CS320 Web and Internet Programming
Cookies and Session Tracking

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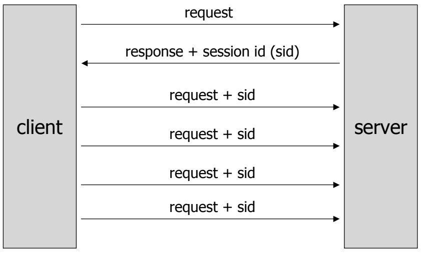
Session Tracking

- The Need
  - shopping cart, personalization, ...
- The Difficulty
  - HTTP is a "stateless" protocol
  - Even persistent connections only last seconds
- The Trick??

General Idea



Three Ways to Implement Session Tracking

- URL Re-writing
  - E.g. `http://acm.calstatela.edu/forum/viewforum.php?f=2&`**`sid=eef552c5e31118841a5f03a8221d0868`**
- Hidden form field
- Cookies

Example: GuestBook1

- Track user using hidden form field

Cookies

- Issued by the server
  - HTTP Response: Set-Cookie
- Part of the next client request
  - HTTP Request: Cookie

Cookie Attributes

- Name, Value
- Host/Domain, Path
- Require secure connection
- Max age
- Comment (Version 1)

Servlet Cookie API

- Cookie
  - http://java.sun.com/products/servlet/2.5/docs/servlet-2_5-mr2/javax/servlet/http/Cookie.html
- HttpServletResponse
  - addCookie(Cookie)
- HttpServletRequest
  - Cookie[] getCookies()

Example: GuestBook2

- Track user using cookies

Cookie or No Cookie?

- Is cookie a potential security problem?
  - Virus??
  - DoS??
- How about privacy?
  - Cookie manager in Mozilla/Firefox(?)
  - Internet Options in IE

It’s Not Easy ...

- ... to generate unique and random session id’s
- ... to associate more information with a session
- ... to tell whether the client has already left

Servlet Session Tracking API

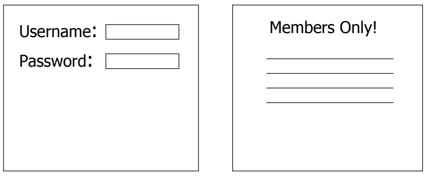
- HttpServletRequest
  - HttpSession getSession()
- HttpSession
  - http://java.sun.com/products/servlet/2.5/docs/servlet-2_5-mr2/javax/servlet/http/HttpSession.html
  - setAttribute(String, Object)
  - getAttribute(String)
  - invalidate()

Example: Shopping Cart

- Shopping cart
  - Show a list of products
  - Add a product to the shopping cart
  - Remove a product from the shopping cart
- Using Session Tracking API

Is Session Shared among Servlets?

Example:



Login

Members

Example: Login and Members

- Login
  - Validate username and password
    - Failed: redirect to error page
    - Succeeded: set a session attribute "username", and redirect to Members
- Members
  - Check session attribute "username"
    - null: redirect to Login
    - otherwise display content

ServletContext Attributes vs. Session Attributes

- Application Scope variables
- Session Scope variables

Example: SharedRequestCounter2

- Two request counters, one in application scope and one in session scope
- Application scope vs. session scope
  - Similarities??
  - Differences??
  - Usage??

Session Configuration in web.xml

- Default session timeout in Tomcat is 30 minutes
- Session timeout can be changed in web.xml
  - The timeout value must be an integer
  - Session never timeout if value <= 0

```
<session-config>
    <session-timeout>60</session-timeout>
</session-config>
```