

Exp -06:	Write a Servlet to demonstrate session tracking using HttpSession. Implement a simple login system where the user's session is tracked.
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Aim

To implement session tracking in a Java Servlet using **HttpSession**, demonstrating how a simple login system can maintain user session data across multiple requests for an enhanced user experience.

Algorithm

1. Start

- The user opens the login page in a web browser.

2. Display Login Form

- The HTML page loads a login form with two input fields:
 - **Username** (text input)
 - **Password** (password input)
- A submit button is provided to send the login credentials.

3. Apply CSS Styling

- The form is styled to be **centered** and visually appealing.
- Aesthetic enhancements like background color, rounded corners, shadow effects, and hover effects for buttons are applied.

4. Submit Form Data

- The user enters their username and password.
- Upon clicking the **Login** button, the form sends the data using the **POST** method to LoginServlet.

5. Handle Request in Java Servlet

- The servlet retrieves the **username** and **password** from the request parameters.
- It verifies the credentials against stored values or a database.

6. Display Response

- If the login is successful:
 - Redirect the user to a **dashboard or homepage**.
- If login fails:
 - Show an **error message** and prompt the user to try again.

7. End

- The user either logs in successfully or is asked to re-enter their credentials.

CODE:

HTML :

```
<!DOCTYPE html>

<html lang="en">

<head>

    <meta charset="UTF-8">

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

    <title>Login Page</title>

    <style>
```

```
body {  
    font-family: Arial, sans-serif;  
    background-color: #f4f4f9;  
    display: flex;  
  
    justify-content: center;  
    align-items: center;  
    height: 100vh;  
    margin: 0;  
}  
.login-container {  
    background-color: #fff;  
    padding: 30px;  
    border-radius: 10px;  
    box-shadow: 0 4px 8px rgba(0, 0, 0, 0.1);  
    width: 350px;  
    text-align: center;  
}  
h2 {  
    color: #333;  
    margin-bottom: 20px;  
}  
.form-group {  
    margin-bottom: 15px;  
    text-align: left;  
}  
label {  
    font-weight: bold;  
    display: block;  
    margin-bottom: 5px;  
}  
input[type="text"], input[type="password"] {  
    width: 100%;
```

```
padding: 10px;
border: 1px solid #ccc;
border-radius: 5px;
box-sizing: border-box;
}
.btn {
background-color: #4CAF50;
color: white;
padding: 10px 20px;
border: none;
border-radius: 5px;
cursor: pointer;
width: 100%;
font-size: 16px;
transition: 0.3s;
}
.btn:hover {
background-color: #45a049;
}
</style>
</head>
<body>
<div class="login-container">
<h2>Login Form</h2>
<form action="LoginServlet" method="post">
<div class="form-group">
<label for="username">Username:</label>
<input type="text" id="username" name="username" required>
</div>
<div class="form-group">
<label for="password">Password:</label>
<input type="password" id="password" name="password" required>
</div>
```

```

        <input type="submit" class="btn" value="Login">

    </form>

</div>

</body>

</html>

```

Servlet.java:

```

package com.example.session;
import java.io.*;
import javax.servlet.*;
import javax.servlet.http.*;

public class LoginServlet extends HttpServlet {
    private static final String USERNAME = "admin";
    private static final String PASSWORD = "password";

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

        response.setContentType("text/html");
        PrintWriter out = response.getWriter();

        String username = request.getParameter("username");
        String password = request.getParameter("password");

        if(USERNAME.equals(username) && PASSWORD.equals(password)) {
            HttpSession session = request.getSession(true);
            session.setAttribute("username", username);
            response.sendRedirect("WelcomeServlet");
        } else {
            out.println("<h3>Invalid credentials. Please try again.</h3>");
            out.println("<a href='login.html'>Back to Login</a>");
        }
    }
}

package com.example.session;
import java.io.*;
import javax.servlet.*;
import javax.servlet.http.*;

public class LogoutServlet extends HttpServlet {
    protected void doPost(HttpServletRequest request, HttpServletResponse response)
        throws ServletException, IOException {

        response.setContentType("text/html");
        PrintWriter out = response.getWriter();
        HttpSession session = request.getSession(false);

        if(session != null) {
            String username = (String) session.getAttribute("username");
            session.invalidate();

```

```

        out.println("<h3>" + username + ", you have been logged out.</h3>");
    } else {
        out.println("<h3>You were not logged in!</h3>");
    }
    out.println("<a href='login.html'>Login again</a>");
}
}

package com.example.session;
import java.io.*;
import java.text.SimpleDateFormat;
import java.util.Date;
import javax.servlet.*;
import javax.servlet.http.*;

public class WelcomeServlet extends HttpServlet {
    protected void doGet(HttpServletRequest request, HttpServletResponse response)
        throws ServletException, IOException {

        response.setContentType("text/html");
        PrintWriter out = response.getWriter();
        HttpSession session = request.getSession(false);

        if(session == null || session.getAttribute("username") == null) {
            response.sendRedirect("login.html");
            return;
        }

        String username = (String) session.getAttribute("username");
        SimpleDateFormat sdf = new SimpleDateFormat("MMM dd, yyyy HH:mm:ss");

        out.println("<html><head><title>Welcome</title></head><body>");
        out.println("<h2>Welcome, " + username + "!</h2>");
        out.println("<p>Session ID: " + session.getId() + "</p>");
        out.println("<p>Last accessed: " + sdf.format(new
Date(session.getLastAccessedTime())) + "</p>");
        out.println("<form action='LogoutServlet' method='post'>");
        out.println("<input type='submit' value='Logout'>");
        out.println("</form></body></html>");
    }
}

```

web.xml :

```

<web-app xmlns="http://java.sun.com/xml/ns/javaee"
    xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    xsi:schemaLocation="http://java.sun.com/xml/ns/javaee
http://java.sun.com/xml/ns/javaee/web-app_3_1.xsd"
    version="3.1">

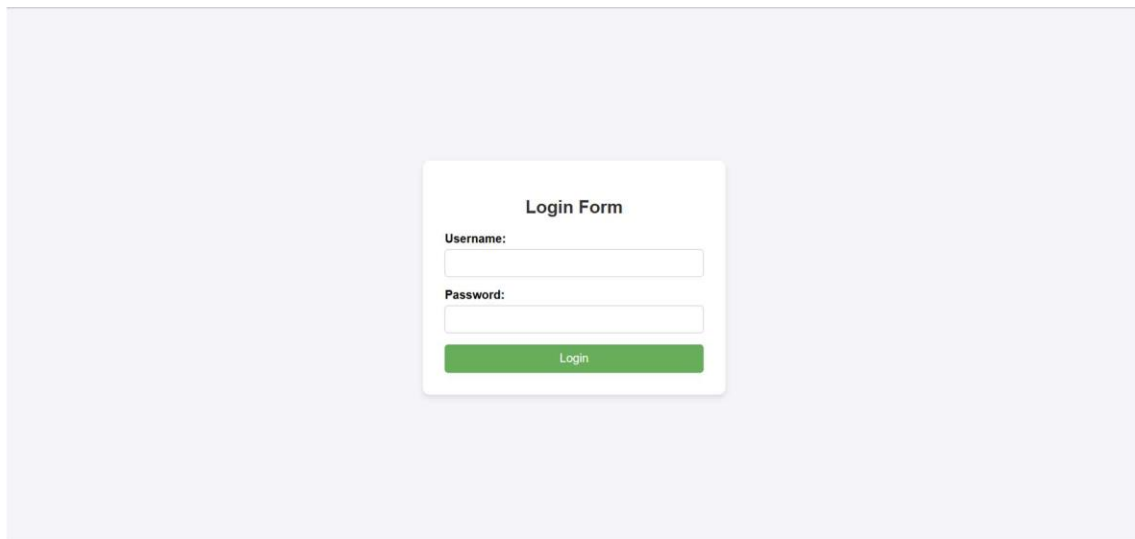
    <servlet>
        <servlet-name>DemoServlet</servlet-name>
        <servlet-class>DemoServlet</servlet-class>

```

```
</servlet>

<servlet-mapping>
  <servlet-name>DemoServlet</servlet-name>
  <url-pattern>/DemoServlet</url-pattern>
</servlet-mapping>
</web-app>
```

OUTPUT :

A screenshot of a web application interface. The background is a light gray. In the center, there is a white rectangular box with rounded corners and a subtle drop shadow. Inside this box, the title "Login Form" is centered at the top. Below the title, there are two labels: "Username:" and "Password:". Each label is followed by a white text input field with a thin gray border. At the bottom of the box, there is a green rectangular button with the word "Login" centered on it in white text.

RESULT :

Thus the give program is executed successfully

