**7) Write a Servlet program to store a user's preferences (like theme or language) using cookies. Retrieve
and display these preferences on subsequent visits.**

AIM:

The aim of this program is to demonstrate how to store a user's preferences (such as theme and language) using cookies in a Java Servlet. The preferences will be retrieved and displayed on subsequent visits to the web page.

ALGORITHM:

1.

   Check for Existing Cookies:

   - On each visit to the servlet, check if cookies exist for user preferences (like theme and language).

   -

If the cookies are found, display their values.

2.

Display Preferences Form:

- If no preferences are stored (i.e., cookies don't exist), provide a form for the user to select their preferred theme and language.

3.

Process User Input:

- When the user selects their preferences (theme and language) and submits the form, save these preferences as cookies.

4.

Store Preferences in Cookies:

- Set the cookies' maximum age to a specific time (e.g., 30 days) to retain user preferences across multiple visits.

5.

Redirect to Display Preferences:

- After saving preferences in cookies, redirect the user back to the servlet to display the updated preferences.

6.
   Display Stored Preferences:

   - On subsequent visits, retrieve the cookies and display the saved preferences (theme and language).

SOURCE CODE:

1. PreferencesServlet.java:

java

Copy

```java
import javax.servlet.*; import javax.servlet.http.*; import java.io.*; public class PreferencesServlet extends HttpServlet { // Handle GET request to display user preferences protected void doGet(HttpServletRequest request, HttpServletResponse response) throws ServletException, IOException { // Set response content type to HTML response.setContentType("text/html"); PrintWriter out = response.getWriter(); // Retrieve cookies from the request Cookie[] cookies = request.getCookies(); String theme = "default"; String language = "English"; // Check for stored preferences in cookies if (cookies != null) { for (Cookie cookie : cookies) { if ("theme".equals(cookie.getName())) { theme = cookie.getValue(); } else if ("language".equals(cookie.getName())) { language = cookie.getValue(); } } } // Display the current theme and language out.println("<html><head><title>User Preferences</title></head><body>"); out.println("<h1>User Preferences</h1>"); out.println("<p>Current Theme: " + theme + "</p>"); out.println("<p>Current Language: " + language + "</p>"); // Display the form to update preferences out.println("<h2>Update Preferences</h2>"); out.println("<form action='PreferencesServlet' method='post'>"); out.println("Choose Theme: <select name='theme'>"); out.println("<option value='light' " + ("light".equals(theme) ? "selected" : "") + ">Light</option>"); out.println("<option value='dark' " + ("dark".equals(theme) ? "selected" : "") + ">Dark</option>"); out.println("</select><br>"); out.println("Choose Language: <select name='language'>"); out.println("<option value='English' " + ("English".equals(language) ? "selected" : "") + ">English</option>"); out.println("<option value='Spanish' " + ("Spanish".equals(language) ? "selected" : "") + ">Spanish</option>"); out.println("</select><br>"); out.println("<input type='submit' value='Save Preferences'>"); out.println("</form>"); out.println("</body></html>"); } // Handle POST request to save user preferences protected void doPost(HttpServletRequest request, HttpServletResponse response) throws ServletException, IOException { // Get preferences from the form submission String theme = request.getParameter("theme"); String language = request.getParameter("language"); // Create cookies to store the preferences Cookie themeCookie = new Cookie("theme", theme); Cookie languageCookie = new Cookie("language", language); // Set the cookies to expire after 30 days themeCookie.setMaxAge(30 * 24 * 60 * 60); // 30 days languageCookie.setMaxAge(30 * 24 * 60 * 60); // 30 days // Add the cookies to the response response.addCookie(themeCookie); response.addCookie(languageCookie); // Redirect to the servlet to display updated preferences response.sendRedirect("PreferencesServlet"); } }
```

2. web.xml:

xml

Copy

```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_0.xsd" version="3.0"> <servlet> <servlet-name>PreferencesServlet</servlet-name> <servlet-class>PreferencesServlet</servlet-class> </servlet> <servlet-mapping> <servlet-name>PreferencesServlet</servlet-name> <url-pattern>/PreferencesServlet</url-pattern> </servlet-mapping> </web-app>
```

RESULT:

This program shows how cookies can be used in Java Servlets to remember user preferences across multiple visits. The user's choices for theme and language are stored in cookies, and these preferences are retrieved and displayed on subsequent visits.

OUTPUT: