

Web Development with Jakarta Server Pages and Servlets

Session: 4

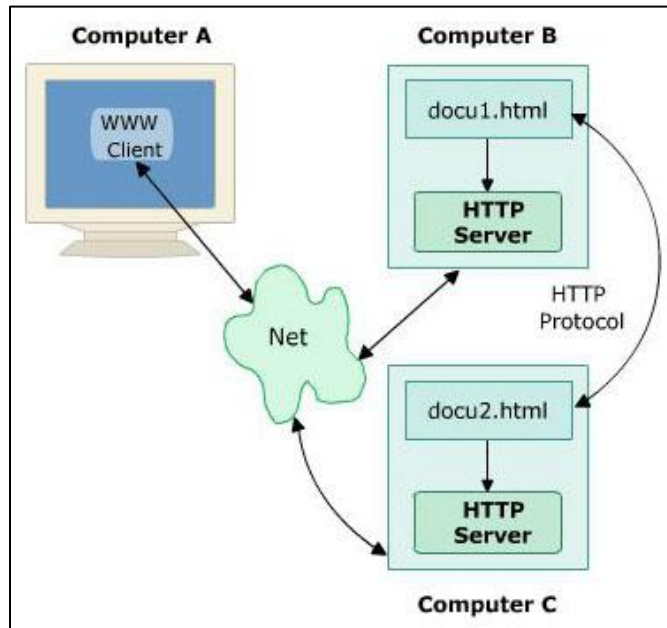
Session Tracking and Other Features



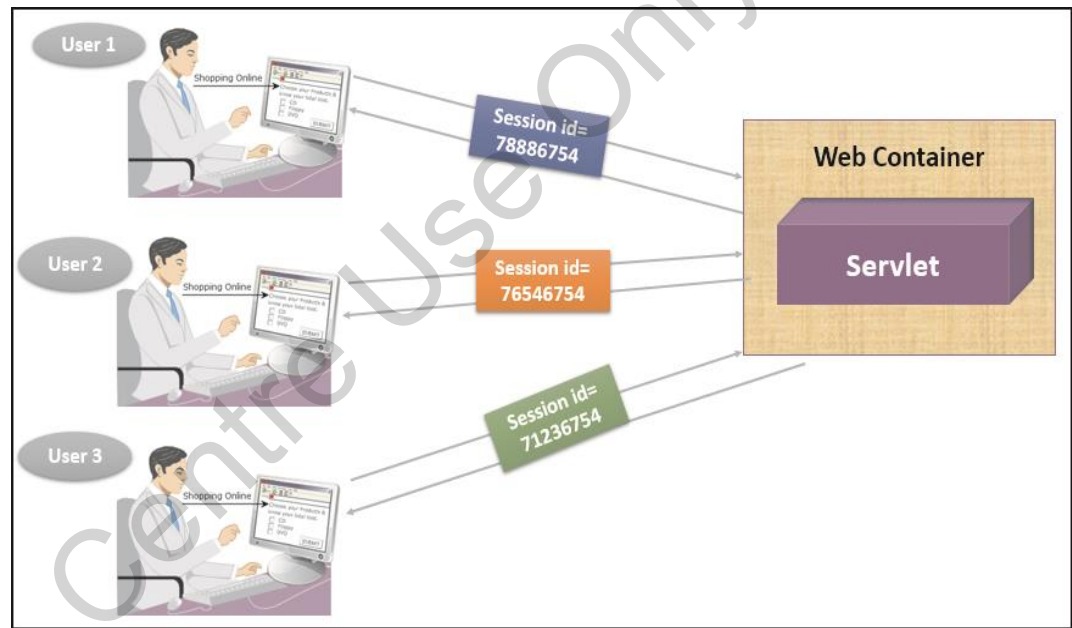
Objectives

- ❖ Describe the stateless nature of HTTP and HTTP/2 protocols
- ❖ Explain the necessity for tracking client identity and state
- ❖ Explain the URL rewriting method for session tracking
- ❖ Explain how to use hidden form fields
- ❖ Outline the use of Cookie class and its methods
- ❖ Explain how to store and retrieve information in a session
- ❖ Describe the use of HttpSession interface and its methods
- ❖ Explain how to invalidate a session
- ❖ Describe Java API with JSON binding
- ❖ Explain JSON serialization

Introduction



Client-Server Model
Using HTTP Protocol



Session Tracking

**URL
rewriting**

**Hidden
field**

Cookie

Session Tracking Techniques

Information in URL



URL Rewriting Technique

Adds extra data at the end of URL to identify the session.

Lowest priority technique for session management.

Alternative for Cookies.

Hidden Form Fields

Hidden Form Fields are:

Placed withing an HTLM form.

Either a part of static HTML/dynamic form of Servlets.

Used to hold any kind of data

Not visible to the user.

Not interpreted by the browser.

Advantages

Supported in all browsers.

No special server requirement from clients.

Not visible directly to the user.

Works with or without cookies.

Disadvantages

Works only when the pages receives a request.

Cookies



Concept of Cookie

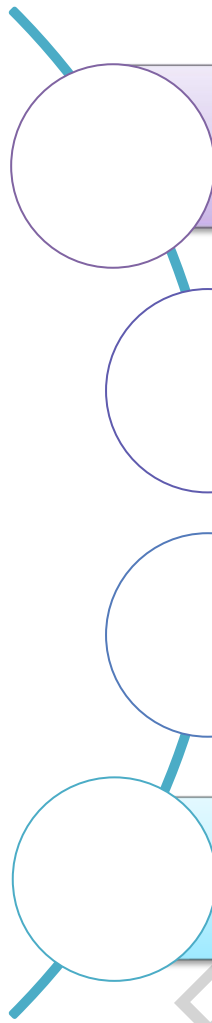
Cookie class provides three methods for security

- `public void setSecure()`
- `public void setHttpOnly(boolean)`
- `public boolean isHttpOnly()`

Methods to create a session

- `public Object getAttribute(String name)`
- `public String getId()`
- `public int getMaxInactiveInterval()`
- `public ServletContext getServletContext()`
- `public void invalidate()`
- `public boolean isNew()`
- `public void setAttribute(String name, Object value)`
- `public void removeValue(String name)`
- `public void setMaxInactiveInterval(int interval)`

Invalidate a Session



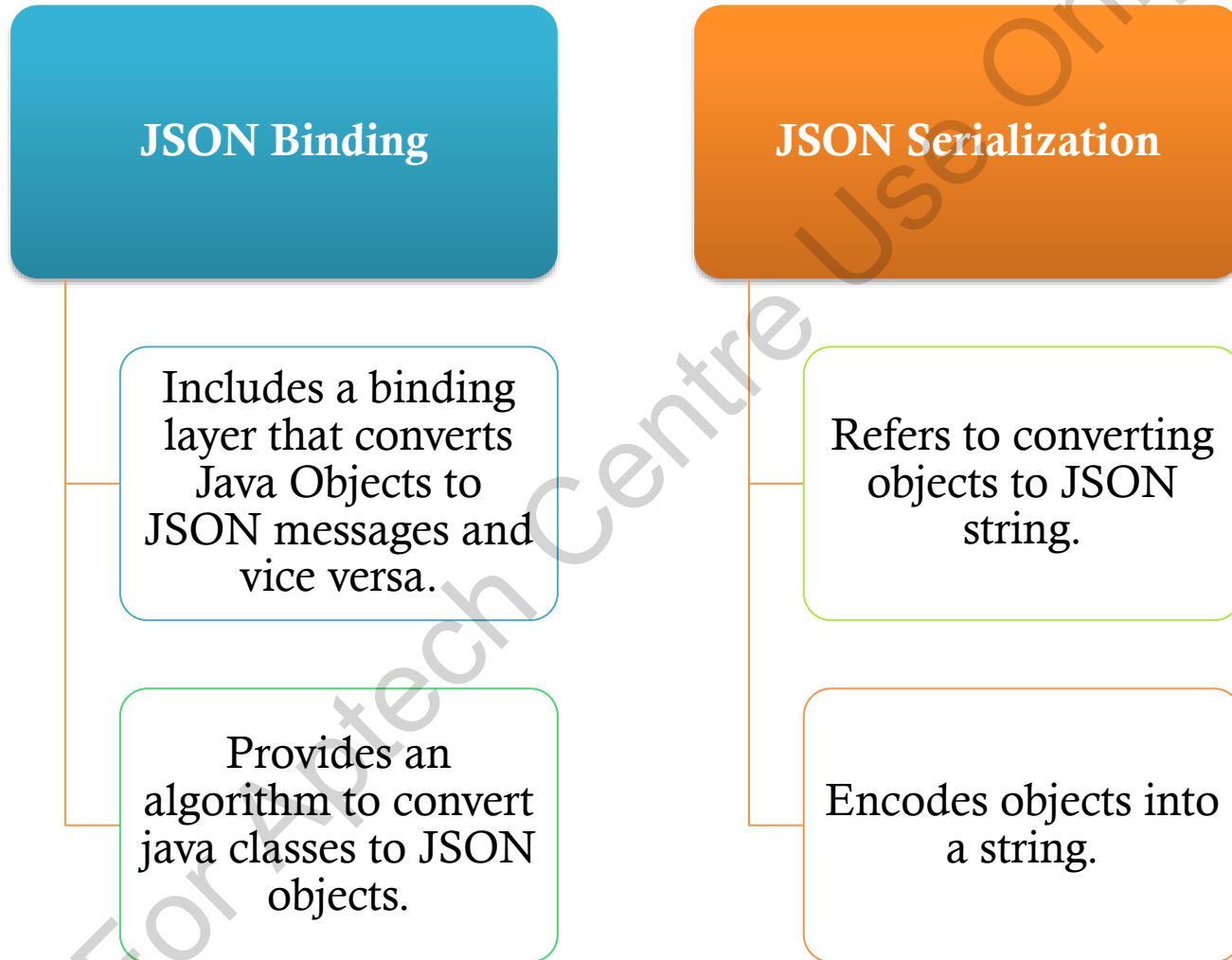
The `invalidate()` method helps avoid unauthorized hacking.

The `invalidate()` method destroys data in a session that another servlet or JSP might require in future.

Sessions can be invalidated through code or manually using `invalidate()` method.

Sessions are invalidated for security and memory management.

JSON Binding



Summary

- ❖ Session tracking allows the server to keep track of successive requests made by the same client.
- ❖ Some of the session tracking techniques are namely, URL rewriting, hidden field, and cookie.
- ❖ Java Servlet specification provides a session tracking mechanism through jakarta.servlet. http.HttpSession object.
- ❖ The URL rewriting technique adds some extra data at the end of the URL to identify the session.
- ❖ Hidden form fields are used to pass data to the server-side resource invisibly from the user.
- ❖ A cookie is a small piece of information sent by a server to the client Web browser. The cookies are stored on client machine and are read back by the server on receiving a request for the same page.
- ❖ To secure the cookies from hackers on the Web, you can configure cookies with two security settings namely, secure and HttpOnly.
- ❖ The HttpSession interface is used to create a session between the client and server.
- ❖ JavaScript Object Notation (JSON) is a format for data interchange.
- ❖ JSON serialization refers to converting objects to JSON string. The process encodes objects into strings.