



1

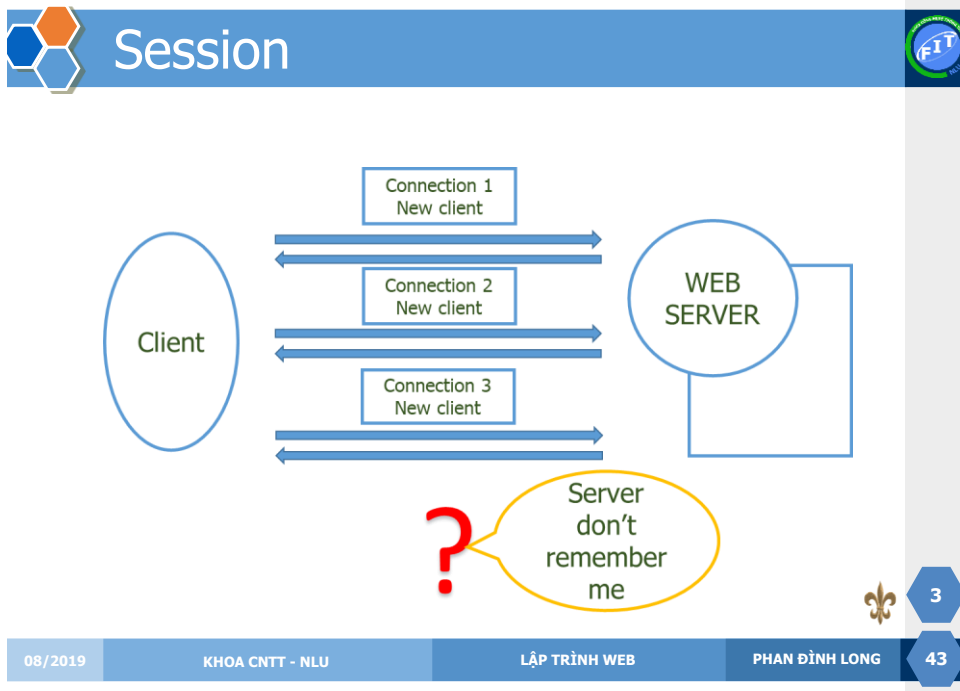
Session

- HTTP is a stateless protocol: it provides no way for a server to recognize that a sequence of requests are all from the same client.
- Every time a client sends a request a new connection is established and the previous request data lost.
- HTTP create thread for each request and if HTTP maintain a connection, thread will alive and we need more and more resource (RAM and CPU).
- This is an advantage and also a disadvantage.



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Session

- **Session Tracking** is a way to maintain state (data) of an user.
 - It create an object to save client data.
 - Client data can be access in any where (JSP and Servlet) on site.
 - A user session contains information about the user across multiple HTTP requests.

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Session Handling



- Basic steps:

- Assign each new client **unique ID** at start of session (session ID).
 - Session id is stored in session table
 - Create new id if do not exist in session table
- **Pass ID** to client as part of each **response**
 - Now client knows it as well
 - Stored as cookie.
- Client passes ID back to server with subsequent requests
 - Server can associate this request can be associated with initial request.
- Server stores client data in table indexed by session ID



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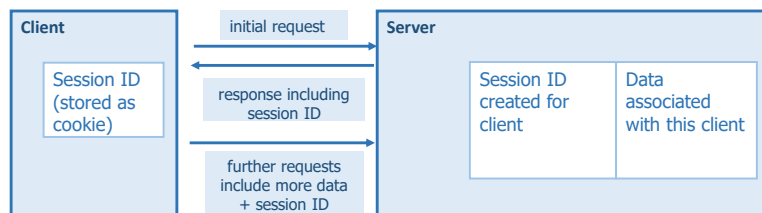
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Session Handling



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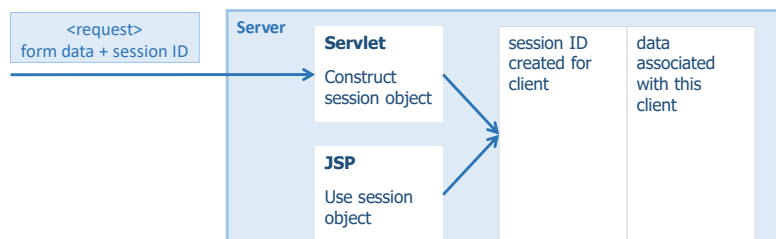
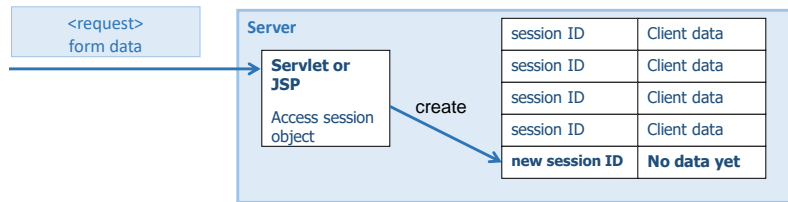
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Creating a New Session



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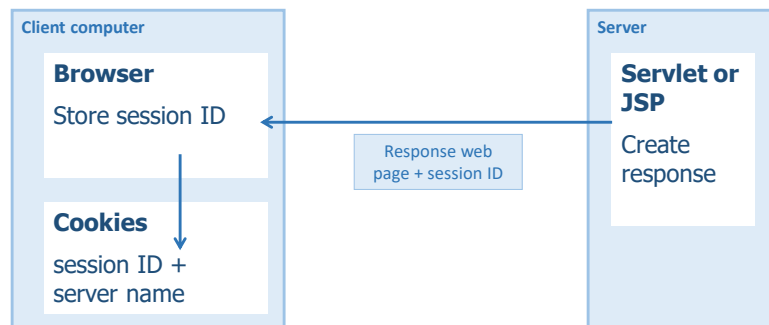
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Passing Session IDs



- Automatically included in **response** sent back to client
- Stored in **cookie** on client machine
 - Cookies only data that **persist** between pages in browser
 - Associated with server domain name, directory, etc.



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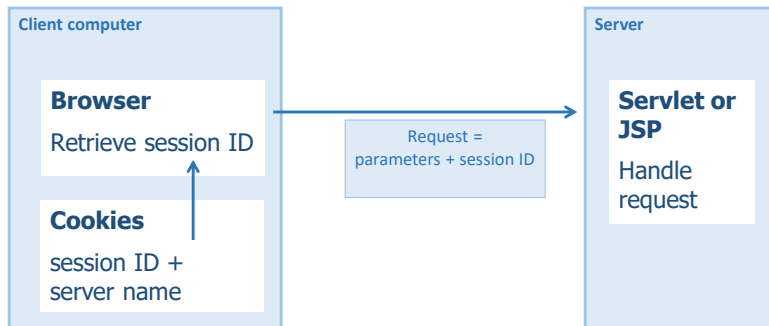
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Passing Session IDs



- Session ID is Automatically included in **request** sent in future to **same server**
 - All cookie values associated with server sent with request
 - Server now knows who client is!



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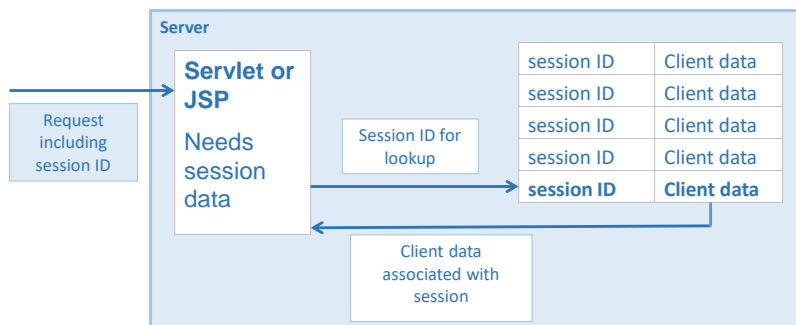
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Working with session



- Each user's data is stored and accessed by a session id.



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Creating a New Session



- First time HTTP Request access to Server, web server automatically initiates the session.
- Sessions can be accessed from both servlet and JSP:
- We can obtain an *HttpSession* straight from a request

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

- with `getSession(true)`: Returns the current *HttpSession* associated with this request or, if there is no current session and create is true, returns a new session.



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Working with session



- Set and Get session data:
 - Set: `session.setAttribute("name", Object);`
 - Data will be overwrite if data exist.
 - Get: `type obj = (type)session.getAttribute("name");`
 - data will be null if session data is not exist
 - Data must be cast to original data type
- Set and get data in session like set and get attribute in request.



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Working with session



- remove session data

- Remove each data:

```
removeAttribute("name");
```

- Remove all data:

```
invalidate();
```



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Session Expiration



- Session timeout is a working time of session.
- Config session timeout in web.xml

```
<session-config>
  <session-timeout>10</session-timeout>
</session-config>
```

- 10 minus
- Session expires if no request within time limit
 - Session **inactive**
 - Session id and all attributes **destroyed**
 - Request for session attributes returns **null**



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Session Access control



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Q & A



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