**EX:6 Write a Servlet to demonstrate session tracking using HttpSession. Implement a simple login systems where the user session is tracked.**

## Aim:

The aim of this Servlet-based application is to demonstrate session tracking in Java using HttpSession. This system implements a simple login functionality where a user is authenticated, and a session is maintained. After successful login, the user is redirected to a dashboard. The system also includes logout functionality, which invalidates the session and redirects the user to a logout message.

## Algorithm:

1. **Login Process**:
   o **Step 1**: When the user submits the login form, the LoginServlet captures the input (username and password).
   o **Step 2**: The entered credentials are compared with predefined credentials (e.g., username = admin, password = password).
   o **Step 3**: If the credentials match, a session is created using HttpSession, and the username is saved in the session attribute.
   o **Step 4**: The user is redirected to the DashboardServlet, which displays a personalized dashboard showing the username.
   o **Step 5**: If the credentials do not match, an error message is shown, and the user is prompted to retry login.
2. **Dashboard Process**:
   o **Step 1**: The user is directed to the DashboardServlet.
   o **Step 2**: The servlet checks if a valid session exists by calling request.getSession(false). If the session is null, the user is redirected to the login page.
   o **Step 3**: If a valid session exists, the username is retrieved from the session and displayed on the dashboard.
   o **Step 4**: A logout link is provided to allow the user to log out and invalidate the session.
3. **Logout Process**:
   o **Step 1**: When the user clicks the logout link, the LogoutServlet is invoked.
   o **Step 2**: The servlet invalidates the current session using session.invalidate().
   o **Step 3**: A logout success message is displayed, and the user is given an option to log in again.

**CODE:**

**LoginServlet.java** - Handles login requests :

```java
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("/LoginServlet")

public class LoginServlet extends HttpServlet {

    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");


        out.println("<html><head><style>");

        out.println("body { font-family: Arial, sans-serif; text-align: center; margin-top: 50px;
}");

        out.println(".container { width: 300px; margin: auto; padding: 20px; border: 1px solid
#ccc; border-radius: 5px; box-shadow: 2px 2px 10px rgba(0, 0, 0, 0.1); }");

        out.println("h3 { color: red; }");

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


        if ("admin".equals(username) && "password".equals(password)) {

            HttpSession session = request.getSession();
```

```java
            session.setAttribute("username", username);

            response.sendRedirect("dashboard");

        } else {

            out.println("<div class='container'><h3>Invalid username or password!</h3>");

            out.println("<a href='login.html'>Go Back</a></div>");

        }

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

    }

}
```

**DashboardServlet.java** - Displays the user's dashboard if logged in:

```java
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("/dashboard")

public class DashboardServlet 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);

        out.println("<html><head><style>");

        out.println("body { font-family: Arial, sans-serif; text-align: center; margin-top: 50px;
}");
```

```java
    out.println(".container { width: 300px; margin: auto; padding: 20px; border: 1px solid
#ccc; border-radius: 5px; box-shadow: 2px 2px 10px rgba(0, 0, 0, 0.1); }");

    out.println("a { text-decoration: none; color: blue; }");

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


    if (session != null && session.getAttribute("username") != null) {

      String username = (String) session.getAttribute("username");

      out.println("<div class='container'><h3>Welcome, " + username + "</h3>");

      out.println("<a href='logout'>Logout</a></div>");

    } else {

      response.sendRedirect("login.html");

    }


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

  }

}
```

**LogoutServlet.java** - Handles logout functionality:

```java
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("/logout")

public class LogoutServlet extends HttpServlet {

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

    response.setContentType("text/html");
```

```java
      PrintWriter out = response.getWriter();


      HttpSession session = request.getSession(false);

      if (session != null) {

         session.invalidate();

      }



      out.println("<html><head><style>");

      out.println("body { font-family: Arial, sans-serif; text-align: center; margin-top: 50px; }");

      out.println(".container { width: 300px; margin: auto; padding: 20px; border: 1px solid #ccc; border-radius: 5px; box-shadow: 2px 2px 10px rgba(0, 0, 0, 0.1); }");

      out.println("a { text-decoration: none; color: blue; }");

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

      out.println("<div class='container'><h3>You have logged out successfully!</h3>");

      out.println("<a href='login.html'>Login Again</a></div>");

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

   }

}
```

## login.html - **Simple login page:**

```html
<!DOCTYPE html>

<html lang="en">

<head>

   <meta charset="UTF-8">

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

   <title>Login</title>

   <style>

      body { font-family: Arial, sans-serif; text-align: center; margin-top: 50px; }

       .container { width: 300px; margin: auto; padding: 20px; border: 1px solid #ccc; border-radius: 5px; box-shadow: 2px 2px 10px rgba(0, 0, 0, 0.1); }

      input[type="text"], input[type="password"] { width: 100%; padding: 10px; margin: 10px 0; border: 1px solid #ccc; border-radius: 5px;
```

```css
    input[type="submit"] { width: 100%; padding: 10px; background-color: #4CAF50;
color: white; border: none; border-radius: 5px; cursor: pointer; }

    input[type="submit"]:hover { background-color: #45a049; }

    h2 { color: #333; }

  </style>

</head>

<body>

  <div class="container">

    <h2>Login</h2>

    <form action="LoginServlet" method="post">

      Username: <input type="text" name="username" required><br>

      Password: <input type="password" name="password" required><br>

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

    </form>

  </div>

</body>

</html>
```

## web.xml - **Servlet configuration in `WEB-INF/web.xml`:**

```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>LoginServlet</servlet-name>

    <servlet-class>LoginServlet</servlet-class>

  </servlet>

  <servlet-mapping>

    <servlet-name>LoginServlet</servlet-name>

    <url-pattern>/LoginServlet</url-pattern>

  </servlet-mapping>


  <servlet>
```

```
    <servlet-name>DashboardServlet</servlet-name>

    <servlet-class>DashboardServlet</servlet-class>

  </servlet>

  <servlet-mapping>

    <servlet-name>DashboardServlet</servlet-name>

    <url-pattern>/dashboard</url-pattern>

  </servlet-mapping>


  <servlet>

    <servlet-name>LogoutServlet</servlet-name>

    <servlet-class>LogoutServlet</servlet-class>

  </servlet>

  <servlet-mapping>

    <servlet-name>LogoutServlet</servlet-name>

    <url-pattern>/logout</url-pattern>

  </servlet-mapping>

</web-app>
```
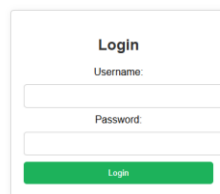
## OUTPUT:



## RESULT:

**Thus the program is executed successfully.**