Web Forms and Session Management with Cookies

LAB # 15

Lab Objective:

The objective of this lab is to teach students how to design and implement web forms for user input and learn about session management using cookies, enabling them to create interactive and personalized web applications.

Activity Outcomes:

Upon completing this lab, students will be proficient in creating web forms, processing user input, and managing user sessions using cookies, allowing them to develop dynamic and user-friendly web applications.

Instructor Note:

Before starting this lab, students should have a basic understanding of HTML, web development fundamentals, and server-side scripting languages (e.g., PHP, Python, or ASP.NET) to effectively grasp web form creation and session management concepts.

Introduction:

Web Forms and Session Management with Cookies are fundamental aspects of web development that enhance user interaction and data persistence on websites. Here, we introduce these concepts and provide examples to illustrate their importance.

Web Forms:

Web forms are a critical component of web applications, allowing users to input and submit data to web servers. They are used for various purposes, such as user registration, login, search queries, and feedback submission. Web forms typically consist of input fields, buttons, and other HTML elements that enable users to interact with the website.

Example:

Consider a user registration form on a website. It includes fields for the user's name, email address, password, and a submit button. When the user fills out the form and clicks "Submit," the data is sent to the server for processing and storage in a database.

Session Management with Cookies:

Session management is essential for maintaining stateful interactions with users across multiple web requests. Cookies are small pieces of data stored on the user's device, enabling websites to remember user information and preferences between sessions. Cookies can be used to store session IDs, user preferences, and other data to provide a personalized user experience.

Example:

Imagine an online shopping website that uses cookies to remember items added to a user's shopping cart. When the user returns to the website later, the items are still in the cart, thanks to the information stored in cookies.

In summary, web forms facilitate user interaction and data submission, while session management with cookies enables websites to maintain user state and provide a personalized experience. These concepts are essential for creating dynamic and user-friendly web applications.

Activity-1:

Create an HTML web form for user registration, including fields for name, email, password, and a submit button. Implement server-side processing to store user data in a text file.

Solution:

Output Screenshot:

Activity-2:

Write a Java program that creates cookies to store user preferences (e.g., theme selection) and retrieves these cookies to apply the user's chosen theme.

Solution:

Output Screenshot:

Activity-3:

Explore secure practices for managing cookies, including setting HttpOnly and Secure flags, and implement these security measures in a web application.

Solution:

Output Screenshot: