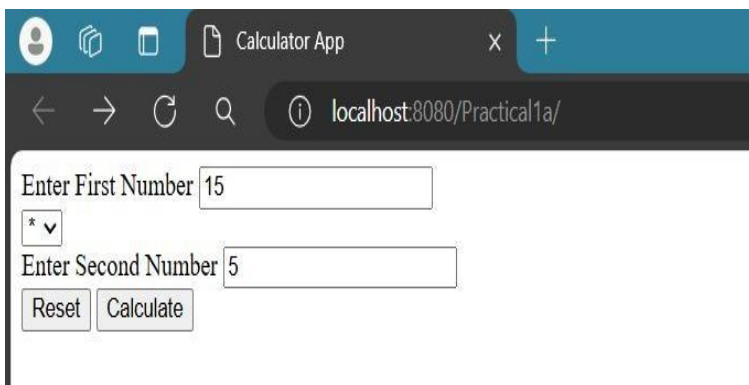
import javax.servlet.http.HttpServletRequest;

import javax.servlet.http.HttpServletResponse;
```

```
public class CalculatorServlet extends HttpServlet {  
    public void doGet(HttpServletRequest request, HttpServletResponse response)  
        throws ServletException, IOException  
    {  
        response.setContentType("text/html;charset=UTF-8");  
        PrintWriter pw = response.getWriter();  
        int n1 = Integer.parseInt(request.getParameter("txtN1"));  
        int n2 = Integer.parseInt(request.getParameter("txtN2"));  
        int result =0;  
        String opr=request.getParameter("op");  
        if(opr.equals("+")) result=n1+n2;  
        if(opr.equals("-")) result=n1-n2;  
        if(opr.equals("*")) result=n1*n2;  
        if(opr.equals("/")) result=n1/n2;  
        pw.println("<h1> Result = "+result);  
        pw.println("</body></html>");  
    }  
}
```

---

### Output:



Calculator App

localhost:8080/Practical1a/

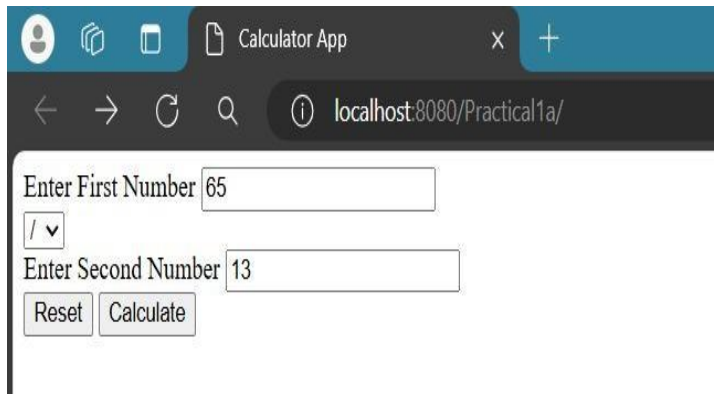
Enter First Number 15

\* ▼

Enter Second Number 5

Reset Calculate





**Date:** / /

**1b. Aim:** Create a servlet for a login page. If the username and password are correct then it says message “Hello <username>” else a message “login failed”.

**CODE:**

**index.html**

```
<html><head><title>Login Form</title></head>
<form action="LoginServlet" >
Enter User ID<input type="text" name="txtId"><br>
Enter Password<input type="password" name="txtPass"><br>
<input type="reset"><input type="submit" value=" Click to Login " >
</form>
</html>
```

---

**LoginServlet.java**

```
import java.io.*;
import javax.servlet.ServletException;
import javax.servlet.http.*;

public class LoginServlet extends HttpServlet {

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

    response.setContentType("text/html;charset=UTF-8");

    PrintWriter out = response.getWriter();

    out.println("<html><head><title>Servlet LoginServlet</title></head>");

    String uname = request.getParameter("txtId");

    String upass = request.getParameter("txtPass");

    if(uname.equals("admin") && upass.equals("12345")){

        out.println("<body bgcolor=blue >");

        out.println("<h1> Hello!!! "+uname+"</h1>");

    } else {
```

```
        out.println("<body bgcolor=red >");

        out.println("<h1> Login Fail !!! </h1>");

    }

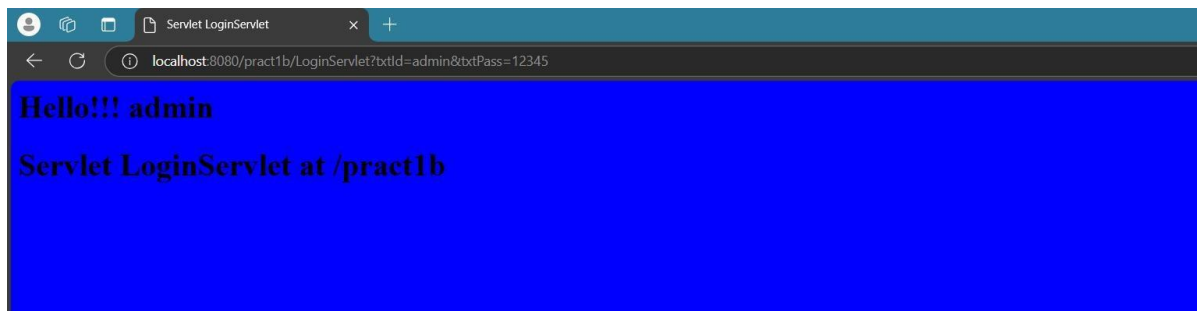
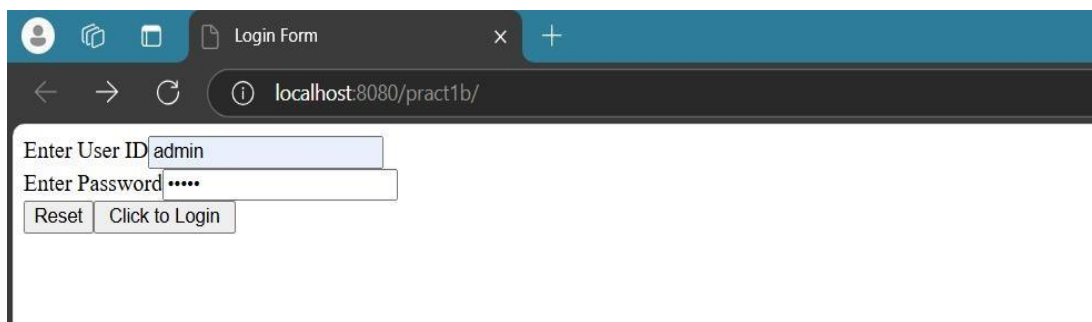
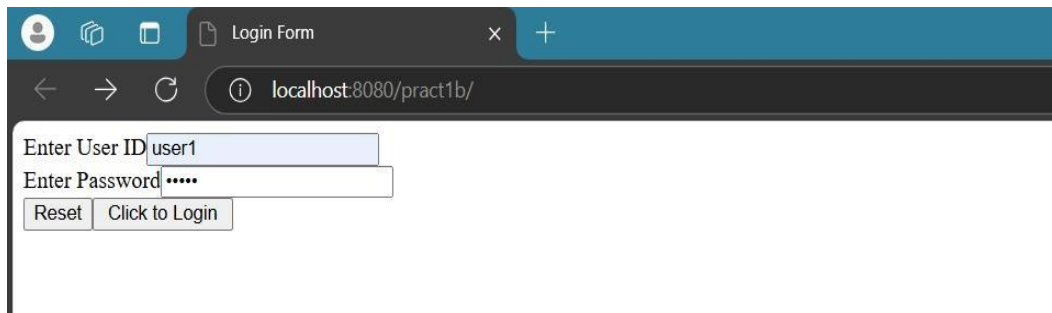
    out.println("</body></html>");

}

}
```

---

## Output:



**Date:** / /

**1c. Aim:** Create a registration servlet in Java using JDBC. Accept the details such as Username, Password, Email, and Country from the user using HTML Form and store the registration details in the database.

**CODE :**

**for Database**

```
>> create database logindb;  
  
>> use logindb;  
  
>> create table user (username varchar(10) PRIMARY KEY, password varchar(20), email  
    varchar(20), country(10));
```

---

**index.html**

```
<html><head><title>Registration Page</title></head>  
  
<body><form action="registerServlet" > <H1>Welcome to Registration page</H1>  
  
Enter User Name <input type="text" name="txtUid"><br>  
Enter Password <input type="password" name="txtPass"><br>  
Enter Email <input type="text" name="txtEmail" ><br>  
Enter Country <input type="text" name="txtCon" ><br>  
  
<input type="reset" ><input type="submit" value="REGISTER" ></form></body></html>
```

---

**registerServlet.java**

```
import java.io.*;  
  
import javax.servlet.ServletException;  
  
import javax.servlet.http.*;  
  
import java.sql.*;  
  
public class registerServlet extends HttpServlet {  
    protected void doGet(HttpServletRequest request, HttpServletResponse response)  
        throws ServletException, IOException {  
        response.setContentType("text/html;charset=UTF-8");  
        PrintWriter out = response.getWriter();
```

```

String id = request.getParameter("txtUid");

String ps = request.getParameter("txtPass");

String em = request.getParameter("txtEmail");

String co = request.getParameter("txtCon");

try{

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

    Connection con
=DriverManager.getConnection("jdbc:mysql://localhost:3306/logindb","root","root");

    PreparedStatement pst = con.prepareStatement("insert into user values(?,?,?,?)");

    pst.setString(1,id);

    pst.setString(2,ps);

    pst.setString(3,em);

    pst.setString(4,co);

    int row = pst.executeUpdate();

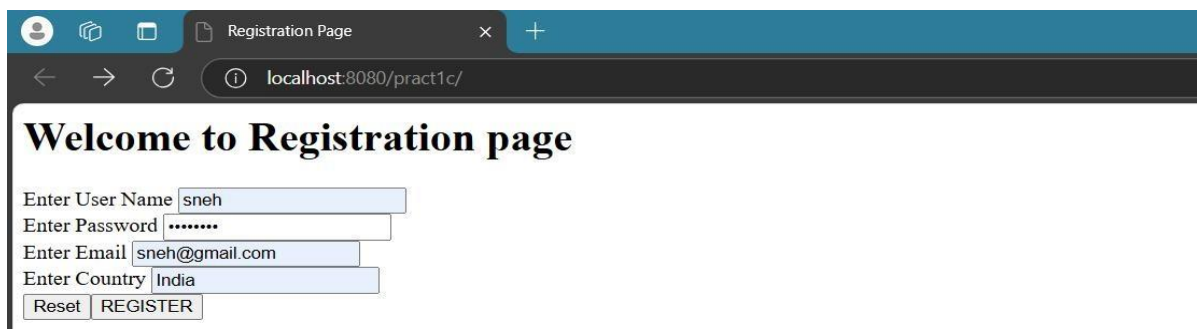
    out.println("<h1>"+row+ " Inserted Succesfullyyyyyy");

} catch (Exception e) {out.println(e); }

}

```

### Output :



## Practical No.2

---

Date :    /    /

**2a. Aim :** Using Request Dispatcher Interface create a Servlet which will validate the password entered by the user, if the user has entered "servlet" as password, then he will be forwarded to Welcome Servlet else the user will stay on the index.html page and an error message will be displayed.

### CODE :

#### index.html

```
<html><head><title>Login Form</title></head>
<form action="LoginServlet" >
Enter User ID<input type="text" name="txtId"><br>
Enter Password<input type="password" name="txtPass"><br>
<input type="reset"><input type="submit" value=" Click to Login " >
</form></html>
```

---

#### LoginServlet.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;
import javax.servlet.RequestDispatcher;

public class LoginServlet extends HttpServlet {
    protected void doGet(HttpServletRequest request, HttpServletResponse response)
        throws ServletException, IOException {
        response.setContentType("text/html;charset=UTF-8");
        PrintWriter out = response.getWriter();
        out.println("<html><head>");
```

```

        out.println("<title>Servlet LoginServlet</title></head>");
        String uname = request.getParameter("txtId");
        String upass = request.getParameter("txtPass");
        if(uname.equals("admin") && upass.equals("servlet")) {
            RequestDispatcher rd = request.getRequestDispatcher("WelcomeServlet");
            rd.forward(request, response);
        } else {
            out.println("<h1> Login Fail !!! </h1>");
            RequestDispatcher rd = request.getRequestDispatcher("index.html");
            rd.include(request, response);
        }
        out.println("</body>");
        out.println("</html>");
    }
}

```

---

### **WelcomeServlet.java**

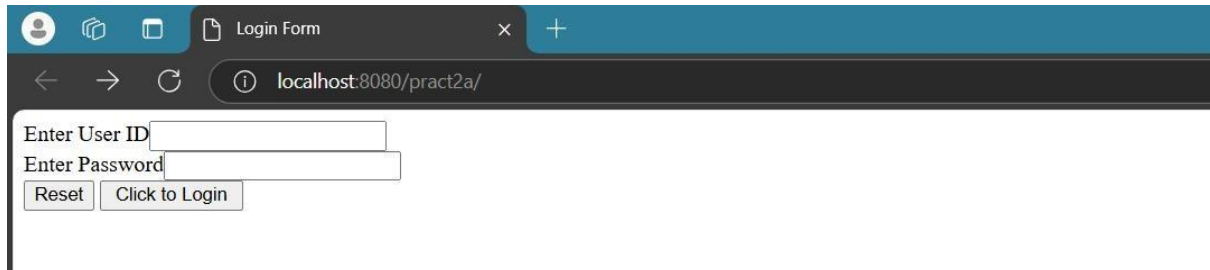
```

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;
import javax.servlet.RequestDispatcher;
public class WelcomeServlet extends HttpServlet {
    protected void doGet(HttpServletRequest request, HttpServletResponse response)
        throws ServletException, IOException {
        response.setContentType("text/html;charset=UTF-8");
        PrintWriter out = response.getWriter();
        out.println("<html><head>");

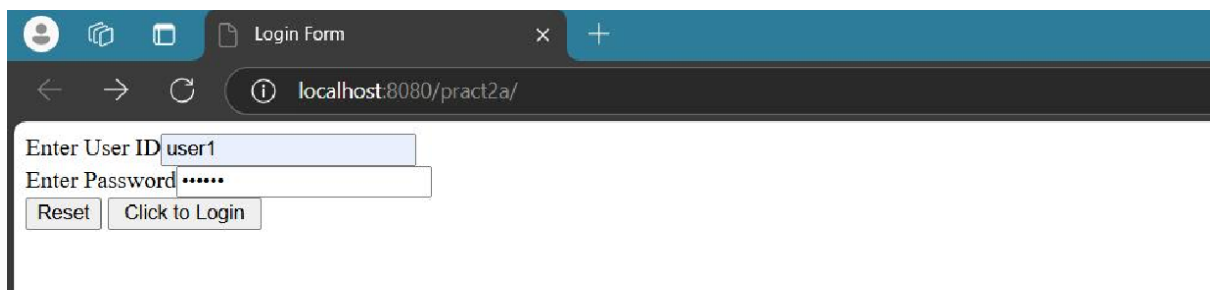
```

```
        out.println("<h1>Login Successful!!</h1>");  
    }  
}
```

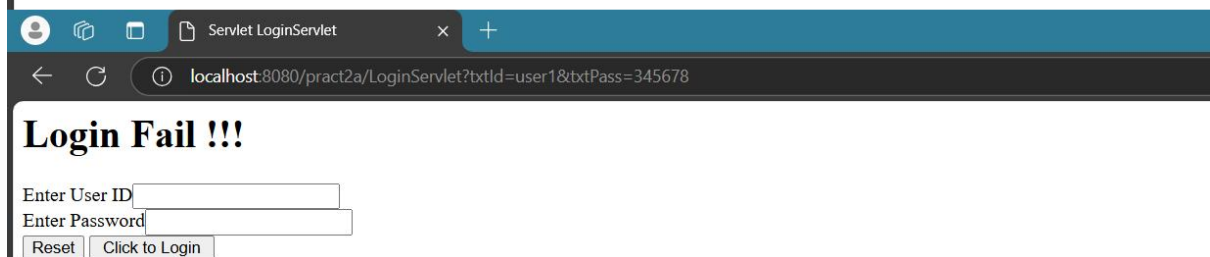
**Output :**



A screenshot of a web browser window with a single tab titled "Login Form". The address bar shows "localhost:8080/pract2a/". The page contains a login form with two input fields: "Enter User ID" and "Enter Password". Below the fields are two buttons: "Reset" and "Click to Login".

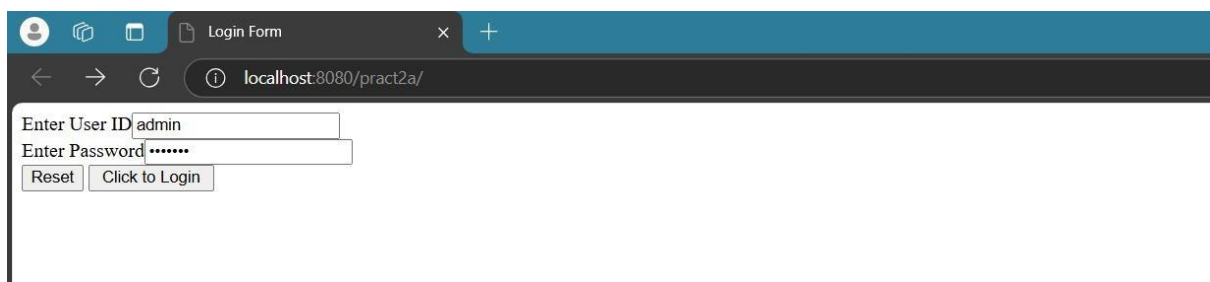


A screenshot of the same web browser window. The "Enter User ID" field now contains the text "user1". The "Enter Password" field contains seven dots, indicating a masked password. The "Reset" and "Click to Login" buttons remain visible.

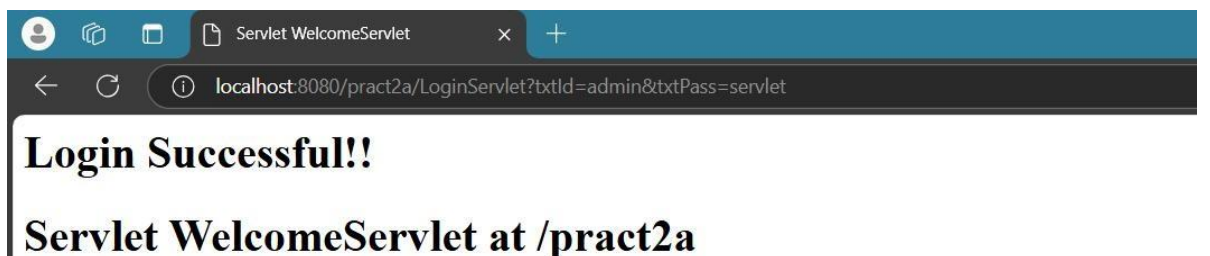


A screenshot of a web browser window with a tab titled "Servlet LoginServlet". The address bar shows "localhost:8080/pract2a/LoginServlet?txtId=user1&txtPass=345678". The page displays the message "Login Fail !!!" in a large, bold font. Below the message is the same login form as seen in the previous screenshots, with "Enter User ID" and "Enter Password" fields and "Reset" and "Click to Login" buttons.

**Servlet LoginServlet at /pract2a**



A screenshot of the same web browser window. The "Enter User ID" field now contains the text "admin". The "Enter Password" field contains seven dots. The "Reset" and "Click to Login" buttons remain visible.



A screenshot of a web browser window with a tab titled "Servlet WelcomeServlet". The address bar shows "localhost:8080/pract2a/LoginServlet?txtId=admin&txtPass=servlet". The page displays the message "Login Successful!!" in a large, bold font. Below the message is the same login form as seen in the previous screenshots, with "Enter User ID" and "Enter Password" fields and "Reset" and "Click to Login" buttons.

**Servlet WelcomeServlet at /pract2a**



Date :    /    /

**2b. Aim :** Create a servlet that uses Cookies to store the number of times a user has visited servlet.

**CODE :**

**index.html**

```
<html>

<head><title>Cookie Demo</title></head>

<body><form action="count" >

Enter Your Name <input type="text" name="t1"><br>

<input type="submit" value="Click to Enter ">

</form></body></html>
```

---

**count.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;
import javax.servlet.http.Cookie;

public class count extends HttpServlet {

static int count=0,c2=0;

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

response.setContentType("text/html;charset=UTF-8");

PrintWriter out = response.getWriter();

String name=request.getParameter("t1");

Cookie c1=new Cookie("count",String.valueOf(count));

c2=Integer.parseInt(c1.getValue());

if (c2==0) {
```

```

        out.println("Welcome = "+name);

        count++;

    } else {

        c1=new Cookie("count",String.valueOf(count));

        count++;

        out.println("Welcome = "+ name + "You have visited the page " +count + " times.");

    }

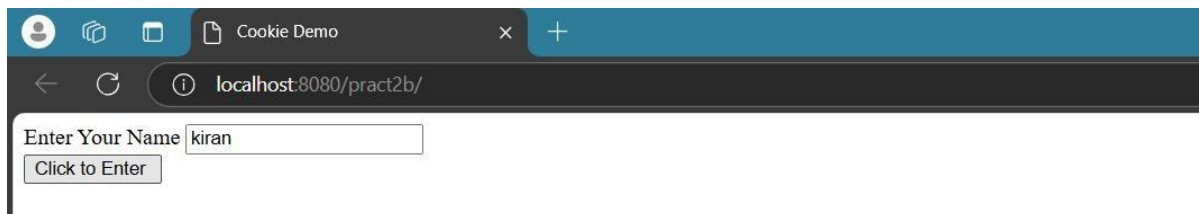
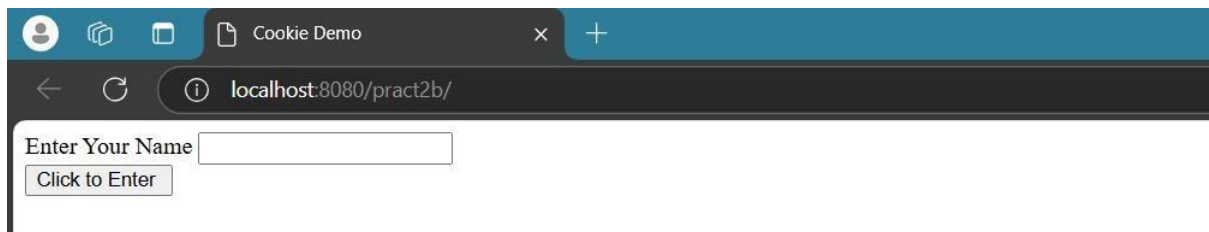
}

}

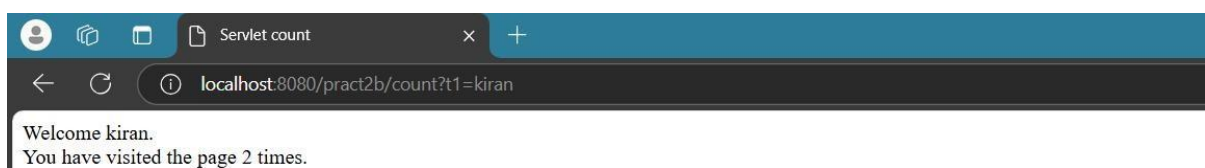
```

---

### Output :



### Servlet count at /pract2b



### Servlet count at /pract2b

Date :    /    /

**2c. Aim :** Create a servlet demonstrating the use of session creation and destruction. Also check whether the user has visited this page first time or has visited earlier also using sessions.

**CODE :**

**index.html**

```
<html><head><title>Session Demo</title></head>

<form action="Page1" method="get" >

Enter User ID <input type="text" name="txtName"><br>

<input type="reset" ><input type="submit" >

</form></html>
```

---

**Page1.java**

```
import java.io.IOException;

import java.io.PrintWriter;

import javax.servlet.ServletException;

import javax.servlet.http.*;

public class Page1 extends HttpServlet {

    public void doGet(HttpServletRequest request, HttpServletResponse response)

        throws ServletException, IOException {

        response.setContentType("text/html;charset=UTF-8");

        PrintWriter out = response.getWriter();

        out.println("<html><head><title>Servlet Page1</title></head>");

        HttpSession hs = request.getSession(true);

        if (hs.isNew()) {

            out.println("<body bgcolor=yellow>");

            String name = request.getParameter("txtName");

            hs.setAttribute("uname", name);

            hs.setAttribute("visit", "1");

            out.println("<h1>Welcome First Time</h1>");

        } else {
```

```

        out.println("<h1>Welcome Again</h1>");
        int visit = Integer.parseInt((String)hs.getAttribute("visit"))+1;
        out.println("<h1>You Visited "+visit+"Times</h1>");
        hs.setAttribute("visit", ""+visit);
    }
    out.println("<h1>Your Session ID is "+hs.getId()+"</h1>");
    out.println("<h1>You Logged in at "+new java.util.Date(hs.getCreationTime())+"</h1>");
    out.println("<h1><a href=Page2>Click for Page 2 </a></h1>");
    out.println("<h1><a href=LogoutServlet>Click to Terminate Session </a></h1>");
    out.println("</body></html>");
}
}

```

---

### **Page2.java**

```

import java.io.IOException;
import java.io.PrintWriter;
import javax.servlet.ServletException;
import javax.servlet.http.*;

public class Page2 extends HttpServlet {

    public void doGet(HttpServletRequest request, HttpServletResponse response)
        throws ServletException, IOException {
        response.setContentType("text/html;charset=UTF-8");
        PrintWriter out = response.getWriter();
        out.println("<html><head><title>Servlet Page2</title></head>");
        HttpSession hs = request.getSession(false);
        out.println("<h1>Welcome Again on Page No. 2</h1>");
        int visit = Integer.parseInt((String)hs.getAttribute("visit"))+1;
        out.println("<h1>You Visited "+visit+"Times</h1>");
        hs.setAttribute("visit", ""+visit);
        out.println("<h1>Your Session ID is "+hs.getId()+"</h1>");
    }
}

```

```

        out.println("<h1>You Logged in at "+new java.util.Date(hs.getCreationTime())+"</h1>");
        out.println("<h1><a href=Page1>Click for Page 1 </a></h1>");
        out.println("<h1><a href=LogoutServlet>Click for Terminate Session </a></h1>");
        out.println("</body></html>");
    }
}

```

---

### **LogoutServlet.java**

```

import java.io.IOException;
import java.io.PrintWriter;
import javax.servlet.ServletException;
import javax.servlet.http.*;

public class LogoutServlet extends HttpServlet {
    public void doGet(HttpServletRequest request, HttpServletResponse response)
        throws ServletException, IOException {
        response.setContentType("text/html;charset=UTF-8");
        PrintWriter out = response.getWriter();
        out.println("<html><head><title>Servlet LogoutServlet</title></head>");
        out.println("<body>");

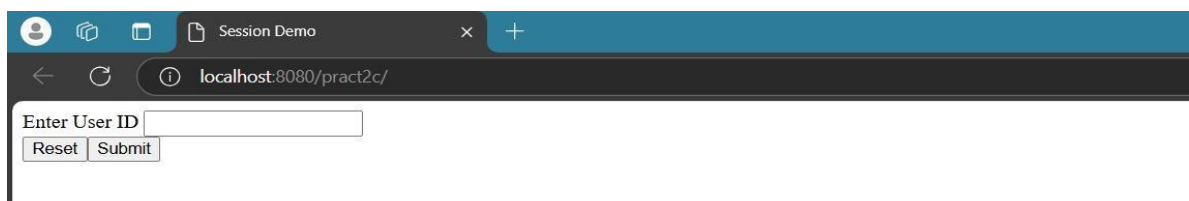
        HttpSession hs = request.getSession();
        if(hs != null) hs.invalidate();

        out.println("<h1>You are Logged out now .....</h1>");
        out.println("</body></html>");
    }
}

```

---

### **Output :**



Session Demo

localhost:8080/pract2c/

Enter User ID

Servlet Page1

localhost:8080/pract2c/Page1?txtName=dishita

**Welcome First Time**

**Your Session ID 6008ff817933ad92a0558dae2d8b**

**You Logged in at Wed Sep 18 22:09:13 IST 2024**

[Click for Page 2](#)

[Click to Terminate Session](#)

**Servlet Page1 at /pract2c**

Servlet Page2

localhost:8080/pract2c/Page2

**Welcome Again on Page No. 2**

**You Visited 2 Times**

**Your Session ID 6008ff817933ad92a0558dae2d8b**

**You Logged in at Wed Sep 18 22:09:13 IST 2024**

[Click for Page 1](#)

[Click for Terminate Session](#)

**Servlet Page2 at /pract2c**

Servlet LogoutServlet

localhost:8080/pract2c/LogoutServlet

**You are Logged out now.....**

**Servlet LogoutServlet at /pract2c**

## Practical No.3

---

Date :   /   /

**3a. Aim :** Create a Servlet application to upload and download a file.

**CODE :**

### UPLOAD FILE

#### index.html

```
<html><body>

]<form action="FileUploadServlet" method="post" enctype="multipart/form-data">

Select File to Upload:<input type="file" name="file" id="file">

Destination <input type="text" value="" name="destination"><br>

<input type="submit" value="Upload file" name="upload" id="upload">

</form></body></html>
```

---

#### FileUploadServlet.java

```
import java.io.*;

import javax.servlet.*;

import javax.servlet.annotation.MultipartConfig;

import javax.servlet.http.*;

@MultipartConfig

public class FileUploadServlet extends HttpServlet {

    public void doPost(HttpServletRequest request,HttpServletResponse response) throws
ServletException, IOException {

        response.setContentType("text/html");

        PrintWriter out = response.getWriter();

        String path=request.getParameter("destination");

        Part filePart=request.getPart("file");

        String filename=filePart.getSubmittedFileName().toString();

        out.print("<br><br><hr> file name: "+filename);
```

```

OutputStream os=null;

InputStream is=null;

try {

    os=new FileOutputStream(new File(path+File.separator+filename));

    is=filePart.getInputStream();

    int read=0;

    while ((read = is.read()) != -1) {

        os.write(read);

    }

    out.println("<br>file uploaded sucessfully...!!!");

}

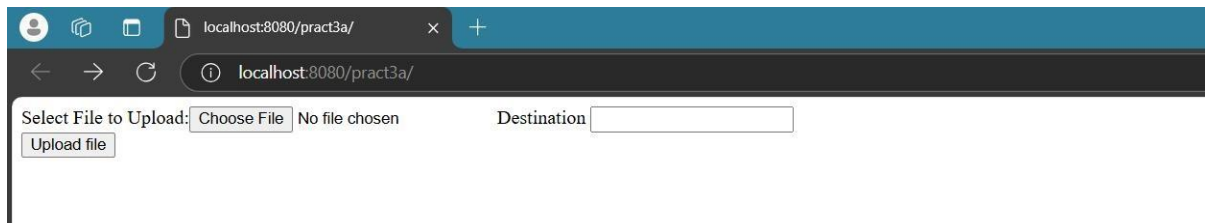
catch(FileNotFoundException e){out.print(e);}

}

}

```

### Output :





## DOWNLOAD FILE :

### index.html

```
<html><head><title>File Download Page</title>
</head> <body> <h1>File Download Application</h1>
Click <a href="DownloadServlet?filename=EJ Lab Manual.pdf">EJ Manual</a>
<br/><br/>Click <a href="DownloadServlet?filename=AI.pdf">AI</a>
</body> </html>
```

---

**\*\***(Once you create the project for downloading a file, **copy any 2 files** (pdf, docx) that already exists on your pc and paste both the files in the WEB PAGES folder of your project. **Right Click on WEB PAGES -> paste** and then write your own file name in the above html code in place of - “EJ Lab Manual.pdf” and “AI.pdf”)

Example : If 1 of your file names is ‘EJ.pdf’ then, on the 3<sup>rd</sup> line write “filename=EJ.pdf”

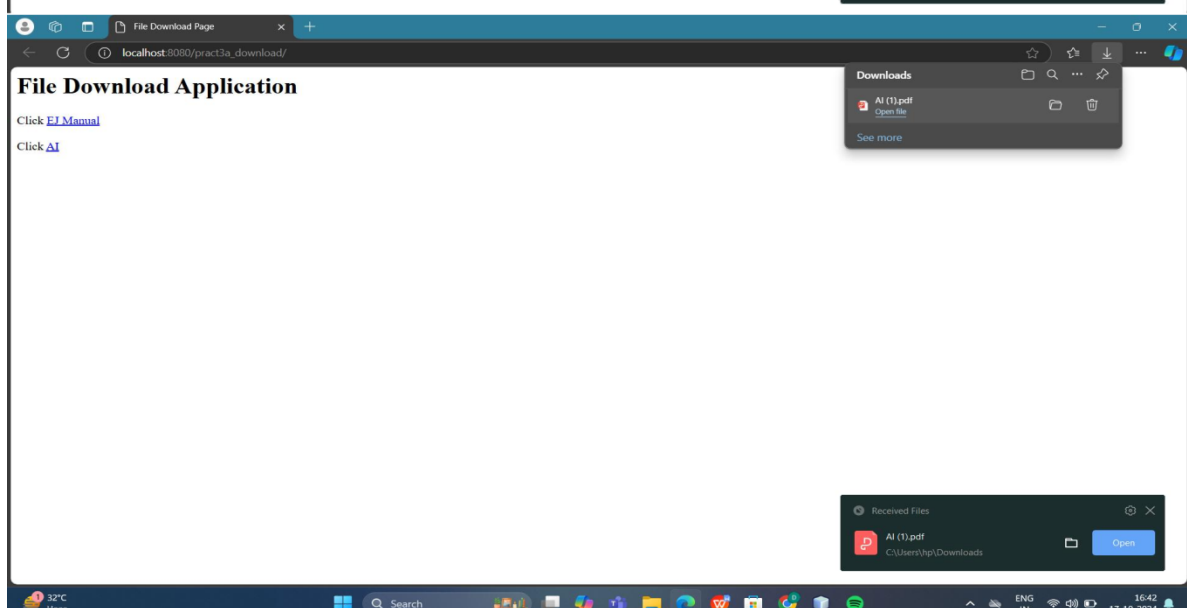
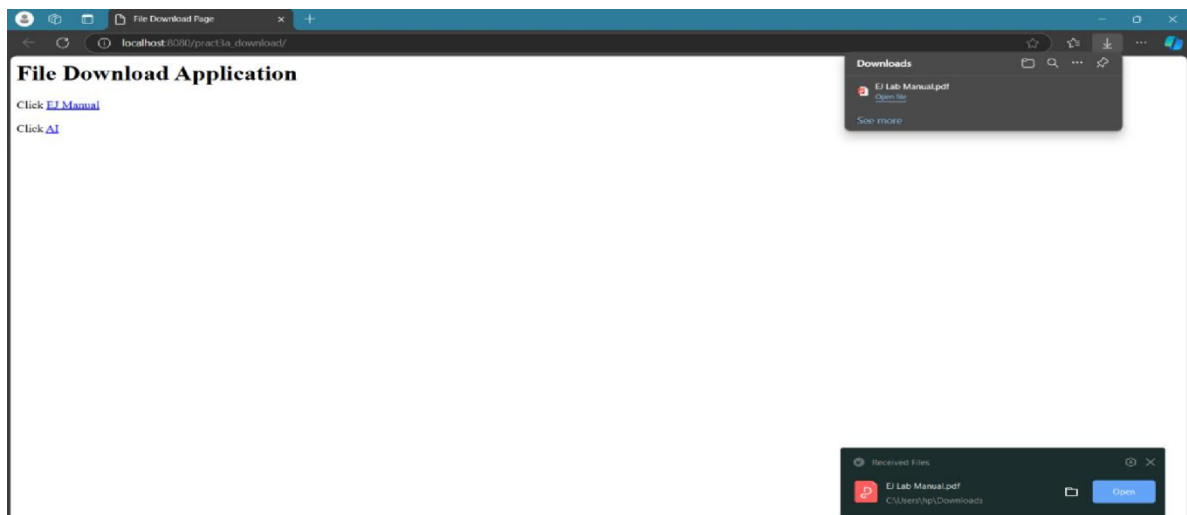
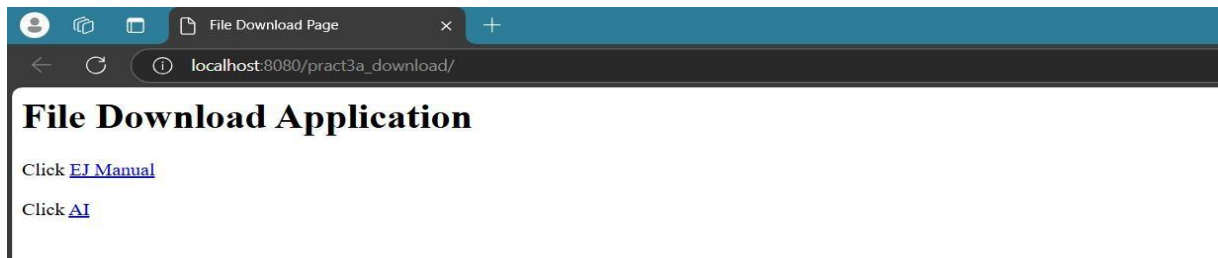
---

### DownloadServlet.java

```
import java.io.InputStream;
import javax.servlet.ServletContext;
import javax.servlet.ServletOutputStream;
public class DownloadServlet extends HttpServlet {
    @Override
    protected void doGet(HttpServletRequest request, HttpServletResponse response)
        throws ServletException, IOException {
        response.setContentType("APPLICATION/OCTET-STREAM");
        String filename = request.getParameter("filename");
        ServletContext context = getServletContext();
        InputStream is = context.getResourceAsStream("/") + filename);
        PrintWriter out = response.getWriter();
        response.setHeader("Content-Disposition", "attachment; filename=\"" + filename + "\"");
        int i;
        while ((i = is.read()) != -1) {
            out.write(i);
        }
    }
}
```

```
}  
  
is.close();  
  
out.close();  
  
}  
  
}
```

## Output :



Date :   /   /

**3b. Aim :** Develop Simple Servlet Question Answer Application using Database.

**CODE :**

**for Database**

```
>> create database qadb;

>> use qadb;

>> create table quiz (qno varchar(5) PRIMARY KEY, question varchar(100), op1
    varchar(50), op2 varchar(50), op3 varchar(50), op4 varchar(50), ans varchar(50));

>> insert into quiz values ('001', 'Unit of Energy is____', 'Dozen','Kilometre', 'Joule',
    'Hertz','Joule');

>> insert into quiz values ('002', 'Following is the extension for saving a python file',
    '.jpg','.py', '.docx', '.cs','.py');

>> insert into quiz values ('003', '____is the largest continent', 'Asia','Antarctica', 'Europe',
    'Australia','Asia');

>> insert into quiz values ('004', '____is the smallest memory unit', 'bit','byte', 'Kilo Byte',
    'Gigabyte','bit');

>> insert into quiz values ('005', 'Which is the only liquid metal', 'Steel','Aluminium',
    'Magnesium', 'Mercury','Mercury');
```

---

**index.html**

```
<html><head><title>Quiz Application</title></head>

<body><h1>Welcome to Quiz Servlet </h1>

<h1><a href="QuizServlet" >CLICK TO START QUIZ</a></h1> </body></html>
```

---

**QuizServlet.java**

```
import java.io.*;

import java.sql.*;

import javax.servlet.*;

import javax.servlet.http.*;

public class QuizServlet extends HttpServlet {

    public void doGet(HttpServletRequest request, HttpServletResponse response)
```

```

throws ServletException, IOException {

    response.setContentType("text/html;charset=UTF-8");
    PrintWriter out = response.getWriter();
    out.println("<form action=ShowResult >");
    try {
        Class.forName("com.mysql.jdbc.Driver");
        Connection con =
        DriverManager.getConnection("jdbc:mysql://localhost:3306/qadb","root","root");
        Statement stmt = con.createStatement();
        ResultSet res = stmt.executeQuery("select * from quiz");
        out.println("<table border=1 >");
        int qno=0;
        while(res.next()) {
            qno++;
            out.println("<tr><td>" + res.getString(1) + "</td>");
            out.println("<td>" + res.getString(2) + "</td></tr>");
            out.println("<tr><td><input type=radio name="+qno+"
value="+res.getString(3)+"></td><td>" + res.getString(3) + "</td></tr>");
            out.println("<tr><td><input type=radio name="+qno+"
value="+res.getString(4)+"></td><td>" + res.getString(4) + "</td></tr>");
            out.println("<tr><td><input type=radio name="+qno+"
value="+res.getString(5)+"></td><td>" + res.getString(5) + "</td></tr>");
            out.println("<tr><td><input type=radio name="+qno+"
value="+res.getString(6)+"></td><td>" + res.getString(6) + "</td></tr>");
        }
    } catch (Exception e) {out.println(e);}
    out.println("</table>");
    out.println("<input type=reset >");
    out.println("<input type=submit value=SUBMIT >");
    out.println("</form>");
}
}

```

### **ShowResult.java**

```
import java.io.*;
import java.sql.*;
import javax.servlet.*;
import javax.servlet.http.*;

public class ShowResult extends HttpServlet {

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

        response.setContentType("text/html;charset=UTF-8");
        PrintWriter out = response.getWriter();

        try {

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

            Connection con =
            DriverManager.getConnection("jdbc:mysql://localhost:3306/qadb","root","root");

            Statement stmt = con.createStatement();

            ResultSet res = stmt.executeQuery("select ans from quiz");

            int count =0, qno=0;

            while (res.next()) {

                if (res.getString(1).equals(request.getParameter(">"+(++qno)))) {

                    count++;

                    out.println("<h1>Correct </h1>");

                }

                else {

                    out.println("<h1>Incorrect </h1>");

                }

            }

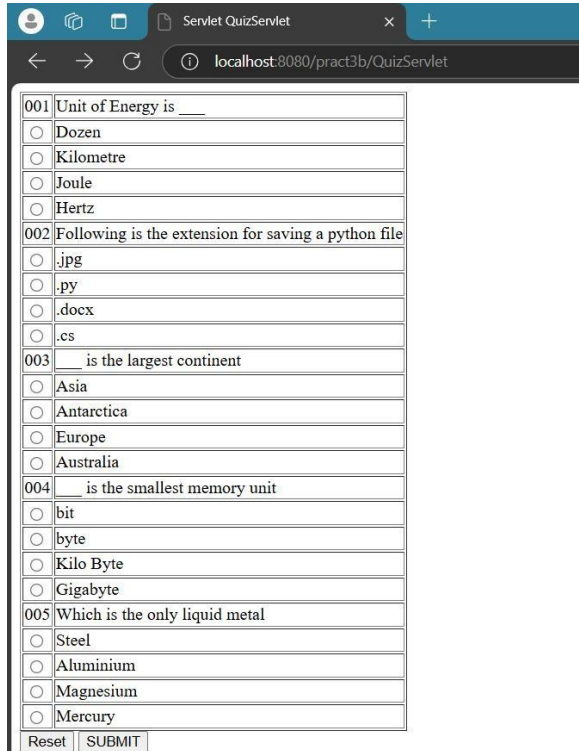
            out.println("<h1>Your Score is "+count+" </h1>");

        } catch (Exception e) {out.println(e);}

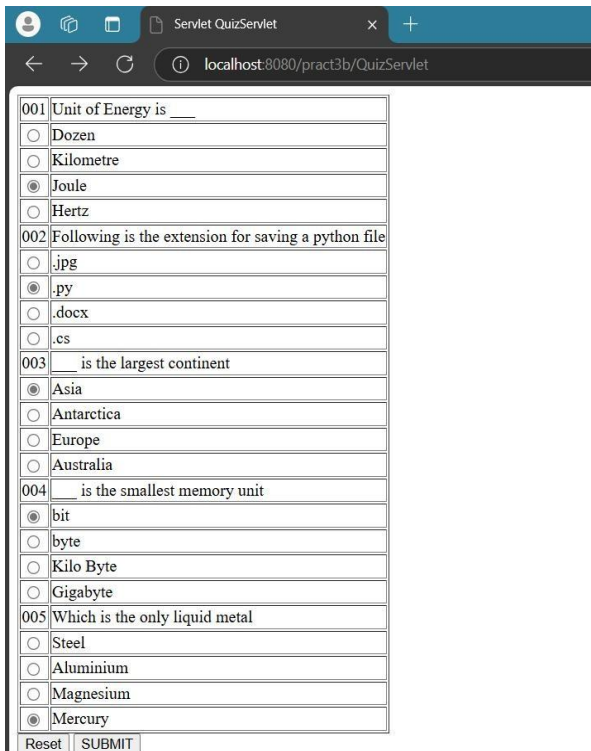
    }

}
```

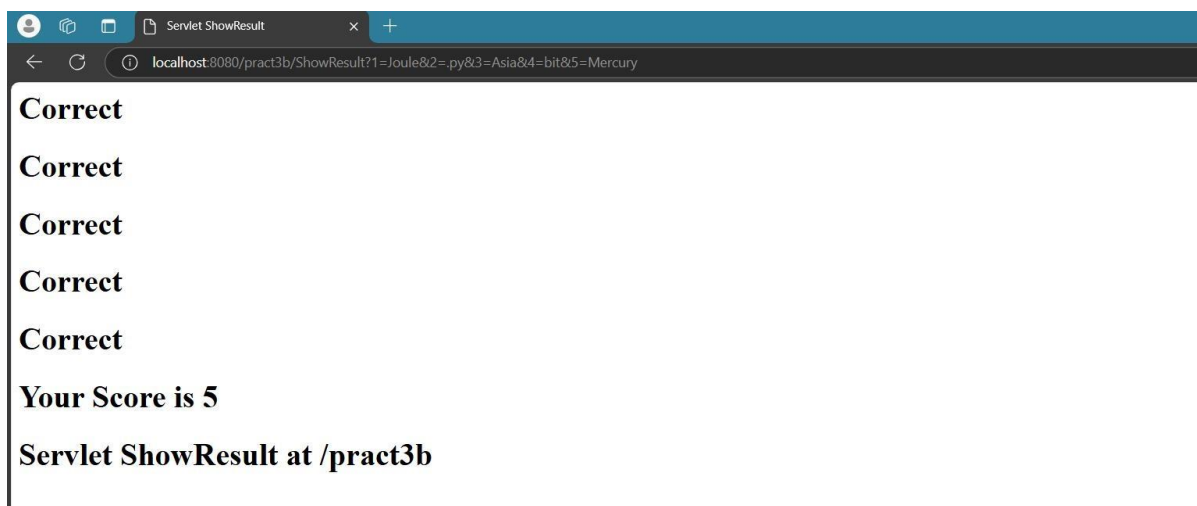
**Output :**



**Servlet QuizServlet at /pract3b**



**Servlet QuizServlet at /pract3b**



## Practical No.4

Date :    /    /

**4a. Aim :** Develop a simple JSP application to display values obtained from the use of intrinsic objects of various types.

**CODE :**

**index.jsp**

```
<% @page contentType="text/html" pageEncoding="UTF-8"% >
<html><head><title>JSP Page</title></head><body>
<h1>Use of Intrinsic Objects in JSP</h1><h1>Request Object </h1>
Query String <%=request.getQueryString() %><br>
Context Path <%=request.getContextPath() %><br>
Remote Host <%=request.getRemoteHost() %><br>
<h1>Response Object </h1>
Character Encoding Type <%=response.getCharacterEncoding() %><br>
Content Type <%=response.getContentType() %><br>
Locale <%=response.getLocale() %><br>
<h1>Session Object </h1> ID <%=session.getId() %><br>
Creation Time <%=new java.util.Date(session.getCreationTime()) %><br>
Last Access Time<%=new java.util.Date(session.getLastAccessedTime()) %><br>
</body></html>
```

**Output :**



**Date :**   /   /

**4b. Aim :** Develop a simple JSP application to pass values from one page to another with validations.

(Name-txt, age-txt, hobbies-checkbox, email-txt, gender-radio button).

**CODE :**

**index.html**

```
<!DOCTYPE html>
```

```
<html><head><title>Form Page</title><script type="text/javascript">
```

```
function validateForm() {  
    var name = document.forms["myForm"]["name"].value;  
    var age = document.forms["myForm"]["age"].value;  
    var email = document.forms["myForm"]["email"].value;  
    var hobbies = document.forms["myForm"]["hobbies"];  
    var gender = document.forms["myForm"]["gender"];  
    if (name == "") {  
        alert("Name must be filled out");  
        return false; }  
    if (age == "" || isNaN(age) || age < 1 || age > 100) {  
        alert("Please enter a valid age");  
        return false; }  
    if (!validateHobbies(hobbies)) {  
        alert("Please select at least one hobby");  
        return false; }  
    if (!validateGender(gender)) {  
        alert("Please select your gender");  
        return false; }  
    if (email == "" || !email.match(/^\S+@\S+\.\S+$/)) {  
        alert("Please enter a valid email");  
        return false;  
    } return true; }
```



```

function validateHobbies(hobbies) {
    for (var i = 0; i < hobbies.length; i++) {
        if (hobbies[i].checked) {
            return true;
        }
    }
    return false; }

function validateGender(gender) {
    for (var i = 0; i < gender.length; i++) {
        if (gender[i].checked) {
            return true; }
    }
    return false;
} </script>
</head><body> <h2>Enter Your Details</h2>

    <form name="myForm" action="Validate.jsp" onsubmit="return validateForm()"
method="post">

        Name: <input type="text" name="name"><br><br>
        Age: <input type="text" name="age"><br><br>
        Email: <input type="text" name="email"><br><br>
        Gender: <br>
        <input type="radio" name="gender" value="Male"> Male<br>
        <input type="radio" name="gender" value="Female"> Female<br><br>
        Hobbies: <br>
        <input type="checkbox" name="hobbies" value="Reading"> Reading<br>
        <input type="checkbox" name="hobbies" value="Music"> Music<br>
        <input type="checkbox" name="hobbies" value="Sports"> Sports<br><br>
        <input type="submit" value="Submit">

    </form> </body></html>

```

---

### **Validate.jsp**

```

<% @ page contentType="text/html; charset=UTF-8" language="java" %>
<!DOCTYPE html>

```

```

<html><head> <title>Result Page</title></head><body>

  <h1>Validated Successfully!!</h1> <h2>Your Submitted Information</h2>

  <% String name = request.getParameter("name");

    String age = request.getParameter("age");

    String email = request.getParameter("email");

    String gender = request.getParameter("gender");

    String[] hobbies = request.getParameterValues("hobbies"); %>

  <p><strong>Name:</strong> <%= name %></p>

  <p><strong>Age:</strong> <%= age %></p>

  <p><strong>Email:</strong> <%= email %></p>

  <p><strong>Gender:</strong> <%= gender %></p>

  <p><strong>Hobbies:</strong></p>

  <ul> <%

    if (hobbies != null) {

      for (String hobby : hobbies) {

        out.println("<li>" + hobby + "</li>");

      }

    } else {

      out.println("<li>No hobbies selected</li>");

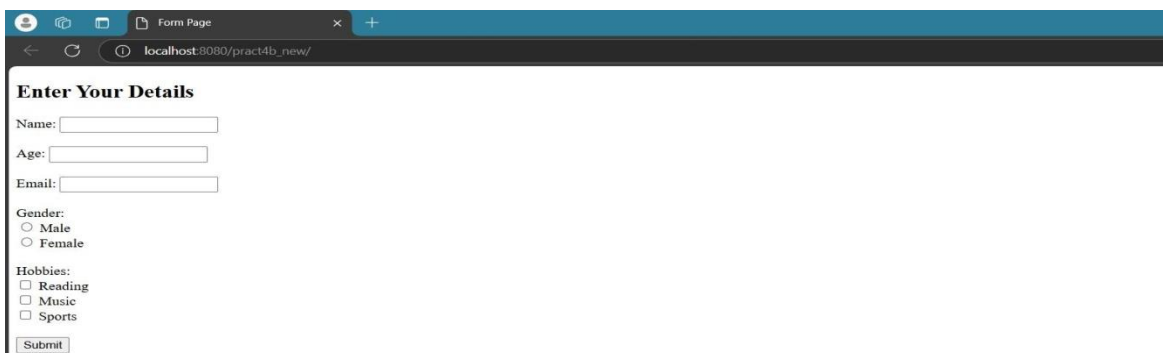
    } %>

  </ul>

</body> </html>

```

### Output :



The screenshot shows a web browser window with the address bar displaying 'localhost:8080/pract4b\_new/'. The page title is 'Form Page'. The main content area has a heading 'Enter Your Details' followed by a form with the following elements:

- Name:
- Age:
- Email:
- Gender:
  - ☐ Male
  - ☐ Female
- Hobbies:
  - ☐ Reading
  - ☐ Music
  - ☐ Sports
- Submit:

Form Page

localhost:8080/pract4b\_new/

### Enter Your Details

Name:

Age:

Email:

Gender:  
☐ Male  
☒ Female

Hobbies:  
☒ Reading  
☒ Music  
☐ Sports

localhost:8080 says

Please enter a valid age

OK

Form Page

localhost:8080/pract4b\_new/

### Enter Your Details

Name:

Age:

Email:

Gender:  
☐ Male  
☒ Female

Hobbies:  
☒ Reading  
☒ Music  
☐ Sports

localhost:8080 says

Please enter a valid email

OK

Form Page

localhost:8080/pract4b\_new/

### Enter Your Details

Name:

Age:

Email:

Gender:  
☐ Male  
☐ Female

Hobbies:  
☒ Reading  
☒ Music  
☐ Sports

localhost:8080 says

Please select your gender

OK

Form Page

localhost:8080/pract4b\_new/

### Enter Your Details

Name:

Age:

Email:

Gender:  
☐ Male  
☒ Female

Hobbies:  
☐ Reading  
☐ Music  
☐ Sports

localhost:8080 says

Please select at least one hobby

OK

Result Page

localhost:8080/pract4b\_new/Validate.jsp

## Validated Successfully!!

### Your Submitted Information

Name: Hina

Age: 20

Email: hina123@gmail.com

Gender: Female

Hobbies:

- Reading
- Music

**Date :**   /   /

**4c. Aim :** Create a registration and login JSP application to register and authenticate the user based on username and password using JDBC.

**CODE :**

**for database**

```
>> create table users(username varchar(20) PRIMARY KEY, password1
      varchar(20),password2 varchar(20), email varchar(20), country varchar(20));
>> insert into users values ('Diksha','admin','admin','admin@admin.com','India');
```

---

**login.html**

```
<html><body><h1>Login Page</h1> <form action="Login.jsp" >
Enter User Name <input type="text" name="txtName" ><br>
Enter Password <input type="password" name="txtPass" ><br>
<input type="reset" ><input type="submit" value="LOGIN" >
</form></body></html>
```

---

**Login.jsp**

```
<% @page contentType="text/html" import="java.sql.*"%>
<html><body><h1>Registration JSP Page</h1>
<% String uname=request.getParameter("txtName");
String pass = request.getParameter("txtPass");
try{
Class.forName("com.mysql.jdbc.Driver");
Connection con =
DriverManager.getConnection("jdbc:mysql://localhost:3306/logindb","root","root");
PreparedStatement stmt = con.prepareStatement("select password1 from users where
username=?");
stmt.setString(1, uname);
ResultSet rs = stmt.executeQuery();
if(rs.next()) {
if(pass.equals(rs.getString(1))) {
```

```

out.println("<h1> LOGIN SUCCESSFULL </h1>");
} } else {
out.println("<h1>User Name not exist !!!!!</h1>"); %>
<jsp:include page="register.html" ></jsp:include>
<% } } catch(Exception e){out.println(e);}
%> </body></html>

```

---

### **register.html**

```

<html><head><title>New User Registration Page</title></head>
<body><form action="Register.jsp" > <h1> New User Registration Page</h1>
Enter User Name <input type="text" name="txtName" ><br>
Enter Password <input type="password" name="txtPass1" ><br>
Re-Enter Password<input type="password" name="txtPass2" ><br>
Enter Email<input type="text" name="txtEmail" ><br>
Enter Country Name <input type="text" name="txtCon" ><br>
<input type="reset" ><input type="submit" value="REGISTER" >
</form></body></html>

```

---

### **Register.jsp**

```

<% @page contentType="text/html" import="java.sql.*"%>
<html><body><h1>Registration JSP Page</h1>
<% String uname=request.getParameter("txtName");
String pass1 = request.getParameter("txtPass1");
String pass2 = request.getParameter("txtPass2");
String email = request.getParameter("txtEmail");
String ctry = request.getParameter("txtCon");
if(pass1.equals(pass2)){
try{
Class.forName("com.mysql.jdbc.Driver");
Connection con =
DriverManager.getConnection("jdbc:mysql://localhost:3306/logindb","root","root");

```

```

PreparedStatement stmt = con.prepareStatement("insert into users values (?, ?, ?, ?, ?)");

stmt.setString(1, uname); stmt.setString(2, pass1); stmt.setString(3, pass1);

stmt.setString(4, email); stmt.setString(5, ctry);

int row = stmt.executeUpdate();

if(row==1) { out.println("Registration Successful"); }

else {

out.println("Registration FAIL !!!!");

%><jsp:include page="register.html" ></jsp:include>

<% } } catch(Exception e){out.println(e);}

} else {

out.println("<h1>Password Mismatch</h1>"); %>

<jsp:include page="register.html" ></jsp:include>

<% } %> </body> </html>

```

---

## Output :

The first screenshot shows the 'Login Page' with input fields for 'Enter User Name' and 'Enter Password', and buttons for 'Reset' and 'LOGIN'. The browser address bar shows 'localhost:8080/pract4c/login.html'.

The second screenshot shows the 'Login Page' after a successful login. The 'Enter User Name' field contains 'sneha' and the 'Enter Password' field contains '\*\*\*\*'. The browser address bar shows 'localhost:8080/pract4c/login.html'.

The third screenshot shows the 'Registration JSP Page' with the message 'User Name not exist !!!!!'. Below the message is the 'New User Registration Page' with input fields for 'Enter User Name', 'Enter Password', 'Re-Enter Password', 'Enter Email', and 'Enter Country Name', and buttons for 'Reset' and 'REGISTER'. The browser address bar shows 'localhost:8080/pract4c/Login.jsp?txtName=sneha&txtPass=12345'.

New User Registration Page

localhost:8080/pract4c/Login.jsp?txtName=sneha&txtPass=12345

## Registration JSP Page

User Name not exist !!!!!

### New User Registration Page

Enter User Name

Enter Password

Re-Enter Password

Enter Email

Enter Country Name

New User Registration Page

localhost:8080/pract4c/Register.jsp?txtName=sneha&txtPass1=54321&txtPass2=12345&txtEmail=sneha%40gmail.com&txtCon=India

## Registration JSP Page

### Password Mismatch

### New User Registration Page

Enter User Name

Enter Password

Re-Enter Password

Enter Email

Enter Country Name

New User Registration Page

localhost:8080/pract4c/Login.jsp?txtName=sneha&txtPass=12345

## Registration JSP Page

User Name not exist !!!!!

### New User Registration Page

Enter User Name

Enter Password

Re-Enter Password

Enter Email

Enter Country Name

localhost:8080/pract4c/Register.jsp

localhost:8080/pract4c/Register.jsp?txtName=sneha&txtPass1=32145&txtPass2=32145&txtEmail=sneha%40gmail.com&txtCon=India

## Registration JSP Page

Registration Successful

## Practical No.5

---

Date :   /   /

**5a. Aim :** Create an html page with fields, eno, name, age, desg, salary. Now on submit this data to a JSP page which will update the employee table of database with matching eno.

### CODE :

#### for database

```
>> use logindb;

>> create table emp (empid varchar(10) PRIMARY KEY, ename varchar(50), salary
      varchar(50), age varchar(50) );

>> insert into emp values ('1', 'aaa', '221234', '11');
>> insert into emp values ('2', 'bbb', '334567', '22');
>> insert into emp values ('3', 'ccc', '44454', '33');
>> insert into emp values ('4', 'ddd', '55123', '44');
```

---

#### index.html

```
<html><body><form action="UpdateEmp.jsp" >
Enter Employee Number<input type="text" name="txtEno" ><br>
Enter Name<input type="text" name="txtName" ><br>
Enter age<input type="text" name="txtAge" ><br>
Enter Salary<input type="text" name="txtSal" ><br>
<input type="reset" ><input type="submit">
</form></body></html>
```

---

#### UpdateEmp.jsp

```
<% @page contentType="text/html" import="java.sql.*" %>

<html><body> <h1>Employee Record Update</h1> <%
String eno=request.getParameter("txtEno");
String name=request.getParameter("txtName");
String age = request.getParameter("txtAge");
```



```

String sal = request.getParameter("txtSal");

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

Connection con =
DriverManager.getConnection("jdbc:mysql://localhost:3306/logindb","root","root");

PreparedStatement stmt = con.prepareStatement("select * from emp where empid=?");

stmt.setString(1, eno);

ResultSet rs = stmt.executeQuery();

if(rs.next()){

out.println("<h1>~~~ Employee "+name+" Exist ~~~ </h1>");

PreparedStatement pst1= con.prepareStatement("update emp set salary=? where empid=?");

PreparedStatement pst2= con.prepareStatement("update emp set age=? where empid=?");

pst1.setString(1, sal); pst1.setString(2, eno);

pst2.setString(1, age); pst2.setString(2, eno);

pst1.executeUpdate(); pst2.executeUpdate();

} else {

out.println("<h1>Employee Record not exist !!!!!</h1>");

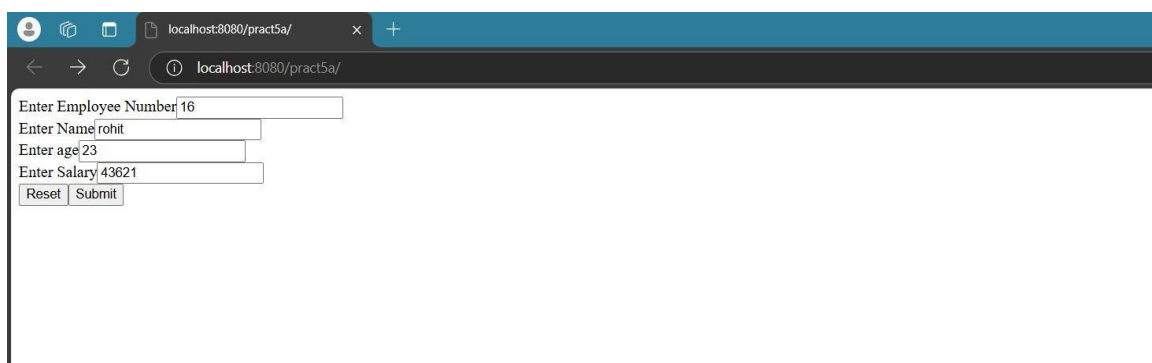
}

}catch(Exception e){out.println(e);}

%></body></html>

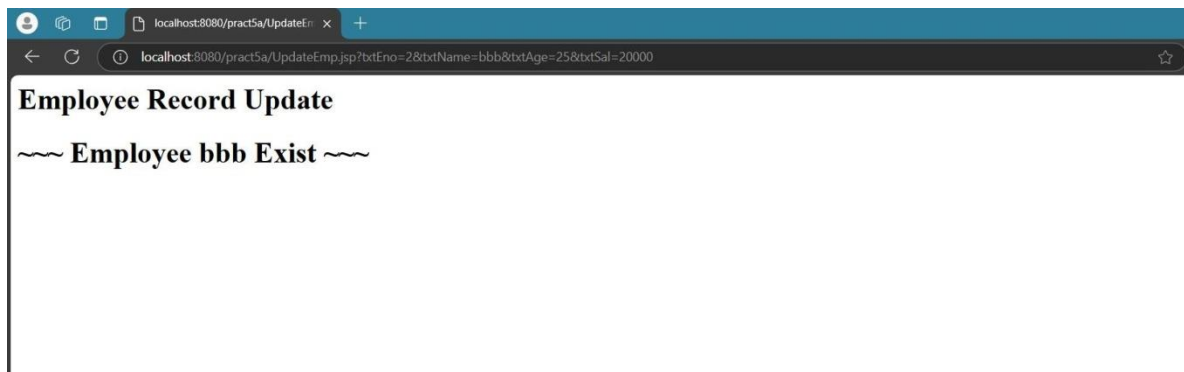
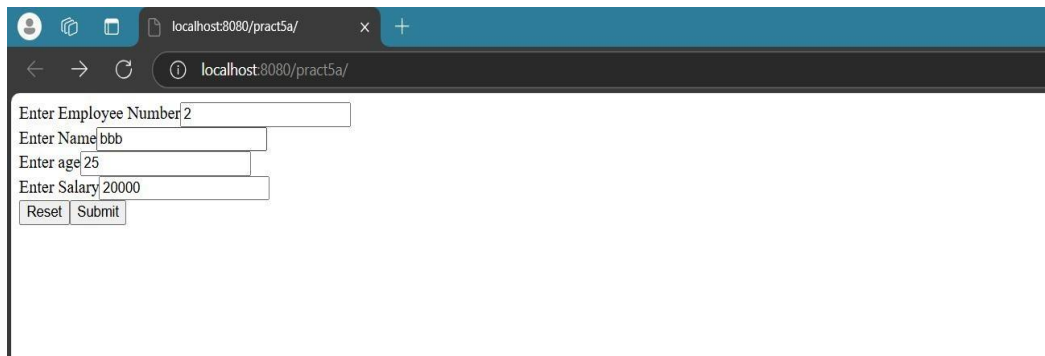
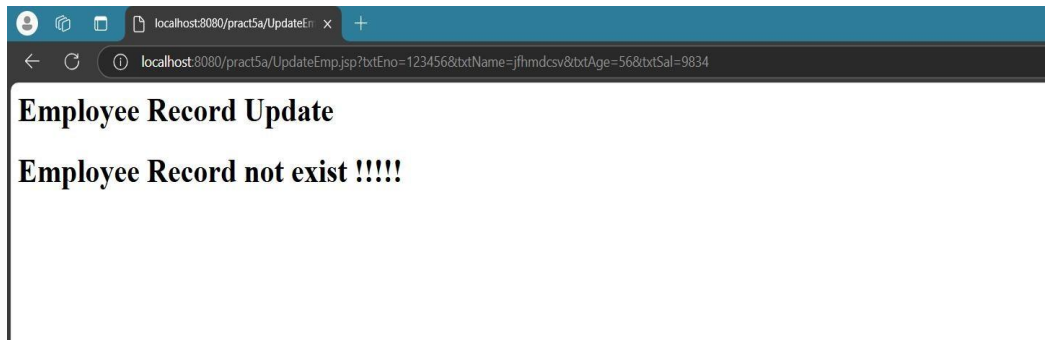
```

## Output :



The screenshot shows a web browser window with the address bar displaying 'localhost:8080/pract5a/'. The page content includes a form with the following elements:

- Input field: Enter Employee Number 16
- Input field: Enter Name rohit
- Input field: Enter age 23
- Input field: Enter Salary 43621
- Buttons: Reset, Submit



**5b. Aim :** Create a JSP page to demonstrate the use of Expression language.

**CODE :**

**index.jsp**

```
<% @page import="java.util.List"%>
<% @page import="java.util.Arrays"%>
<% @ page contentType="text/html;charset=UTF-8" language="java" %>
<html><head><title>Expression Language</title></head>
<body><h1>Expression Language</h1>
<h2>1. Using Implicit Object: sessionScope</h2>
<%-- Setting session attribute --%>
<%
session.setAttribute("username", "JohnDoe");
%>
Welcome, ${sessionScope.username}!
<h2>2. Using Arithmetic Operators</h2>
<%-- EL Arithmetic: Adding two numbers --%>
${5 + 10}
<h2>3. Using Relational Operators</h2>
<%-- EL Relational: Comparing two numbers --%>
Is 5 greater than 3? ${5 > 3}
<h2>4. Using Logical Operators</h2>
<%-- EL Logical: Combining two conditions --%>
Is 5 greater than 3 and 10 greater than 5? ${5 > 3 && 10 > 5}
<h2>5. Accessing Collection Data</h2>
<%-- EL with a List stored in application scope --%>
<%
List<String> fruits = Arrays.asList("Apple", "Banana", "Orange");
application.setAttribute("fruitList", fruits);
```

%>

First fruit: \${applicationScope.fruitList[0]}<br/>

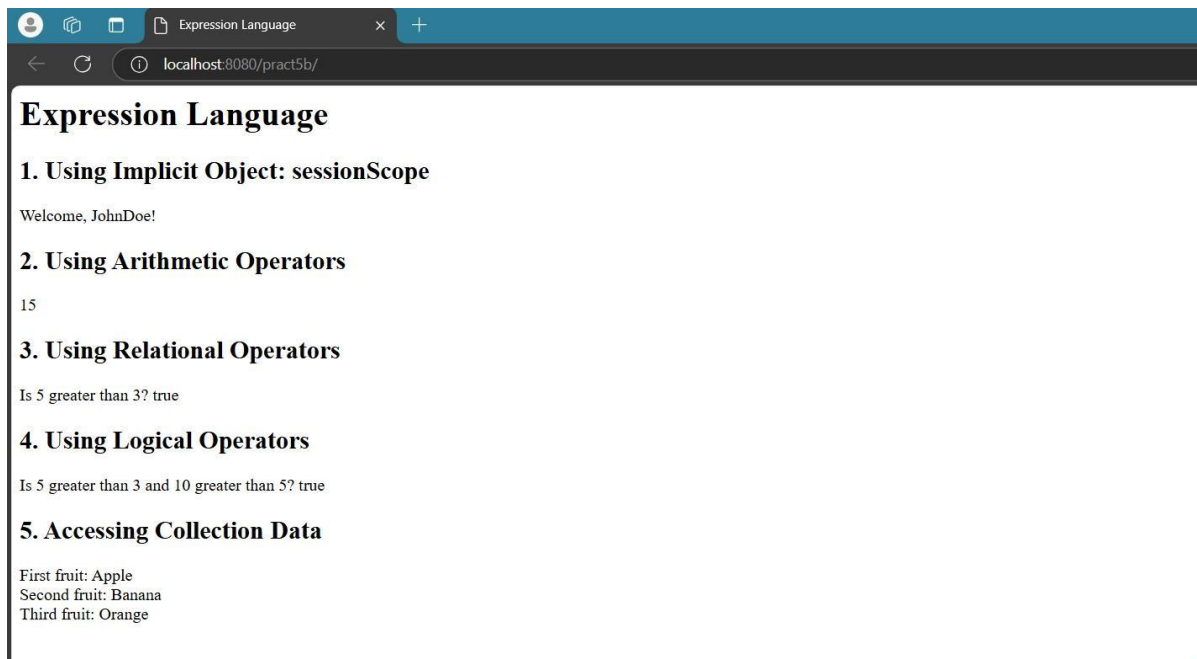
Second fruit: \${applicationScope.fruitList[1]}<br/>

Third fruit: \${applicationScope.fruitList[2]}

</body></html>

---

## Output :



**5c. Aim :** Create a JSP application to demonstrate the use of JSTL.

**CODE :**

**index.html**

```
<!DOCTYPE html>

<html> <head>

<meta http-equiv="Content-Type" content="text/html; charset=UTF-8">

<title>JSP Page</title> </head> <body>

<h1>JSTL TAGS</h1>

<a href="jstl.jsp">Click here</a>

</body> </html>
```

---

**jstl.jsp**

```
<% @ page contentType="text/html; charset=UTF-8" language="java" %>

<% @ taglib uri="http://java.sun.com/jsp/jstl/core" prefix="c" %>

<!DOCTYPE html>

<html lang="en"> <head> <meta charset="UTF-8">

<title>JSTL Example</title> </head>

<body> <h1>JSTL Example</h1>

<c:set var="message" value="Hello, JSTL World!" />

<p>${ message}</p>

<c:set var="fruits" value="${['Apple', 'Banana', 'Cherry']}" />

<h3>Fruit List:</h3>

<ul>

  <c:forEach var="fruit" items="${ fruits}">

    <li>${ fruit}</li>

  </c:forEach>

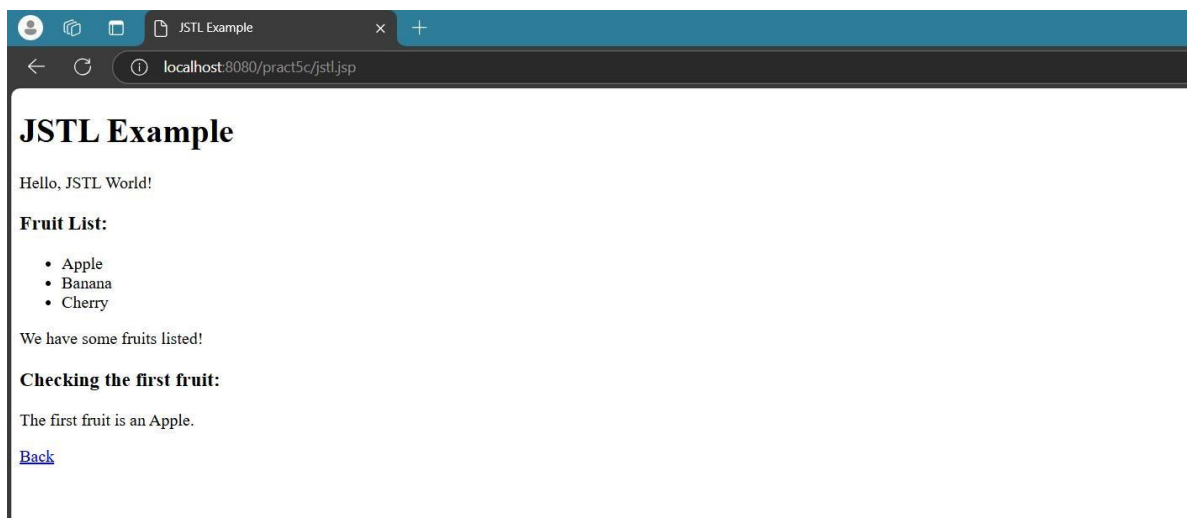
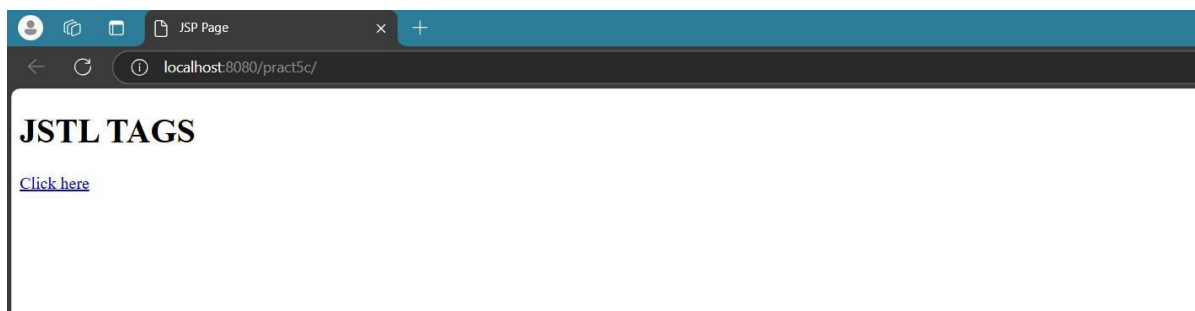
</ul>

<c:if test="${ not empty fruits}">
```

```
<p>We have some fruits listed!</p>
</c:if>
<h3>Checking the first fruit:</h3>
<c:choose>
  <c:when test="${fruits[0] == 'Apple'}">
    <p>The first fruit is an Apple.</p>
  </c:when>
  <c:otherwise>
    <p>The first fruit is not an Apple.</p>
  </c:otherwise>
</c:choose>
<a href="index.html">Back</a> <!-- Link back to index -->
</body> </html>
```

---

## Output :



## Practical No.6

---

Date :   /   /

**6a. Aim :** Create a Currency Converter application using EJB.

**CODE :**

### index.html

```
<html><head><title>Currency Converter</title></head><body>  
<form action="CCServlet" >  
Enter Amount <input type="text" name="amt"><br>  
Select Conversion Type  
<input type="radio" name="type" value="r2d" checked>Rupees to Dollar  
<input type="radio" name="type" value="d2r" >Dollar to Rupees<br>  
<input type="reset" ><input type="submit" value="CONVERT" >  
</form></body>
```

---

### CCServlet.java

```
package mypack;  
import java.io.*;  
import javax.servlet.*;  
import javax.servlet.http.*;  
import javax.ejb.EJB;  
import mybeans.CCBean;  
public class CCServlet extends HttpServlet {  
    @EJB CCBean obj;  
    public void doGet(HttpServletRequest request, HttpServletResponse response)  
        throws ServletException, IOException {  
        response.setContentType("text/html;charset=UTF-8");  
        PrintWriter out = response.getWriter();  
        double amt = Double.parseDouble(request.getParameter("amt"));
```

```
if(request.getParameter("type").equals("r2d")) {  
    out.println("<h1>"+amt+ " Rupees = "+obj.r2Dollar(amt)+" Dollars</h1>");  
}  
if(request.getParameter("type").equals("d2r")) {  
    out.println("<h1>"+amt+ " Dollars = "+obj.d2Rupees(amt)+" Rupees</h1>");  
}  
}  
}
```

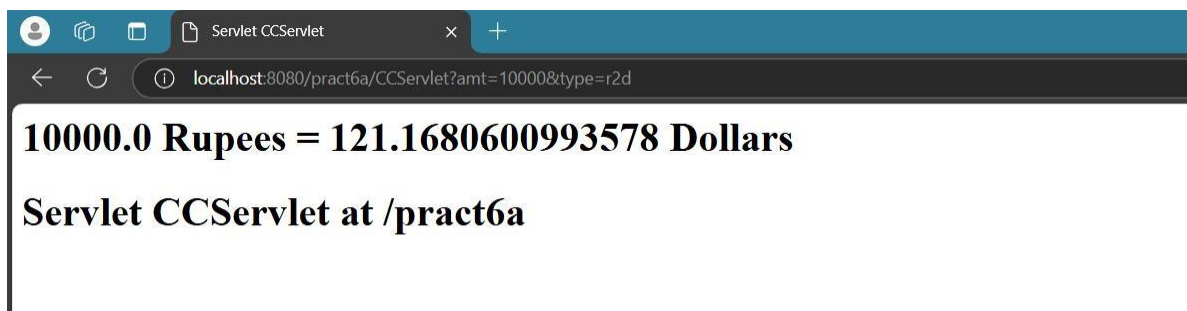
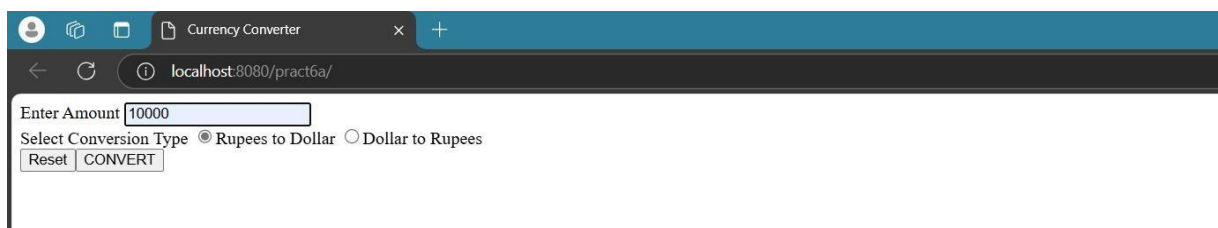
---

### **CCBean.java**

```
package mybeans;  
import javax.ejb.Stateless;  
@Stateless  
public class CCBean {  
    public CCBean(){}  
    public double r2Dollar(double r){ return r/82.53; }  
    public double d2Rupees(double d){ return d*82.53; }  
}
```

---

### **Output :**





Date :   /   /

**6b. Aim :** Develop a Simple Room Reservation System Application Using EJB.

**CODE :**

**for database**

```
>> create database rrdb;
>> use rrdb;
>> Create table roombook (RoomId varchar(4) PRIMARY KEY, RoomType varchar(20),
    charges double(5,2), cust varchar(20), mob varchar(20), status varchar(10));
>> insert into roombook values('1001','Delux',500.00,"","Not Booked');
>> insert into roombook values('1002','Super Delux',700.00,"","Not Booked');
>> insert into roombook values('1003','Suit',950.00,"","Not Booked');
>> insert into roombook values('2001','Delux',500.00,"","Not Booked');
>> insert into roombook values('2002','Super Delux',700.00,"","Not Booked');
>> insert into roombook values('2003','Suit',950.00,"","Not Booked');
```

---

**index.html**

```
<html><head><title>Room Reservation System</title></head>
<body><form action="RBServlet" >
Select a room Type
<input type="radio" name="txtType" value="Delux">Delux
<input type="radio" name="txtType" value="Super Delux">Super Delux
<input type="radio" name="txtType" value="Suit">Suit<br>
Enter Your Name<input type="text" name="txtCust" ><br>
Enter Mobile No.<input type="text" name="txtMob" ><br>
<input type="reset" ><input type="submit" value="Book Room">
</form></body></html>
```

---

**RBServlet.java**

```
package mypack;
import java.io.*;
```

```

import javax.servlet.*;
import javax.servlet.http.*;
import javax.ejb.EJB;
import mybeans.RRBean;
public class RBServlet extends HttpServlet {
    @EJB RRBean obj;
    public void doGet(HttpServletRequest request, HttpServletResponse response)
        throws ServletException, IOException{
        PrintWriter out=response.getWriter();
        String rt=request.getParameter("txtType");
        String cn=request.getParameter("txtCust");
        String cm=request.getParameter("txtMob");
        String msg = obj.roomBook(rt, cn, cm);
        out.println(msg);
    }
}

```

---

### **RRBean.java**

```

package mybeans;
import javax.ejb.Stateless;
import java.sql.*;
@Stateless
public class RRBean {
    public RRBean(){ }
    public String roomBook(String rt, String cn, String cm){
        String msg="";
        try{
            Class.forName("com.mysql.jdbc.Driver");
            Connection con =
            DriverManager.getConnection("jdbc:mysql://localhost:3306/rrdb","root","root");

```

```

        String query="select * from roombook where RoomType=? and status='Not
Booked'";

        PreparedStatement pst = con.prepareStatement(query);

        pst.setString(1,rt);

        ResultSet rs= pst.executeQuery();

        if(rs.next()){

            String rno=rs.getString(1);

            PreparedStatement stm1 = con.prepareStatement("update roombook set
cust=? where RoomId=? ");

            PreparedStatement stm2 = con.prepareStatement("update roombook set
mob=? where RoomId=? ");

            PreparedStatement stm3 = con.prepareStatement("update roombook set
status=? where RoomId=? ");

            stm1.setString(1,cn); stm1.setString(2,rno);

            stm2.setString(1,cm); stm2.setString(2,rno);

            stm3.setString(1, "Booked"); stm3.setString(2,rno);

            stm1.executeUpdate();

            stm2.executeUpdate();

            stm3.executeUpdate();

            msg = "Room "+rno+ " Booked <br> Charges = "+rs.getString(3);

        } else {

            msg = "Room "+rt+ " currently Not available";

        }

    } catch (Exception e){ msg="" +e;}

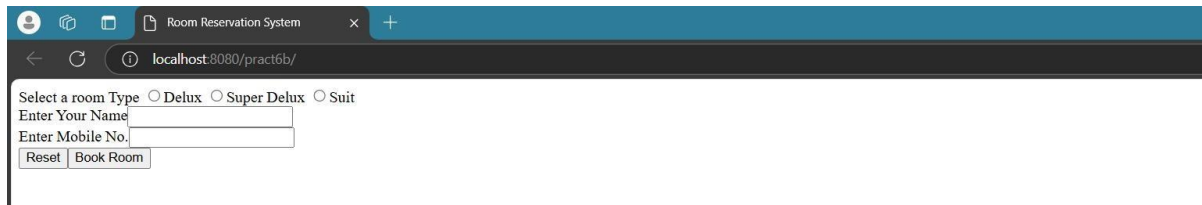
    return msg;

}

}

```

## Output :



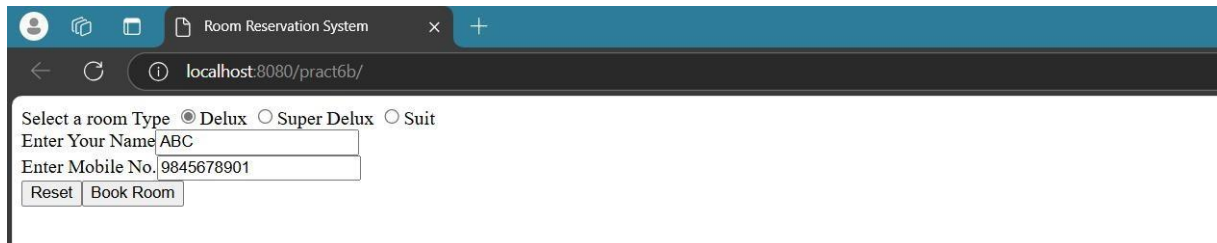
Room Reservation System

localhost:8080/pract6b/

Select a room Type ☐ Delux ☐ Super Delux ☐ Suit

Enter Your Name

Enter Mobile No.



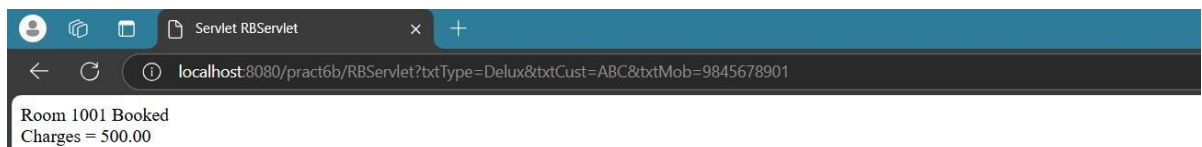
Room Reservation System

localhost:8080/pract6b/

Select a room Type ☒ Delux ☐ Super Delux ☐ Suit

Enter Your Name

Enter Mobile No.

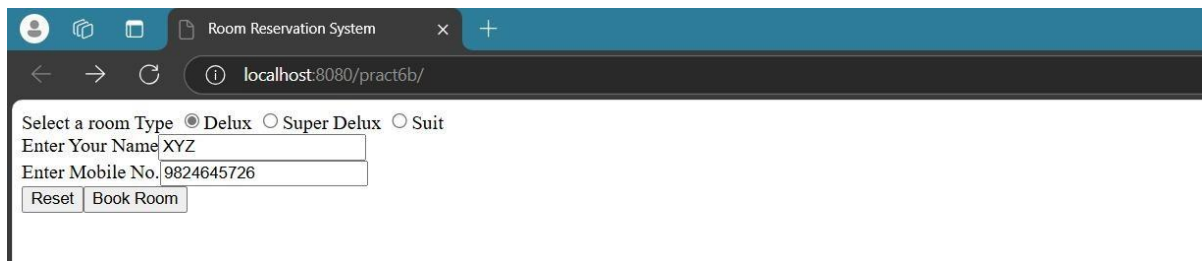


Servlet RBServlet

localhost:8080/pract6b/RBServlet?txtType=Delux&txtCust=ABC&txtMob=9845678901

Room 1001 Booked  
Charges = 500.00

## Servlet RBServlet at /pract6b



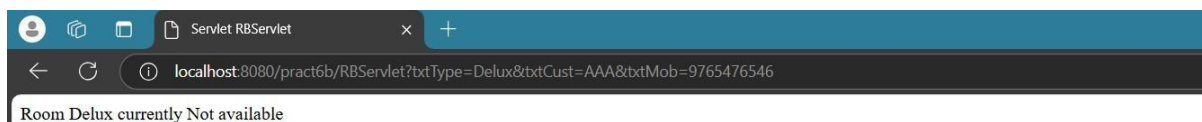
Room Reservation System

localhost:8080/pract6b/

Select a room Type ☒ Delux ☐ Super Delux ☐ Suit

Enter Your Name

Enter Mobile No.



Servlet RBServlet

localhost:8080/pract6b/RBServlet?txtType=Delux&txtCust=AAA&txtMob=9765476546

Room Delux currently Not available

## Servlet RBServlet at /pract6b

**Date :**   /   /

**6c. Aim :** Develop simple shopping cart application using EJB [Stateful Session Bean].

**CODE :**

**index.html**

```
<!DOCTYPE html>
<html lang="en">
<head> <meta charset="UTF-8">
<meta name="viewport" content="width=device-width, initial-scale=1.0">
<title>Shopping Cart</title> </head>
<body> <h1>Shopping Cart</h1>
<form action="cart" method="post">
<input type="text" name="item" placeholder="Enter item" required>
<button type="submit" name="action" value="add">Add Item</button>
<button type="submit" name="action" value="remove">Remove Item</button>
<button type="submit" name="action" value="clear">Clear Cart</button> </form>
<form action="cart" method="get">
<button type="submit">View Cart</button> </form>
</body> </html>
```

---

**ShoppingCartServlet.java**

```
package SCart;
import java.io.IOException;
import javax.ejb.EJB;
import javax.servlet.ServletException;
import javax.servlet.annotation.WebServlet;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;
@WebServlet("/cart")
```

```

public class ShoppingCartServlet extends HttpServlet {

    @EJB

    private ShoppingCartBean cart;

    @Override

    protected void doPost(HttpServletRequest request, HttpServletResponse response)

        throws ServletException, IOException {

        String action = request.getParameter("action");

        String item = request.getParameter("item");

        if ("add".equals(action)) {

            cart.addItem(item);

        } else if ("remove".equals(action)) {

            cart.removeItem(item);

        } else if ("clear".equals(action)) {

            cart.clearCart();

        }

        response.getWriter().println("Cart Contents: " + cart.getItems());

    }

    @Override

    protected void doGet(HttpServletRequest request, HttpServletResponse response)

        throws ServletException, IOException {

        response.getWriter().println("Cart Contents: " + cart.getItems());

    }

}

```

---

### **ShoppingCartBean.java**

```

package SCart;

import java.util.ArrayList;

import java.util.List;

import javax.ejb.Stateful;

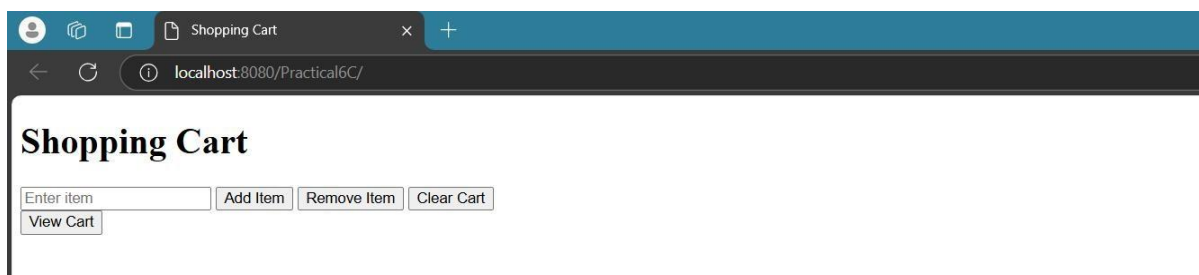
```

@Stateful

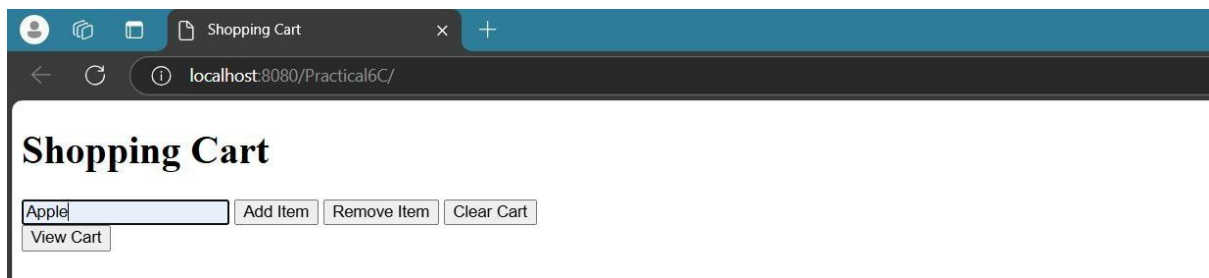
```
public class ShoppingCartBean {  
    private List<String> items;  
    public ShoppingCartBean() {  
        items = new ArrayList<>();  
    }  
    public void addItem(String item) {  
        items.add(item);  
    }  
    public void removeItem(String item) {  
        items.remove(item);  
    }  
    public List<String> getItems() {  
        return items;  
    }  
    public int getItemCount() {  
        return items.size();  
    }  
    public void clearCart() {  
        items.clear();  
    }  
}
```

---

**Output :**



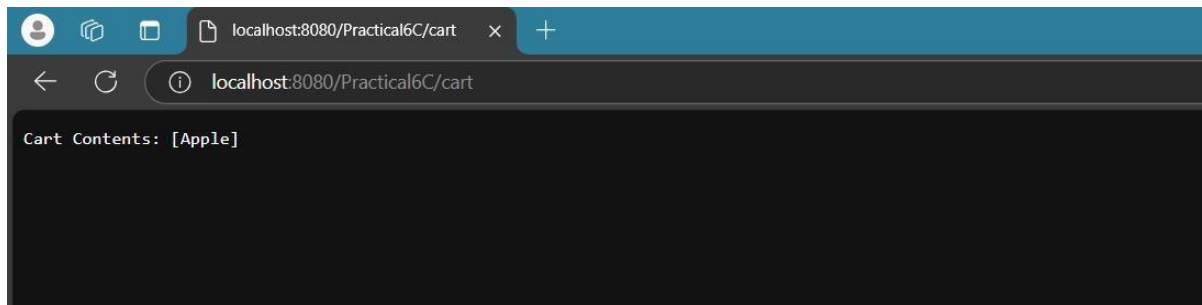
## Adding Apple



Shopping Cart

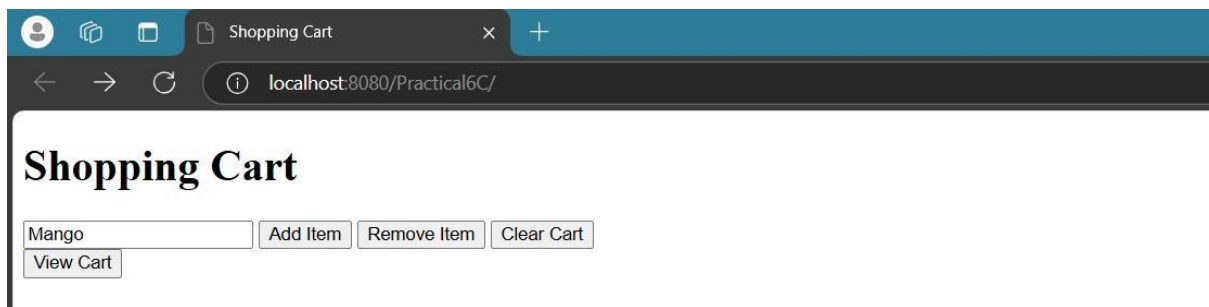
Apple

## Viewing



Cart Contents: [Apple]


## Adding Mango



Shopping Cart

Mango

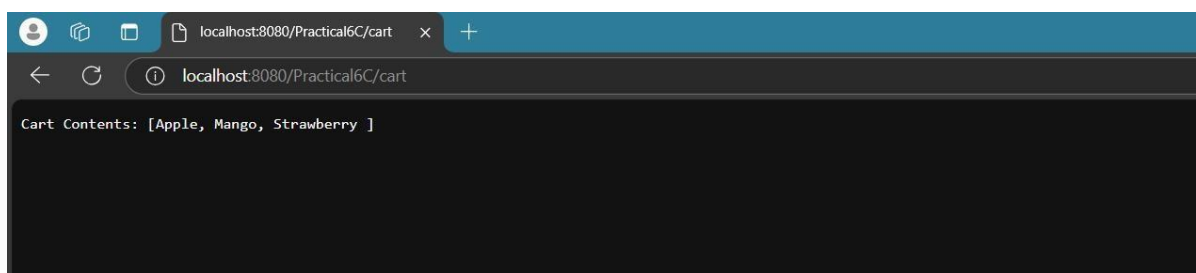
## Adding Strawberry



Shopping Cart

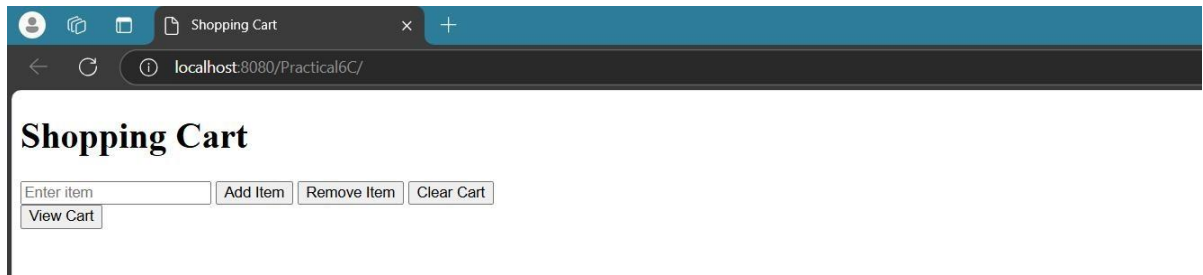
Strawberry

## Viewing the Cart

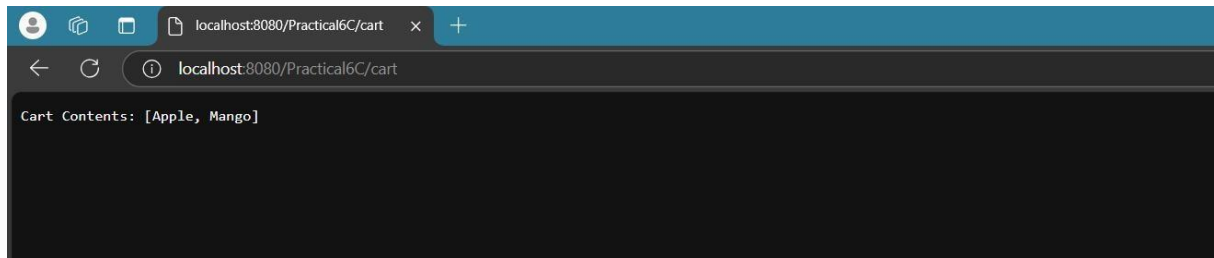


Cart Contents: [Apple, Mango, Strawberry ]

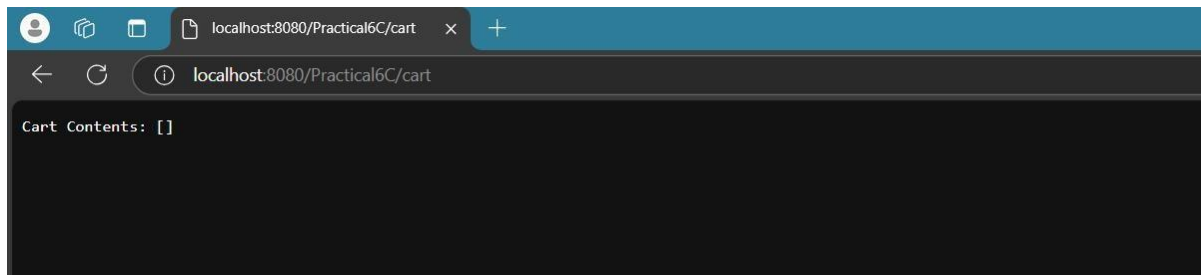




## Removing an Item



## Clearing the Cart



## Practical No.7

---

Date :   /   /

**7a. Aim :** Develop simple EJB application to demonstrate Servlet Hit count using Singleton Session Beans.

### CODE :

#### index.html

```
<html> <head> <meta http-equiv="Refresh" content="0; URL=ServletClient">
</head> <body> </body> </html>
```

---

#### ServletClient.java

```
package servlet;

import java.io.IOException;
import java.io.PrintWriter;
import javax.ejb.EJB;
import javax.servlet.ServletException;
import javax.servlet.annotation.WebServlet;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;

@WebServlet(name= "ServletClient", urlPatterns={"/ServletClient"})

public class ServletClient extends HttpServlet {

    @EJB CounterServletHitsBean CounterBean;

    @Override

    protected void service(HttpServletRequest request, HttpServletResponse response)

        throws ServletException, IOException {

        response.setContentType("text/html;charset=UTF-8");

        try (PrintWriter out = response.getWriter()) {

            out.println("<!DOCTYPE html>");
```

```
out.println("<html>");
out.println("<head>");
out.println("<title>Servlet ServletClient</title>");
out.println("</head>");
out.println("<body>");
out.println("<h1>Number of times this servlet is accessed:" +
    CounterBean.incrementAndGetHitCount()+"</h1>");
out.println("</body>");
out.println("</html>");
} } }
```

---

### **CounterServletHitsBean.java**

```
package servlet;
import javax.ejb.Singleton;
@Singleton
public class CounterServletHitsBean {
    private int hitcount;
    public int incrementAndGetHitCount() {
        return hitcount++;
    }
}
```

---

### **Output :**



**Date :**   /   /

**7b. Aim :** Develop simple visitor Statistics application using Message Driven Bean [Stateless Session Bean].

**CODE :**

**index.jsp**

```
<% @page import="javax.jms.JMSEException"%>
<% @page import="javax.naming.InitialContext"%>
<% @page import="javax.jms.Connection"%>
<% @page import="javax.jms.TextMessage"%>
<% @page import="javax.jms.MessageProducer"%>
<% @page import="javax.jms.Session"%>
<% @page import="javax.jms.Queue"%>
<% @page import="javax.jms.ConnectionFactory"%>
<% @page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE html>
<%! private static ConnectionFactory connectionFactory;
private static Queue queue;
Connection connection=null;
Session mySession=null;
MessageProducer messageProducer=null;
TextMessage message=null; %>
<html><head>
<meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
<title>JSP Page</title></head>
<body> Welcome to My Home Page <%
try{
InitialContext ic= new InitialContext();
queue= (Queue)ic.lookup("jms/Queue");
connectionFactory=(ConnectionFactory)ic.lookup("jms/QueueFactory");
connection= connectionFactory.createConnection();
```

```
mySession=connection.createSession(false, Session.AUTO_ACKNOWLEDGE);
messageProducer=mySession.createProducer(queue);
message=mySession.createTextMessage();
message.setText(request.getRemoteAddr());
messageProducer.send(message); }
catch(JMSEException e) { System.out.println("Exception Occoured "+e.toString()); } %>
</body></html>
```

---

### **VisitorStatBean.java**

```
package ejb;
import java.sql.*;
import javax.annotation.PostConstruct;
import javax.annotation.PreDestroy;
import javax.ejb.Stateless;

@Stateless
public class VisitorStatBean {
    private Connection conn=null;
    private ResultSet rs;
    private Statement st=null;
    private String query =null;

    @PostConstruct
    public void connect() {
        try {
            Class.forName("com.mysql.jdbc.Driver").newInstance();
            conn=DriverManager.getConnection("jdbc:mysql://localhost/visitorstat", "root", "tiger");
        }
        catch (Exception e) { System.err.println(e.getMessage()); }

    @PreDestroy
    public void disconnect() {
        try {
```

```

conn.close();

} catch (Exception e) {
System.err.println(e.getMessage());
} }

public void addVisitor(String host) {
try {
st= conn.createStatement();

query="insert into userstat (hostname,visits) values ('"+host+"','1')";
st.executeUpdate(query);
}

catch (SQLException e) {
try {
st=conn.createStatement();

query="update userstat set visits=visits+1 where hostname='"+host+"' ";
st.executeUpdate(query);
}

catch (SQLException ex) {
System.err.println("Cannot Update"+e.getMessage());
} } } }

```

---

### **BasicMessageBean.java**

```

package ejb;

import javax.annotation.Resource;
import javax.ejb.ActivationConfigProperty;
import javax.ejb.EJB;
import javax.ejb.MessageDriven;
import javax.ejb.MessageDrivenContext;
import javax.jms.JMSException;
import javax.jms.Message;
import javax.jms.MessageListener;

```

```

import javax.jms.TextMessage;

@MessageDriven(activationConfig = {

    @ActivationConfigProperty(propertyName = "destinationLookup", propertyValue =
    "jms/Queue"),

    @ActivationConfigProperty(propertyName = "destinationType", propertyValue =
    "javax.jms.Queue")

})

public class BasicMessageBean implements MessageListener {

    @EJB VisitorStatBean vs;

    @Resource

    private MessageDrivenContext mdc;

    public BasicMessageBean() {

    }

    @Override

    public void onMessage(Message message) {

        try {

            if(message instanceof TextMessage){

                TextMessage msg= (TextMessage) message;

                vs.addVisitor(msg.getText());

            }

        } catch (JMSEException e) {

            mdc.setRollbackOnly();

        }

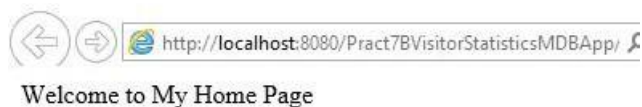
    }

}

```

---

### Output :



**Date :    /    /**

**7c. Aim :** Develop simple Marks Entry Application to demonstrate accessing Database using EJB.

**CODE :**

**for database**

```
>> create table studentdata (sname varchar(10), sub1 varchar(10), sub2 varchar(10));  
>> insert into studentdata values('aaa', '50', '40');
```

---

**index.html**

```
<html> <head>  
  
<title>TODO supply a title</title> <meta charset="UTF-8">  
  
<meta name="viewport" content="width=device-width, initial-scale=1.0">  
  
</head> <body> <form action="MEServlet" >  
  
Enter Student Name<input type="text" name="sname" ><br>  
Enter Subject 1<input type="text" name="sub1"><br>  
Enter Subject 2<input type="text" name="sub2" ><br>  
  
<input type="reset" value="RE-ENTER"><input type="submit" value="SUBMIT">  
  
</form> </body> </html>
```

---

**MEServlet.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;  
  
import javax.ejb.EJB;  
  
import mybeans.MEBean;  
  
public class MEServlet extends HttpServlet {  
  
    @EJB MEBean obj;
```



```

protected void doGet(HttpServletRequest request, HttpServletResponse response)
    throws ServletException, IOException {
    String s1=request.getParameter("sub1");
    String n=request.getParameter("sname");
    String s2=request.getParameter("sub2");
    String msg = obj.markenter(n, s1, s2);
    response.setContentType("text/html;charset=UTF-8");
    try (PrintWriter out = response.getWriter()) {
        out.println("<!DOCTYPE html>");
        out.println("<html>");
        out.println("<head>");
        out.println("<title>Servlet MEServlet</title>");
        out.println("</head>");
        out.println("<body>");
        out.println("<h2>" + msg + "</h2>");
        out.println("<h1>Servlet MEServlet at " + request.getContextPath() +
"</h1>");
        out.println("</body>");
        out.println("</html>");
    }
}
}

```

---

### **MEBean.java**

```

package mybeans;
import javax.ejb.Stateless;
import java.sql.*;
@Stateless
public class MEBean {
    public MEBean(){ }
    public String markenter(String n, String s1,String s2) {

```

```

String msg;

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

    Connection con =
DriverManager.getConnection("jdbc:mysql://localhost:3306/marksdb","root","root");

    String query="insert into studentdata values(?,?,?)";

    PreparedStatement pst = con.prepareStatement(query);

    pst.setString(1,n);

    pst.setString(2,s1);

    pst.setString(3,s2);

    pst.executeUpdate();

    msg="Marks entered";

} catch(Exception e){ msg=""+e;}

return msg;

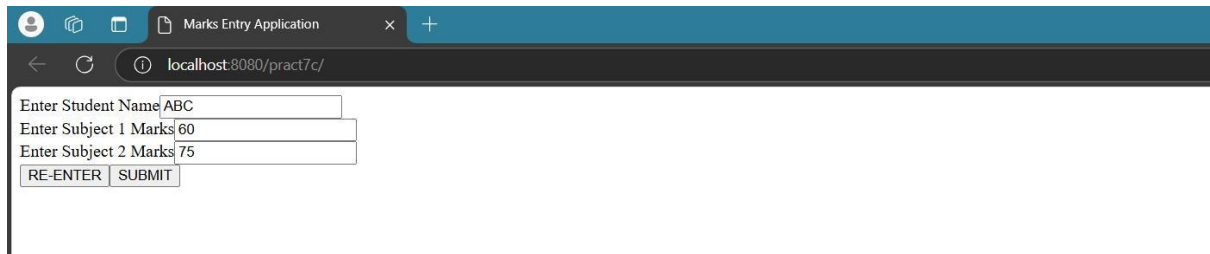
}

}

```

---

### Output :



Marks Entry Application  
 Enter Student Name   
 Enter Subject 1 Marks   
 Enter Subject 2 Marks



Servlet RBServlet  
 localhost:8080/pract7c/RBServlet?sname=ABC&sub1=60&sub2=75  
**Marks entered**  
**Servlet RBServlet at /pract7c**

## Practical No.8

---

Date :   /   /

**8a. Aim :** Develop a simple Inventory Application Using JPA.

**CODE :**

### index.html

```
<html><body><form action="AddInventory" method="post">
<table><tr><td colspan="2" align="center"><b> Add the item in Inventory </b></td></tr>
<tr><td> Item Name : </td>
    <td> <input type="text" name="itemname" maxlength="25" size="50" /></td></tr>
<tr><td> Price : </td>
    <td> <input type="number" name="itemprice" size="50" /> </td></tr>
<tr><td> Quantity :</td>
    <td> <input type="number" name="itemquantity" /> </td></tr>
<tr><td colspan="2"> <input type="submit" name="AddToInventory"
    value="AddToInventory" /> </td></tr>
</table></form></body></html>
```

---

### AddInventory.java

```
package test;

import javax.persistence.EntityManager;
import javax.persistence.EntityManagerFactory;
import javax.persistence.EntityTransaction;
import javax.persistence.Persistence;

public class AddInventory extends HttpServlet {

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

        response.setContentType("text/html;charset=UTF-8");

        try (PrintWriter out = response.getWriter()) {
```

```

        out.println("<!DOCTYPE html>");

        out.println("<html>");

        out.println("<head>");

        out.println("<title>Servlet AddInventory</title>");

        out.println("</head>");

        out.println("<body>");

        EntityManagerFactory entityManagerFactory =
Persistence.createEntityManagerFactory("p8aPU");

        EntityManager entityManager = entityManagerFactory.createEntityManager();

        EntityTransaction entityTransaction = entityManager.getTransaction();

        Inventory il=new Inventory();

        il.setItemName(request.getParameter("itemname"));

        il.setItemQuantity(request.getParameter("itemquantity"));

        il.setItemPrice(Integer.parseInt(request.getParameter("itemprice")));

        il.setSku(Integer.parseInt(request.getParameter("SKU")));

        entityTransaction.begin();

        entityManager.persist(il);

        entityTransaction.commit();

        out.println("<h1>Record is added successfully !!! </h1>");

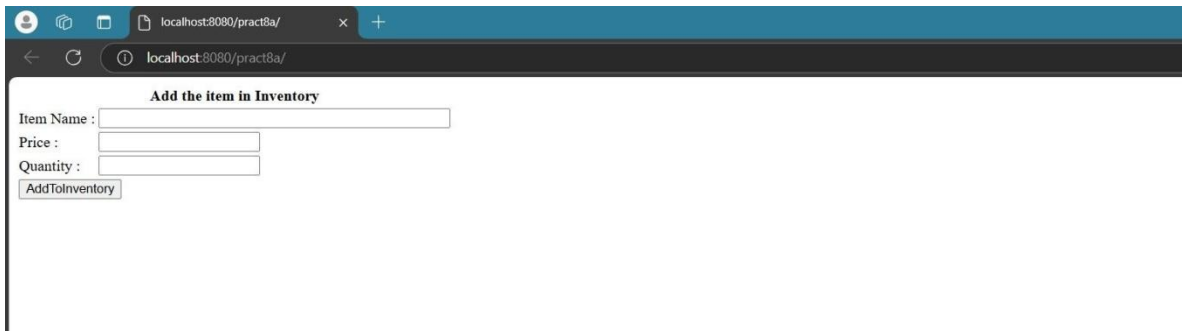
        out.println("</body>");

        out.println("</html>");

    } } }

```

## Output :



The screenshot shows a web browser window with the address bar displaying 'localhost:8080/pract8a/'. The page content is a form titled 'Add the item in Inventory'. It contains three input fields: 'Item Name :', 'Price :', and 'Quantity :'. Below these fields is a button labeled 'AddToInventory'.

## Practical No.9

---

Date :   /   /

**9a. Aim :** Develop a JPA Application to demonstrate use of ORM associations.

### CODE :

#### index.html

```
<html> <head>

<title>TODO supply a title</title> <meta charset="UTF-8">

<meta name="viewport" content="width=device-width, initial-scale=1.0"> </head>

<body>

User Details <hr><br><br> <form action="userview.jsp" >

Name <input type="text" name="uname" maxlength="20"><br>

User Type <input type="text" name="utype" maxlength="20">

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

</form> </body> </html>
```

---

#### userview.jsp

```
<% @page import="java.util.List"%>

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

<% @page import="hibernate.User"%>

<%!

SessionFactory sf;

org.hibernate.Session ss;

List<hibernate.User> User;

%> <%

sf = new Configuration().configure().buildSessionFactory();

ss= sf.openSession();

Transaction tx=null;

User ur=new User();
```

```

try {
    tx=ss.beginTransaction();
    String uname=request.getParameter("uname");
    String utype=request.getParameter("utype");
    ur.setUname(uname);
    ur.setUtype(utype);
    ss.save(ur);
    tx.commit();
} catch(Exception e){ out.println("Error"+e.getMessage()); }

try {
    ss.beginTransaction();
    User=ss.createQuery("from User").list();
} catch(Exception e){ } %>
<html> <head>
<title>Guest View</title>
</head> <body>
Guest View Click here to go <a href="index.html"> BACK </a> <br><br>
<%
Iterator it=User.iterator();
while(it.hasNext()) {
    User eachrecord=(User)it.next();
    out.print(eachrecord.getUid()+" ");
    out.print(eachrecord.getUname()+"<br>");
    out.print(eachrecord.getUtype()+"<br><hr>");
}
%>
</body> </html>
hibernate.revenge.xml
<hibernate-reverse-engineering>
<schema-selection match-catalog="userdb"/>

```

```
<table-filter match-name="user"/>
```

```
</hibernate-reverse-engineering>
```

---

### **hibernate.cfg.xml**

```
<hibernate-configuration> <session-factory>
```

```
<property name="hibernate.dialect">org.hibernate.dialect.MySQLDialect</property>
```

```
<property name="hibernate.dialect">org.hibernate.dialect.MySQLDialect</property>
```

```
<property
```

```
name="hibernate.connection.url">jdbc:mysql://localhost:3306/userdb?zeroDateTimeBehavior=conve
```

```
rtToNull</property>
```

```
<property name="hibernate.connection.username">root</property>
```

```
<property name="hibernate.connection.password">tiger</property>
```

```
</session-factory> </hibernate-configuration>
```

---

### **User.hbm.xml**

```
<hibernate-mapping>
```

```
<class optimistic-lock="version" catalog="userdb" table="user" name="hibernate.User">
```

```
<id name="uid" type="java.lang.Integer">
```

```
<column name="uid"/>
```

```
<generator class="identity"/> </id>
```

```
<property name="uname" type="string">
```

```
<column name="uname" length="20"/>
```

```
</property>
```

```
<property name="utype" type="string">
```

```
<column name="utype" length="100"/>
```

```
</property> </class>
```

```
</hibernate-mapping>
```

---

### **User.java**

```
package hibernate;
```

```
public class User implements java.io.Serializable {  
    private Integer uid;  
    private String uname;  
    private String utype;  
    public User() { }  
    public User(String uname, String utype) {  
        this.uname = uname;  
        this.utype = utype;  
    }  
    public Integer getUid() {  
        return this.uid;  
    }  
    public void setUid(Integer uid) {  
        this.uid = uid;  
    }  
    public String getUname() {  
        return this.uname;  
    }  
    public void setUname(String uname) {  
        this.uname = uname;  
    }  
    public String getUtype() {  
        return this.utype;  
    }  
    public void setUtype(String utype) {  
        this.utype = utype;  
    } }  
}
```

**Output :**



http://localhost:8080/WebApplication1/userview.jsp?l

JSP PageJSP PageGuest View

Guest View Click here to go [BACK](#)

5  
xyz  
admin

6  
pqr  
user

7  
mnq  
admin

http://localhost:8080/WebApplication1/index.jsp

JSP PageJSP PageJSP Page

Name

Type

submit

http://localhost:8080/WebApplication1/index.jsp

JSP PageJSP PageJSP Page

Name xyz

Type admin

submit