

ADVANCE JAVA PRACTICALS:

PRACTICAL 1

Create a simple calculator application using servlet.

CODE:

A) Index.html File:

```
<!DOCTYPE html>

<html>
<head>
    <title>Simple Calculator</title>
</head>
<body>
    <h2>Simple Calculator</h2>
    <form action="CalculatorServlet" method="post">
        <label>Enter First Number:</label>
        <input type="text" name="num1" required><br><br>
        <label>Enter Second Number:</label>
        <input type="text" name="num2" required><br><br>
        <label>Select Operation:</label>
        <select name="operation">
            <option value="add">Addition (+)</option>
            <option value="subtract">Subtraction (-)</option>
            <option value="multiply">Multiplication (*)</option>
            <option value="divide">Division (/)</option>
        </select><br><br>
        <input type="submit" value="Calculate">
    </form>
</body>
</html>
```

B) CalculatorServlet.java File:

```
import java.io.IOException;
import java.io.PrintWriter;
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("/CalculatorServlet")
public class CalculatorServlet extends HttpServlet {
    protected void doPost(HttpServletRequest request, HttpServletResponse response)
        throws ServletException, IOException {
        response.setContentType("text/html");
        PrintWriter out = response.getWriter();

        try {
            double num1 = Double.parseDouble(request.getParameter("num1"));
            double num2 = Double.parseDouble(request.getParameter("num2"));
            String operation = request.getParameter("operation");
            double result = 0;

            switch (operation) {
                case "add": result = num1 + num2; break;
                case "subtract": result = num1 - num2; break;
                case "multiply": result = num1 * num2; break;
                case "divide":
                    if (num2 == 0) {
                        out.println("<h3>Error: Division by zero is not allowed.</h3>");
                        return;
                    }
                    result = num1 / num2;
            }
        }
    }
}
```

```

        break;

    default:
        out.println("<h3>Invalid Operation</h3>");
        return;
    }

    out.println("<h2>Result: " + result + "</h2>");
} catch (NumberFormatException e) {
    out.println("<h3>Error: Please enter valid numbers.</h3>");
}
}

}

```

OUTPUT:

Simple Calculator

Enter First Number:

Enter Second Number:

Select Operation:

Result: 1248.0

PRACTICAL 2

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”

A) Index.html:

```
<!DOCTYPE html>

<html>
<head>
    <title>Login Form</title>
</head>
<body>
    <h2>Login</h2>
    <form action="LoginServlet" method="post">
        Enter User ID: <input type="text" name="txtId" required><br><br>
        Enter Password: <input type="password" name="txtPass" required><br><br>
        <input type="reset"> <input type="submit" value="Click to Login">
    </form>
</body>
</html>
```

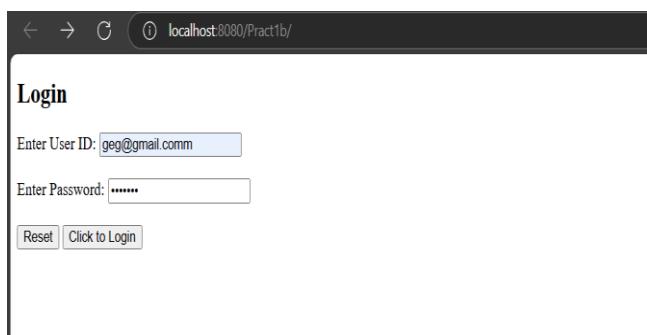
B) LoginServlet.java File:

```
package mypack;

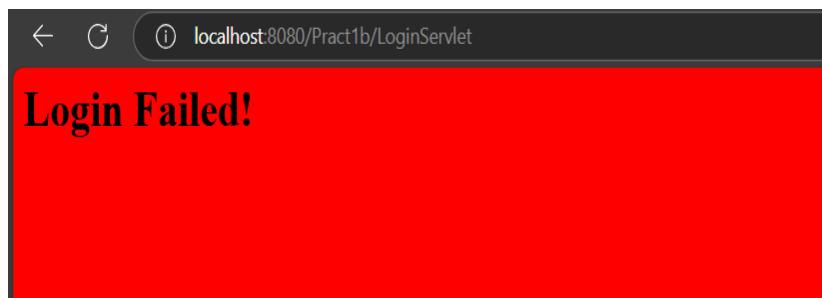
import java.io.IOException;
import java.io.PrintWriter;
import javax.servlet.ServletException;
import javax.servlet.annotation.WebServlet;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;
@WebServlet("/LoginServlet")
public class LoginServlet extends HttpServlet {
    protected void doPost(HttpServletRequest request, HttpServletResponse response)
```

```
throws ServletException, IOException {  
  
    response.setContentType("text/html;charset=UTF-8");  
  
    PrintWriter out = response.getWriter();  
  
    String uname = request.getParameter("txtId");  
  
    String upass = request.getParameter("txtPass");  
  
    out.println("<html><head><title>Login Result</title></head>");  
  
    if ("admin".equals(uname) && "12345".equals(upass)) {  
  
        out.println("<body bgcolor='blue'>");  
  
        out.println("<h1>Welcome, " + uname + " !</h1>");  
  
    } else {  
  
        out.println("<body bgcolor='red'>");  
  
        out.println("<h1>Login Failed!</h1>");  
  
    }  
  
    out.println("</body></html>");  
  
}  
}
```

OUTPUT:



A screenshot of a web browser window. The address bar shows the URL `localhost:8080/Pract1b/`. The page title is "Login". The form has two text input fields: "Enter User ID:" containing `geg@gmail.comm` and "Enter Password:" containing `*****`. Below the inputs are two buttons: "Reset" and "Click to Login".



PRACTICAL 3

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:

A) index.html:

```
<!DOCTYPE html>
<html>
<head>
    <title>Login Form</title>
</head>
<body>
    <h1>Login Page</h1>
    <form action="LoginServlet" method="post">
        Enter User ID: <input type="text" name="txtId"><br><br>
        Enter Password: <input type="password" name="txtPass"><br><br>
        <input type="reset">
        <input type="submit" value="Click to Login">
    </form>
</body>
</html>
```

B) LoginServlet.java

```
package mypack;

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

```
@WebServlet("/LoginServlet")
```

```
public class LoginServlet extends HttpServlet {  
    protected void doPost(HttpServletRequest request, HttpServletResponse response)  
        throws ServletException, IOException {  
        response.setContentType("text/html;charset=UTF-8");  
        PrintWriter out = response.getWriter();  
  
        String uname = request.getParameter("txtId");  
        String upass = request.getParameter("txtPass");  
  
        if ("admin".equals(uname) && "Servlet".equalsIgnoreCase(upass)) {  
            RequestDispatcher rd = request.getRequestDispatcher("WelcomeServlet");  
            rd.forward(request, response);  
        } else {  
            out.println("<h1 style='color:red;'>Login Failed! Incorrect  
Password.</h1>");  
            RequestDispatcher rd = request.getRequestDispatcher("index.html");  
            rd.include(request, response);  
        }  
    }  
}
```

c) WelcomeServlet.java:

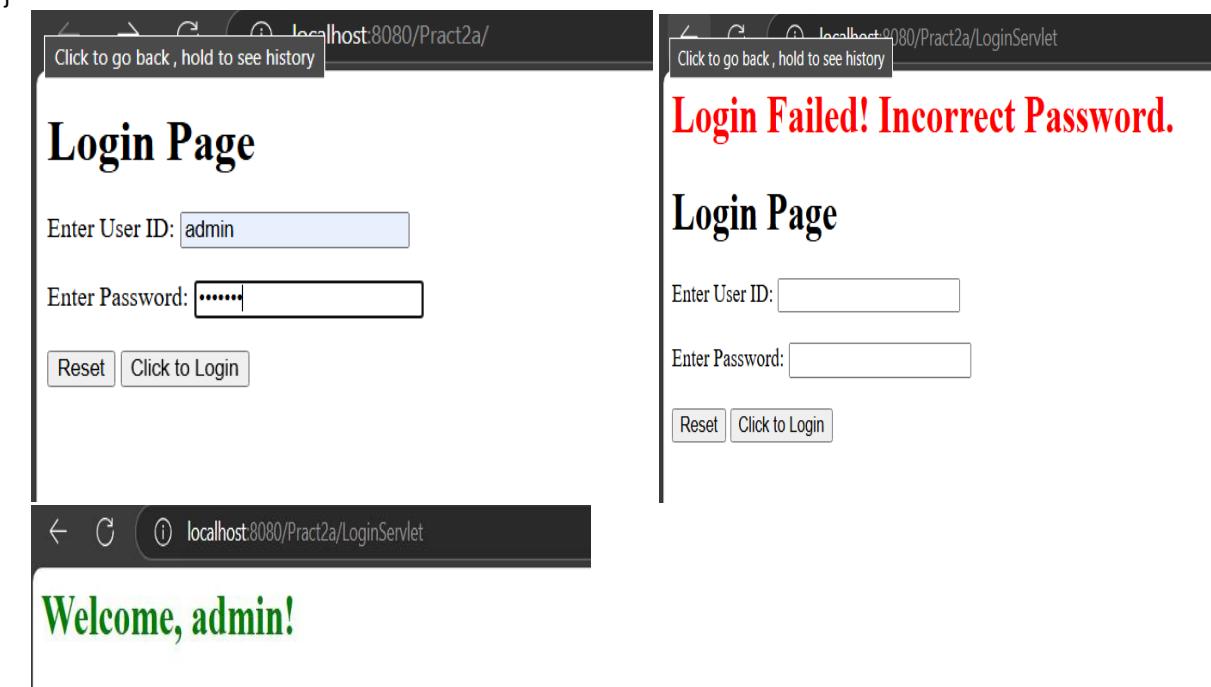
```
package mypack;  
  
import java.io.IOException;  
import java.io.PrintWriter;  
import javax.servlet.ServletException;  
import javax.servlet.annotation.WebServlet;  
import javax.servlet.http.HttpServlet;  
import javax.servlet.http.HttpServletRequest;  
import javax.servlet.http.HttpServletResponse;
```

```
@WebServlet("/WelcomeServlet")  
public class WelcomeServlet extends HttpServlet {  
    protected void doPost(HttpServletRequest request, HttpServletResponse response)
```

```

        throws ServletException, IOException {
    response.setContentType("text/html;charset=UTF-8");
    PrintWriter out = response.getWriter();
    String uname = request.getParameter("txtId");
    out.println("<html><head><title>Welcome Page</title></head><body>");
    out.println("<h1 style='color:green;'>Welcome, " + uname + "</h1>");
    out.println("</body></html>");
}
}

```



PRACTICAL 4

Create a servlet that uses Cookies to store the number of times a user has visited servlet.

A) index.html:

```
<!DOCTYPE html>
<html>
<head>
    <title>Cookie Demo</title>
</head>
<body>
    <h1>Welcome to the Cookie Demo</h1>
    <form action="Page1" method="post">
        Enter Your Name: <input type="text" name="txtName"><br><br>
        <input type="submit" value="~~~ Click to Enter ~~~">
    </form>
</body>
</html>
```

B) Page1.java:

```
package mypack;
```

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

@WebServlet("/Page1")
public class Page1 extends HttpServlet {
    protected void doPost(HttpServletRequest request, HttpServletResponse response)
        throws ServletException, IOException {
        response.setContentType("text/html;charset=UTF-8");
        PrintWriter out = response.getWriter();

        String uname = request.getParameter("txtName");
        Cookie userCookie = new Cookie("username", uname);
        Cookie visitCookie = new Cookie("visit", "1");

        response.addCookie(userCookie);
        response.addCookie(visitCookie);

        out.println("<html><head><title>Page 1</title></head>");
        out.println("<body bgcolor='pink'>");
        out.println("<h1>Welcome, " + uname + "</h1>");
        out.println("<h2><a href='Page2'>Go to Page 2</a></h2>");
        out.println("</body></html>");
    }
}
```

C)Page2.java:

```
package mypack;

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

@WebServlet("/Page2")
public class Page2 extends HttpServlet {
    protected void doGet(HttpServletRequest request, HttpServletResponse response)
        throws ServletException, IOException {
        response.setContentType("text/html;charset=UTF-8");
        PrintWriter out = response.getWriter();

        int count = 1;
        Cookie[] cookies = request.getCookies();
        for (Cookie c : cookies) {
            if (c.getName().equals("visit")) {
                count = Integer.parseInt(c.getValue()) + 1;
                c.setValue(String.valueOf(count));

                response.addCookie(c);
            }
        }

        out.println("<html><head><title>Page 2</title></head>");
        out.println("<body bgcolor='yellow'>");
        out.println("<h1>Visit No: " + count + "</h1>");
        out.println("<h2><a href='Page3'>Go to Page 3</a></h2>");
        out.println("</body></html>");
    }
}
```

D)Page3.java:

```
package mypack;

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

@WebServlet("/Page3")
public class Page3 extends HttpServlet {
    protected void doGet(HttpServletRequest request, HttpServletResponse response)
        throws ServletException, IOException {
        response.setContentType("text/html;charset=UTF-8");
        PrintWriter out = response.getWriter();
```

```

String uname = "Guest";
Cookie[] cookies = request.getCookies();
for (Cookie c : cookies) {
    if (c.getName().equals("username")) {
        uname = c.getValue();
    }
}

out.println("<html><head><title>Page 3</title></head>");
out.println("<body bgcolor='lightblue'>");
out.println("<h1>Welcome again, " + uname + "</h1>");
out.println("<h2><a href='Page4'>Go to Page 4</a></h2>");
out.println("</body></html>");
}
}

```

E) Page4.java:

```

package mypack;

import java.io.IOException;
import java.io.PrintWriter;
import javax.servlet.ServletException;
import javax.servlet.annotation.WebServlet;
import javax.servlet.http.HttpServlet;

import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;
import javax.servlet.http.Cookie;

@WebServlet("/Page4")
public class Page4 extends HttpServlet {
    protected void doGet(HttpServletRequest request, HttpServletResponse response)
        throws ServletException, IOException {
        response.setContentType("text/html;charset=UTF-8");
        PrintWriter out = response.getWriter();

        String uname = "Guest";
        int count = 1;
        Cookie[] cookies = request.getCookies();
        for (Cookie c : cookies) {
            if (c.getName().equals("username")) {
                uname = c.getValue();
            } else if (c.getName().equals("visit")) {
                count = Integer.parseInt(c.getValue()) + 1;
                c.setValue(String.valueOf(count));
                response.addCookie(c);
            }
        }

        out.println("<html><head><title>Page 4</title></head>");
        out.println("<body bgcolor='orange'>");
        out.println("<h1>User: " + uname + "</h1>");
        out.println("<h1>Visits: " + count + "</h1>");
        out.println("<h2><a href='Page5'>Go to Page 5</a></h2>");
        out.println("</body></html>");
    }
}

```

```
    }  
}
```

F) **Page5.java:**

```
package mypack;
```

```
import java.io.IOException;  
import java.io.PrintWriter;  
import javax.servlet.ServletException;  
import javax.servlet.annotation.WebServlet;  
import javax.servlet.http.HttpServlet;  
import javax.servlet.http.HttpServletRequest;  
import javax.servlet.http.HttpServletResponse;  
import javax.servlet.http.Cookie;  
  
@WebServlet("/Page5")  
public class Page5 extends HttpServlet {  
    protected void doGet(HttpServletRequest request, HttpServletResponse response)  
        throws ServletException, IOException {  
        response.setContentType("text/html;charset=UTF-8");  
        PrintWriter out = response.getWriter();  
  
        Cookie[] cookies = request.getCookies();  
        if (cookies != null) {  
            for (Cookie c : cookies) {  
                if (c.getName().equals("visit")) {  
                    c.setValue("1"); // Reset visit count  
                    response.addCookie(c);  
                }  
            }  
        }  
        out.println("<html><head><title>Page 5</title></head>");  
        out.println("<body bgcolor='red'>");  
        out.println("<h1>Your session is reset!</h1>");  
        out.println("<h2><a href='Page1'>Restart</a></h2>");  
        out.println("</body></html>");  
    }  
}
```

The image displays five separate browser windows arranged in a grid, illustrating the progression of a user session across different web pages. Each window has a black header bar with navigation icons and a URL bar showing `localhost:8080/Pract2b/`.

- Page 1:** A pink-themed page titled "Welcome to the Cookie Demo". It contains a text input field with "wfhj" and a button labeled "~~~ Click to Enter ~~~".
- Page 2:** A yellow-themed page titled "Visit No: 2". It contains a link "Go to Page 3".
- Page 3:** A light blue-themed page titled "Welcome again, wfhj!". It contains a link "Go to Page 4".
- Page 4:** An orange-themed page showing session data: "User: wfhj" and "Visits: 3". It contains a link "Go to Page 5".
- Page 5:** A red-themed page with the message "Your session is reset!" and a link "Restart".

PRACTICAL 5

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:

1. index.html

```
<!DOCTYPE html>
<html>
<head>
<title>Session Demo</title>
</head>
<body>
<h1>Enter User ID</h1>
<form action="Page1" method="get">
<label>User ID:</label>
<input type="text" name="txtName"><br><br>
<input type="reset">
<input type="submit" value="Submit">
</form>
</body>
</html>
```

2. Page1.java

```
package mypack;

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

@WebServlet("/Page1")
public class Page1 extends HttpServlet {
    protected void doGet(HttpServletRequest request, HttpServletResponse response)
        throws ServletException, IOException {
        response.setContentType("text/html;charset=UTF-8");
        PrintWriter out = response.getWriter();

        HttpSession hs = request.getSession(true);
        out.println("<html><head><title>Servlet Page1</title></head><body"
        "bgcolor='yellow'>");

        if (hs.isNew()) {
            String name = request.getParameter("txtName");
            hs.setAttribute("uname", name);
            hs.setAttribute("visit", "1");
            out.println("<h1>Welcome First Time, " + name + "</h1>");
        }
    }
}
```

```

    } else {
        int visit = Integer.parseInt((String) hs.getAttribute("visit")) + 1;
        hs.setAttribute("visit", String.valueOf(visit));
        out.println("<h1>Welcome Again</h1>");
        out.println("<h1>You Visited " + visit + " Times</h1>");
    }

    out.println("<h1>Session ID: " + hs.getId() + "</h1>");
    out.println("<h1>Logged in at: " + new java.util.Date(hs.getCreationTime()) +
    "</h1>");
    out.println("<h2><a href='Page2'>Go to Page 2</a></h2>");
    out.println("<h2><a href='Page3'>Go to Page 3</a></h2>");
    out.println("<h2><a href='Page4'>Go to Page 4</a></h2>");
    out.println("<h2><a href='LogoutServlet'>Terminate Session</a></h2>");
    out.println("</body></html>");
}
}

```

3. Page2.java

```
package mypack;
```

```

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

@WebServlet("/Page2")
public class Page2 extends HttpServlet {
    protected void doGet(HttpServletRequest request, HttpServletResponse response)
        throws ServletException, IOException {
        response.setContentType("text/html;charset=UTF-8");
        PrintWriter out = response.getWriter();

        HttpSession hs = request.getSession(false);
        if (hs == null) {
            out.println("<h1>Session expired! Please restart.</h1>");
            return;
        }

        int visit = Integer.parseInt((String) hs.getAttribute("visit")) + 1;
        hs.setAttribute("visit", String.valueOf(visit));

        out.println("<html><head><title>Page 2</title></head><body
        bgcolor='lightgreen'>");
        out.println("<h1>Welcome Again to Page 2</h1>");
        out.println("<h1>You Visited " + visit + " Times</h1>");
        out.println("<h2><a href='Page1'>Back to Page 1</a></h2>");
    }
}

```

```

        out.println("<h2><a href='Page3'>Go to Page 3</a></h2>");
        out.println("<h2><a href='Page4'>Go to Page 4</a></h2>");
        out.println("<h2><a href='LogoutServlet'>Terminate Session</a></h2>");
        out.println("</body></html>");

    }
}

```

4. Page3.java (Same as Page2, only background color changes)

```

@WebServlet("/Page3")
public class Page3 extends HttpServlet {
    protected void doGet(HttpServletRequest request, HttpServletResponse response)
        throws ServletException, IOException {
        response.setContentType("text/html;charset=UTF-8");
        PrintWriter out = response.getWriter();

        HttpSession hs = request.getSession(false);
        if (hs == null) {
            out.println("<h1>Session expired! Please restart.</h1>");
            return;
        }

        int visit = Integer.parseInt((String) hs.getAttribute("visit")) + 1;
        hs.setAttribute("visit", String.valueOf(visit));

        out.println("<html><head><title>Page 3</title></head><body bgcolor='lightblue'>");
        out.println("<h1>Welcome Again to Page 3</h1>");
        out.println("<h1>You Visited " + visit + " Times</h1>");
    }
}

```

5. Page4.java (Same as Page2, only background color changes)

```

@WebServlet("/Page4")
public class Page4 extends HttpServlet {
    protected void doGet(HttpServletRequest request, HttpServletResponse response)
        throws ServletException, IOException {
        response.setContentType("text/html;charset=UTF-8");
        PrintWriter out = response.getWriter();

        HttpSession hs = request.getSession(false);
        if (hs == null) {
            out.println("<h1>Session expired! Please restart.</h1>");
            return;
        }

        int visit = Integer.parseInt((String) hs.getAttribute("visit")) + 1;
        hs.setAttribute("visit", String.valueOf(visit));
    }
}

```

6. LogoutServlet.java

```

@WebServlet("/LogoutServlet")
public class LogoutServlet extends HttpServlet {
    protected void doGet(HttpServletRequest request, HttpServletResponse response)
        throws ServletException, IOException {
        response.setContentType("text/html;charset=UTF-8");
        PrintWriter out = response.getWriter();

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

        out.println("<h1>You are Logged Out!</h1>");
    }
}

```

The image displays four screenshots of a web browser interface, likely from a Java application running on localhost:8080. Each screenshot shows a different page or state of the session.

- Screenshot 1 (Top Right):** A session summary page titled "Welcome Again". It shows session statistics: Visited 2 Times, Session ID: 9469EC0D0CD8D4F69A7D98F9ED294962, and Logged in at: Tue Mar 11 13:22:07 IST 2025. It includes links for "Go to Page 2", "Go to Page 3", "Go to Page 4", and "Terminate Session".
- Screenshot 2 (Second from Top Left):** A page titled "Enter User ID" with a text input field containing "wfhj". Below the input are "Reset" and "Submit" buttons.
- Screenshot 3 (Second from Bottom Left):** A page titled "Welcome Again to Page 2" with the message "You Visited 3 Times". It includes links for "Back to Page 1", "Go to Page 3", "Go to Page 4", and "Terminate Session".
- Screenshot 4 (Bottom Left):** A page titled "Welcome Again to Page 4" with the message "You Visited 6 Times". It includes links for "Back to Page 1", "Go to Page 2", "Go to Page 3", and "Terminate Session".
- Screenshot 5 (Bottom Right):** A simple page with the message "You are Logged Out!".

PRACTICAL 7

CODE:

HTML:

```
<html>
<head><title>User Information Page</title></head>
<body>
<form action="Validate.jsp">
```

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

Enter Your Age <input type="text" name="age">

Select Hobbies:

```
<input type="checkbox" name="hob" value="Singing">Singing
<input type="checkbox" name="hob" value="Reading">Reading Books
<input type="checkbox" name="hob" value="Football">Playing Football<br>
```

Enter E-mail <input type="text" name="email">

Select Gender:

```
<input type="radio" name="gender" value="male">Male
<input type="radio" name="gender" value="female">Female
<input type="radio" name="gender" value="other">Other<br>
```

```
<input type="hidden" name="error" value="">
<input type="submit" value="Submit Form">
</form>
</body>
</html>
```

Validate.jsp:

```

<%@page contentType="text/html" pageEncoding="UTF-8" import="mypack.*" %>
<html>
<head><title>JSP Validation Page</title></head>
<body>
<h1>Validation Page</h1>

<jsp:useBean id="obj" scope="request" class="mypack.CheckerBean">
    <jsp:setProperty name="obj" property="*"/>
</jsp:useBean>

<%
if (obj.validate()) {
%>
    <jsp:forward page="successful.jsp"/>
<%
} else {
%>
    <jsp:include page="index.html"/>
    <%=obj.getError()%>
<%
}
%>
</body>
</html>

```

Checkerbean.java:

```

package mypack;
public class CheckerBean {

```

```
private String name, age, hob, email, gender, error;
public CheckerBean() {
    error = "";
}
public void setName(String n) {
    name = n;
}
public void setAge(String a) {
    age = a;
}
public void setHob(String h) {
    hob = h;
}
public void setEmail(String e) {
    email = e;
}
public void setGender(String g) {
    gender = g;
}
public void setError(String e) {
    error = e;
}

public String getName() {
    return name;
}

public String getAge() {
    return age;
}

public String getHob() {
    return hob;
}

public String getEmail() {
    return email;
}
```

```
public String getGender() {  
    return gender;  
}  
public String getError() {  
    return error;  
}  
public boolean validate() {  
    boolean res = true;  
    if (name == null || name.trim().isEmpty()) {  
        error += "<br>Enter First Name";  
        res = false;  
    }  
    if (age == null || age.isEmpty() || age.length() > 2) {  
        error += "<br>Age Invalid";  
        res = false;  
    }  
    return res;  
}
```

Validation Page

Enter Your Name

Enter Your Age

Select Hobbies: Singing Reading Books Playing Football

Enter E-mail

Select Gender: Male Female Other

Enter First Name

Age Invalid

PRACTICAL 8

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>
</html>
```

CCServlet:

```
package mypack;

import java.io.IOException;
import java.io.PrintWriter;
import javax.servlet.ServletException;
import javax.servlet.annotation.WebServlet;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;
import mybeans.CCBean; // Import the correct package

@WebServlet("/CCServlet")
```

```

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

    // Instead of @EJB, manually instantiate the bean
    private CCBean obj = new CCBean();

    protected void doGet(HttpServletRequest request, HttpServletResponse response)
        throws ServletException, IOException {
        response.setContentType("text/html;charset=UTF-8");
        PrintWriter out = response.getWriter();

        try {
            double amt = Double.parseDouble(request.getParameter("amt"));
            String type = request.getParameter("type");

            if ("r2d".equals(type)) {
                out.println("<h1>" + amt + " Rupees = " + obj.r2Dollar(amt) + " Dollars</h1>");
            } else if ("d2r".equals(type)) {
                out.println("<h1>" + amt + " Dollars = " + obj.d2Rupees(amt) + " Rupees</h1>");
            } else {
                out.println("<h1>Invalid Conversion Type</h1>");
            }
        } catch (NumberFormatException e) {
            out.println("<h1>Error: Please enter a valid number!</h1>");
        }
    }
}

```

CCBeans:

```
package mybeans;
```

```
public class CCBean { // + Removed @Stateless

    public CCBean() {}

    public double r2Dollar(double r) { // Fixed method name for consistency
        return r / 65.65;
    }

    public double d2Rupees(double d) {
        return d * 65.65;
    }
}
```

The screenshot shows a web browser window with two tabs. The top tab is titled "localhost:8080/currency/" and displays a form for currency conversion. The bottom tab is titled "localhost:8080/currency/CCServlet?amt=22&type=r2d" and displays the results of the conversion.

Top Tab (localhost:8080/currency/):

Enter Amount

Select Conversion Type: Rupees to Dollar Dollar to Rupees

Bottom Tab (localhost:8080/currency/CCServlet?amt=22&type=r2d):

22.0 Rupees = 0.3351104341203351 Dollars

PRACTICAL 9

----- CounterBean.java -----

```
package counter.ejb;
import javax.ejb.Singleton;

@Singleton
public class CounterBean {
    private int hits = 1;

    // Increment and return the number of hits
    public int getHits() {
        return hits++;
    }
}
```

----- Count.java -----

```
package mypack;
import java.io.Serializable;
import javax.ejb.EJB;
import javax.enterprise.context.ConversationScoped;
import javax.inject.Named;
import counter.ejb.CounterBean;

@Named("count")
@ConversationScoped
public class Count implements Serializable {

    @EJB
    private CounterBean counterBean;
    private int hitCount;

    public Count() {
        this.hitCount = 0;
    }

    public int getHitCount() {
        hitCount = counterBean.getHits();
        return hitCount;
    }

    public void setHitCount(int newHits) {
        this.hitCount = newHits;
    }
}
```

```
    }  
}
```

----- HitCountPage.xhtml -----

```
<?xml version='1.0' encoding='UTF-8' ?>  
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0  
Transitional//EN"  
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-  
transitional.dtd">  
<html  
    xmlns="http://www.w3.or  
g/1999/xhtml"  
    xmlns:h="http://xmlns.jcp.  
org/jsf/html">  
<h:head>  
<title>Page Hit Counter Using Singleton Session Bean ~~~~ </title>  
</h:head>  
<h:body>  
<h1>Welcome to Hit  
    Count Page</h1>  
    Page was hit  
    #{count.hitCount}  
    times  
</h:body>  
</html>
```



Welcome to Hit Count Page

Page was hit 4 times