CSCI 2910
Client/Server-Side Programming

Topic: Sessions in PHP

Reading: Williams & Lane pp. 338-368

Today's Goals

Today's lecture will cover:

- An introduction to sessions, their purpose, and their use
- Starting and stopping a session
- Using session variables

Purpose of a Session

- In general, HTTP is a "stateless" system, i.e., clients access documents through links without regard to past interactions
- This is not acceptable when it comes to managing a complex interaction with a client such as:
  - the use of a shopping cart;
  - logging into a database or other secure site; or
  - tracking a user's settings/data values as he or she progresses through a site.

Mechanics of a Session

- Session is identified using a session ID (32 digit hexadecimal value)
- The session ID is transmitted between the client and server with each HTTP request and response
- Client keeps track of a session through the use of a cookie
- Server keeps track of a session through locally stored text files or a database

Mechanics of a Session (continued)

- Databases are used for large traffic applications while text files are used for lower traffic.
- The server maintains the session variables in the text file or database.
- To prevent security risks due to someone hijacking an old session and to avoid clogging the server with unused sessions, the server will clean up old sessions after a specified timeout period.

Implementing a Session

- session_start() – creates a new session or finds an existing session. Basically, it identifies a session and accesses the session's variables if it is an existing session.
- Once a session has been started, the session's variables are accessed through a superglobal associative array called $_SESSION. (This is the same sort of array as $_GET and $_POST.)
- Example: $_SESSION[variable_name]

Implementing a Session (continued)

- Because of the dual purpose of session_start(), i.e., it can initialize a session or access an existing one, the PHP code must have a method for identifying whether a session has already been initiated.
- isset($_SESSION[variable_name]) can be used to determine if the session has already initialized a particular variable. For example:

```
if (!isset( $_SESSION['quantity'] ))
  $_SESSION['quantity'] = 0;
else $_SESSION['quantity']++;
```


Implementing a Session (continued)

- A variable can be removed from a session using the unset() function
- Example:

```
unset($_SESSION['quantity']);
```

- All session variables can be removed by simply re-initializing the $_SESSION array
- Example:

```
$_SESSION = array();
```


Implementing a Session (continued)

- Since the client receives its session ID through a cookie in one of the HTTP header files, it must be sent before any HTML is generated for the client's output.
- Therefore, session_start() must be executed before any output is generated.

Session Variable Types

- A session variable can be of any type or object
- If a session variable is an object, be sure to define the object before running session_start().
- If an existing session that uses an object is opened before the object is defined, it will cause problems.
- The following slide presents an example


```
<?php
  session_start();
  if(!isset($_SESSION['count']))
     $_SESSION['count'] = 0;
  $_SESSION['count']++;
?>

<html>
<head><title>Hello, World! in PHP</title></head>
<body>

<?php
  print "You've visited ".$_SESSION['count']."
  times.";
?>

</body></html>
```


Ending a Session

If you receive a signal from the client that they are ending the session, e.g., clicking on a link to log out, there is a method you can use to force a session to end.

- First, you must open the session so that it is identified as the one to be closed.
- Next, you must end the session with the function session_destroy()
- Last, use the header function to direct an output to the client.

Ending a Session (continued)

```
<?php
  // Begin by accessing the session
  session_start();
  // Close the session
  session_destroy();
  // Direct output to the client
  header("Location: logout.html");
?>
```