LECTURE05: PHP SESSIONS, COOKIES, AND FILES

CS418/518: WEB PROGRAMMING

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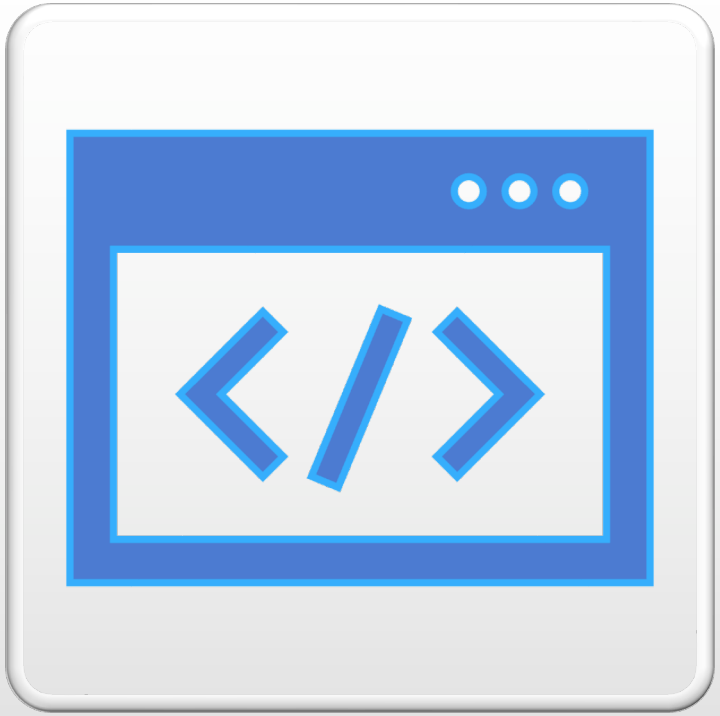

PHP SESSIONS

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THE IMPORTANCE OF SESSIONS

- A web service often involves multiple web pages
  - Online shopping: Log in, product browsing, shopping cart, payment, etc.
- How to remember “global” information involved in the service so users do not provide it at every operation?
  - User information, product information, etc.
- HTML pages forget variables
- PHP Session control allows users to keep information for later use
  - Information is lost after session is terminated

COOKIES VS. SESSIONS

- Cookies
  - Store information as files on local clients
  - Require database procedures on the server side
  - Have longer life span: months or even years
- Sessions
  - Store information on the server side
  - Require database procedures on the server side
  - Have shorter life span: minutes to hours

PHP SESSIONS

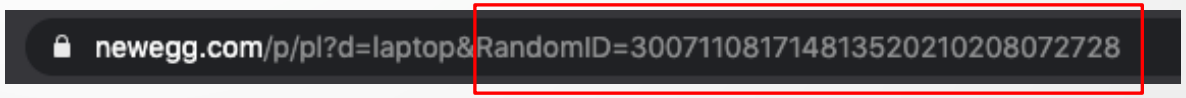
- Like a cookie, but variables/data not stored on the client
- Ends when browser/window is closed
- Persists across multiple pages

```
<?php
session_start();

print_r($_SESSION);
?>
```

HOW DO PHP SESSIONS WORK?

- Creating a unique identification (UID) for each user session
- Keeping the variables based on this UID
- Example from Newegg.com



EXAMPLE: CREATE A SESSION VARIABLE

create_session.php

```php
<?php
  session_start();

  $_SESSION['userID'] = 'your ODU ID';

  echo "Create a session variable<br>";
  echo $_SESSION['userID'];
?>
```

access_session.php

```php
<?php
  session_start();

  echo "Access the session variable <br>";
  echo $_SESSION['userID'];
?>
```

SESSION CONTROL

- Use `session_start()` at the beginning of every php file that needs access to session variables
  - This function registers this session with the web server and gets a UID for the session
  - This function initializes the `$_SESSION` array to store data
- Session variables are stored in an array named as `$_SESSION`
  - You can specify keys and values like `$_SESSION['variable_name' ] = value`

ENDING SESSIONS

```php
<?php
//remove all session variables
session_unset();

//destroy the session
session_destroy();
?>
```

PHP COOKIES

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PHP COOKIES

- File delivered to the browser from the server
- PHP can access the contents of the cookie
- To make (or set) a cookie:

```
setcookie(name, value, expire, path, domain, secure, httponly)
```

```
setcookie(name, value, expire, path, domain, secure, httponly)
```

Parameter	Description
name	The name of the cookie.
value	The value of the cookie. Do not store sensitive information since this value is stored on the user's computer.
expires	The expiry date in UNIX timestamp format. After this time cookie will become inaccessible. The default value is 0.
path	Specify the path on the server for which the cookie will be available. If set to /, the cookie will be available within the entire domain.
domain	Specify the domain for which the cookie is available to e.g www.example.com.
secure	This field, if present, indicates that the cookie should be sent only if a secure HTTPS connection exists.

If the expiration time of the cookie is set to 0, or omitted, the cookie will expire at the end of the session i.e. when the browser closes.

RETRIEVE A COOKIE USING $_COOKIE

```php
<?php
$cookie_name = "user";
$cookie_value = "John Doe";
setcookie($cookie_name, $cookie_value, time() + (86400 * 30), "/"); // 86400 = 1 day

if (!isset($_COOKIE[$cookie_name])) {
    echo "Cookie named " . $cookie_name . " is not set!";
} else {
    echo "Cookie " . $cookie_name . " is set! <br>";
    echo "Value is: " . $_COOKIE[$cookie_name];
}
?>
```

Note: Once the cookies have been set, they can be accessed **on the next page load** with the $_COOKIE or $HTTP_COOKIE_VARS arrays.

https://stackoverflow.com/questions/6970754/why-are-my-cookies-not-setting

Play

check-cookie-is-set-or-not.php
get-cookie-value.php
cookieexample.php
delete-a-cookie.php
set-cookie.php

MODIFY A COOKIE VALUE

- To modify a cookie, just set (again) the cookie using the setcookie() function:

this is modified →

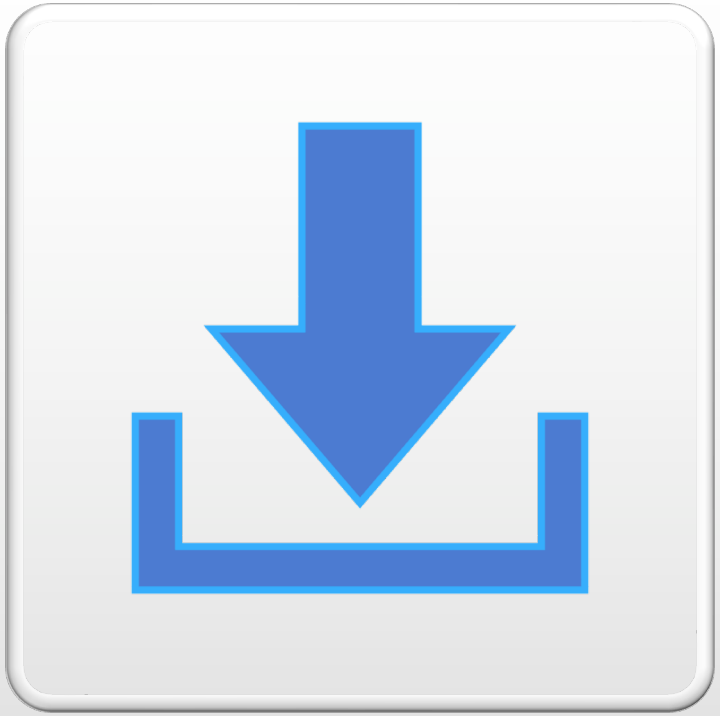
```php
<?php
$cookie_name = "user";
$cookie_value = "Alex Porter";
setcookie($cookie_name, $cookie_value, time() + (86400 * 30), ’/’);
?>
<html>
<body>

<?php
if(!isset($_COOKIE[$cookie_name])) {
  echo "Cookie named '" . $cookie_name . "' is not set!";
} else {
  echo "Cookie '" . $cookie_name . "' is set!<br>";
  echo "Value is: " . $_COOKIE[$cookie_name];
}
?>

</body>
</html>
```

REMOVING A COOKIE BY SETTING THE EXPIRATION DATE

```php
<?php
// set the expiration date to one hour ago
setcookie("user", "", time() - 3600);
?>
```

There is no special dedicated function provided in PHP to delete a cookie. All we have to do is to update the **expire-time** value of the cookie by setting it to a past time using the **setcookie()** function. A very simple way of doing this is to deduct a few seconds from the current time.

```php
<?php
if(count($_COOKIE)>0) {
    echo "Cookies are enabled.";
} else {
    echo "Cookies are disabled.";
}
?>
```



FILE I/O

INCLUDES & REQUIRES FILES

- Neither include or require are functions, they are constructs
- include: include the content of another PHP script and execute it.
  - When the file being included cannot be found, include will emit a warning (E_WARNING) and the script will continue
  - Example: <?php include 'commonFile.php'; ?>
- require:
  - Copy the code in the file;
  - If not found, require will emit a fatal error (E_COMPILE_ERROR) and halt the script.
  - Example: <?php require 'commonFile.php; '?>
  - Example: <?php require 'fileThatDoesntExist.php'; ?>
- Example file: includeexamples/includeExample.php

FUNCTIONS

- Open files:
  - fopen(): open a file
- Reading files:
  - `file(string $filename, int $flags = 0, ?resource $context = null): array|false`: Reads entire file into an array
  - `fread(resource $stream, int $length): string|false`: reads up to length bytes from the file pointer referenced by stream. better for parsing data.
  - file_get_contents(): has no limit on the input to read the contents of a file into a string.
- Writing files:
  - fwrite(): write files with a limit (see https://stackoverflow.com/questions/33500998/php-fwrite-for-writing-a-large-string-to-file) If the file is too large (say >10MB), you need to split it.
  - file_put_contents(): identical to calling fopen(), fwrite() and fclose() successively to write data to a file.

FILE I/O: FILE()

- file(): Reads entire file into an array
  - Example: readfile.php

```php
<?php
// Get a file into an array.  In this example we'll go through HTTP to get
// the HTML source of a URL.
$lines = file('http://www.example.com/');

// Loop through our array, show HTML source as HTML source; and line numbers too.
foreach ($lines as $line_num => $line) {
    echo "Line #<b>{$line_num}</b> : " . htmlspecialchars($line) . "<br />\n";
}

// Another example, let's get a web page into a string.  See also file_get_contents
$html = implode('', file('http://www.example.com/'));

// Using the optional flags parameter since PHP 5
$trimmed = file('somefile.txt', FILE_IGNORE_NEW_LINES | FILE_SKIP_EMPTY_LINES);
?>
```

implode — Join array elements with a delimiter (an empty string in this case)

FILE_IGNORE_NEW_LINES, FILE_SKIP_EMPTY_LINES — options can trim off empty lines.

FILE I/O: FOPEN() AND FREAD()

Open a file using **fopen()** function.

Get the file's length using **filesize()** function.

Read the file's content using **fread()** function.

Close the file with **fclose()** function.

```
<html>

   <head>
      <title>Reading a file using PHP</title>
   </head>

   <body>

      <?php
         $filename = "tmp.txt";
         $file = fopen( $filename, "r" );

         if( $file == false ) {
            echo ( "Error in opening file" );
            exit();
         }

         $filesize = filesize( $filename );
         $filetext = fread( $file, $filesize );
         fclose( $file );

         echo ( "File size : $filesize bytes" );
         echo ( "<pre>$filetext</pre>" );
      ?>

   </body>
</html>
```

fopenfile.php

FILE I/O – FILE_GET_CONTENTS()

- file_get_contents(): read the entire file into a string
- $text = file_get_contents($filename)

```php
<?php
$homepage = file_get_contents('http://www.example.com/');
echo $homepage;
?>
```

```php
<?php
// Read 14 characters starting from the 21st character
$section = file_get_contents('./people.txt', FALSE, NULL, 20, 14);
var_dump($section);
?>
```

FALSE: include_path: optional, setting this parameter to search for the file in include_path directory
NULL: context: optional, specifying the context of the file handle. Can be skipped by using NULL.

More information: https://www.w3schools.com/php/func_filesystem_file_get_contents.asp

FILE I/O: FWRITE()

fwritefile.php (Part 1)

```php
<?php
   $filename = "/home/user/guest/newfile.txt";
   $file = fopen( $filename, "w" );

   if( $file == false ) {
      echo ( "Error in opening new file" );
      exit();
   }
   fwrite( $file, "This is  a simple test\n" );
   fclose( $file );
?>
```

Note: if you cannot create newfile.txt, it is probably because apache does not have permissions to write into that directory. You may (1) create a directory called 'files' and change its ownership to apache. See Slide #26 for how.

fwritefile.php (Part 2)

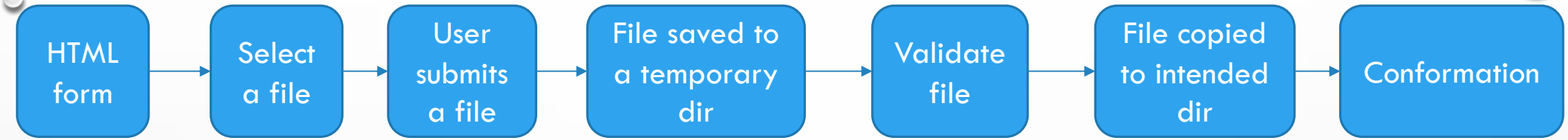
```php
<html>

   <head>
      <title>Writing a file using PHP</title>
   </head>

   <body>

      <?php
         $filename = "newfile.txt";
         $file = fopen( $filename, "r" );

         if( $file == false ) {
            echo ( "Error in opening file" );
            exit();
         }

         $filesize = filesize( $filename );
         $filetext = fread( $file, $filesize );

         fclose( $file );

         echo ( "File size : $filesize bytes" );
         echo ( "$filetext" );
         echo("file name: $filename");
      ?>

   </body>
</html>
```

FILE I/O – OTHER WRITE FUNCTIONS

- file_put_contents(): write data to a file
- file_put_contents($filename, $text);
- Example: file-put-content.php

```php
<?php
$file = 'people.txt’;
// Open the file to get existing content
$current = file_get_contents($file);
// Append a new person to the file
$current .= "John Smith\n";
// Write the contents back to the file
file_put_contents($file, $current);
?>
```

FILE UPLOADING



writing permission

writing permission

phpinfo.php

If sys_temp_dir is empty, you should be able to use /tmp as the temporary dir

sys_temp_dir	*no value*	*no value*
track_errors	Off	Off
unserialize_callback_func	*no value*	*no value*
upload_max_filesize	2M	2M

What permissions should we set? Two choices:

1. Quick and dirty: writable for everyone 777 (bad idea)
2. Owner of the Apache process.
    1. Use $ ps aux|grep apache to find out the Apache userid
    2. Use $ id [userid] to find out the group
    3. Use $ chown -R userid:group to change the ownership of that folder.

UPLOAD FILES

Live Demo

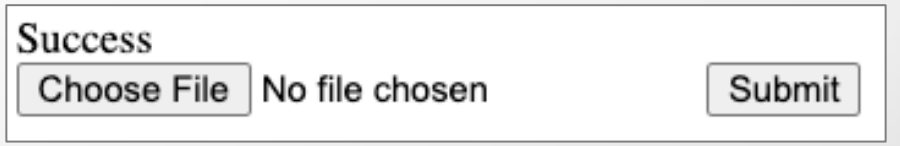
```php
<?php
   if(isset($_FILES['image'])){
      $errors= array();
      $file_name = $_FILES['image']['name'];
      $file_size =$_FILES['image']['size'];
      $file_tmp =$_FILES['image']['tmp_name'];
      $file_type=$_FILES['image']['type'];
      $file_ext=strtolower(end(explode('.',$_FILES['image']['name'])));

      $extensions= array("jpeg","jpg","png");

      if(in_array($file_ext,$extensions)=== false){
         $errors[]="extension not allowed, please choose a JPEG or PNG file.";
      }

      if($file_size > 2097152){
         $errors[]='File size must be excately 2 MB';
      }

      if(empty($errors)==true){
         move_uploaded_file($file_tmp,"images/".$file_name);
         echo "Success";
      }else{
         print_r($errors);
      }
   }
?>
```

uploadfile.php (Part 1)

explode() – Split a string by another string.
end - returns the value at the **end** of the array

visual effect (before uploading)

visual effect (after uploading)



uploadfile.php (Part 2)

```html
<html>
   <body>

      <form action="" method="POST" enctype="multipart/form-data">
         <input type="file" name="image" />
         <input type="submit"/>
      </form>

   </body>
</html>
```

$_FILES

- Global variable
- Associate double dimension
- If the value assigned to the input's name attribute in uploading form was **file**, then PHP would create following five variables
- **$_FILES['file']['tmp_name']** – the uploaded file in the temporary directory on the web server.
- **$_FILES['file']['name']** – the actual name of the uploaded file.
- **$_FILES['file']['size']** – the size in bytes of the uploaded file.
- **$_FILES['file']['type']** – the MIME type of the uploaded file.
- **$_FILES['file']['error']** – the error code associated with this file upload.

EXAMPLE: UPLOAD AN IMAGE AND SHOW FILE INFORMATION

uploadimage.php (Part 1)

```php
<?php
   if(isset($_FILES['image'])){
      $errors= array();
      $file_name = $_FILES['image']['name'];
      $file_size = $_FILES['image']['size'];
      $file_tmp = $_FILES['image']['tmp_name'];
      $file_type = $_FILES['image']['type'];
      $file_ext=strtolower(end(explode('.',$_FILES['image']['name'])));

      $extensions= array("jpeg","jpg","png");

      if(in_array($file_ext,$extensions)=== false){
         $errors[]="extension not allowed, please choose a JPEG or PNG file.";
      }

      if($file_size > 2097152) {
         $errors[]='File size must be excately 2 MB';
      }

      if(empty($errors)==true) {
         move_uploaded_file($file_tmp,"images/".$file_name);
         echo "Success";
      }else{
         print_r($errors);
      }
   }
?>
```

uploadimage.php (Part 2)

```php
<html>
   <body>

      <form action = "" method = "POST" enctype = "multipart/form-data">
         <input type = "file" name = "image" />
         <input type = "submit"/>

         <ul>
            <li>Sent file: <?php echo $_FILES['image']['name'];  ?>
            <li>File size: <?php echo $_FILES['image']['size'];  ?>
            <li>File type: <?php echo $_FILES['image']['type'] ?>
         </ul>

      </form>

   </body>
</html>
```

DEBUGGING

- Echo statements
- Apache log files: usually located at /var/log/apache2 (MacOS, Linux)

BACKUP SLIDES BEYOND THIS POINT

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