Lesson #6

PHP and Server Management (.htaccess)

What Is php?

- PHP (Personal Home Page) is a widely-used general-purpose scripting language that is especially suited for web development and can be embedded into HTML. It generally runs on a web server, taking PHP code as its input and creating web pages as output.

- It can be deployed on most web servers and on almost every operating system and platform free of charge.

php Syntax

- PHP only parses code within its delimiters. Anything outside its delimiters is sent directly to the output and is not parsed by PHP. The most common delimiters are <?php and ?>, which are the open and close delimiters respectively. The purpose of these delimiters is to separate PHP code from non-PHP code, including HTML.

- Variables are prefixed with a dollar symbol and a type does not need to be specified in advance.

php Syntax

- Unlike function and class names, **variable names are case sensitive**. Double-quoted ("") strings allow the ability to embed a variable's value into the string.
- PHP treats newlines as white space and statements are terminated by a semicolon.
- PHP has three types of comment syntax: /* */ serves as block comments, and // as well as # are used for inline comments.

php Data Types

- PHP stores whole numbers in a platform-dependent range. This range is typically that of 32-bit signed integers.

- Real numbers are also stored in a platform-specific range. They can be specified using floating point notation, or two forms of scientific notation. PHP has a native Boolean type that is similar to the ones found in Java and C++. Using the Boolean type conversion rules, non-zero values are interpreted as true and zero as false, as in Perl, C and C++.

php Data to Browser

- Data is sent to the browser with the echo() and print() statements.

```
echo 'Hello world';
print "How are you?";
```

- New lines are added using the <br> tag, not the \n character.

```
echo "Words<br>on<br>different<br>lines.";
```

- Single quotes use the string literally and double quotes evaluate the string (like Perl).

php Strings

- Strings are enclosed in single or double quotes. They can be assigned to variables.

```
$city = 'Toronto';
print "Welcome to $city.";
```

- Strings are concatenated with the period operator (.).

```
$twocities = $city.' '.$city;
```

php Operators

The basic arithmetic operators are identical to those of Perl: +, -, *, /, %, ++, --

round() rounds a decimal to the nearest integer or to a specified number of decimal places.

```
$n=3.1428; $n=round($n); echo $n
3
$n=3.1428; $n=round($n,3); echo $n
3.143
```

How to save your php pages

- If you have PHP inserted into your HTML and want the web browser to interpret it correctly, then you must save the file with a .php extension, instead of the standard .html extension. Instead of index.html, it should be index.php if there is PHP code in the file.

```
<body>
<?php
echo "Hello World!";
?>
</body>
```

Heredoc Strings in php

- PHP introduces a more robust string creation tool called heredoc that lets the programmer create multi-line strings without using quotations.

```
$my_string = <<<ABC
This string can be
defined on
multiple lines.
ABC;
echo $my_string;
```

ABC is the heredoc identifier to open the string

to close the string, the identifier must be on a line of its own and not be indented

This string can be defined on multiple lines.

php include

- Include takes a file name and simply inserts that file's contents into the script that issued the include command.
- You can type up a common header or menu file that you want all your web pages to include. When you add a new page to your site, instead of having to update the links on several web pages, you can simply change the included file.

```
<?php include("header.php"); ?>
```

php require

- Just like include, the require command is used to include a file into your php code. However there is one difference between the two commands:
- If the file to be included is missing, include will display the rest of the script but require will kill the remaining of the php script.
- `<?php require("missing.php");`
- `echo "Hello there!"; ?>`

Hello there! will not be displayed if the file missing.php is... missing

php - if statement

- The if statement is the same as in Perl and other programming languages.

```
$number = 7;
if ( $number == 3 )
    echo "true";
else
    echo "false";
```

```
false
```

php - elseif statement

- Great for nested ifs.

```
$food = "spinach";
if ($food == "steak")
    echo "meat";
elseif ($food == "spinach")
    echo "vegetable";
else
    echo "something else";
```

vegetable

php - switch statement

- Great for multiple conditions:

```
$destination = "Tokyo";
echo "Traveling to $destination<br>";
switch ($destination){
  case "Las Vegas":
       echo "Bring an extra $500"; break;
  case "Tokyo":
       echo "Bring lots of money"; break;
  case "Caribbean Islands":
       echo "Bring a swimsuit"; break;
   default:
       echo "Bring your ID";
}
```

```
Traveling to Tokyo
Bring lots of money
```

php - using forms

- Same as Perl. The HTML part:

```
<form action="process.php" method="post">
<select name="item">
<option>Paint</option>
<option>Brushes</option>
<option>Erasers</option>
</select>
Quantity: <input name="quantity" type="text">
<input type="submit">
</form>
```

php - using forms

- The process.php script:

```
<?php
$quantity = $_POST['quantity'];
$item = $_POST['item'];

echo "You ordered ". $quantity . " " . $item . ".<br />";
echo "Thank you for ordering from us.";

?>
```

php: form data

- In Perl we used two techniques to remember data from form to form, hidden fields and cookies. In php we have the same plus sessions. Since hidden fields are html only, we will have a quick look at cookies and sessions.
- When you create a cookie, using the function setcookie, you must specify three arguments. These arguments are setcookie(name, value, expiration).

php - setting cookies

- name: The name of your cookie. You will use this name to later retrieve your cookie.
- value: The value that is stored in your cookie. Common values are username(string) and last visit(date).
- expiration: The date when the cookie will expire and be deleted. If you do not set this expiration date, then it will be treated as a session cookie and be removed when the browser is restarted.

```
<?php
$inTwoMonths = 60 * 60 * 24 * 60 + time();
setcookie('lastVisit', date("G:i - m/d/y"),
  $inTwoMonths);
?>
```

php - retrieving cookies

- If your cookie hasn't expired yet, let's retrieve it using the $_COOKIE associative array. The name of your stored cookie is the key and will let you retrieve your stored cookie value.

```
<?php
if(isset($_COOKIE['lastVisit']))
{
	$visit = $_COOKIE['lastVisit'];
	echo "Your last visit was - ". $visit;
}
else
	echo "Cookie not set or expired";
?>
```

php - sessions

- Sessions work by creating a unique identification(UID) number for each visitor and storing variables based on this ID. This helps to prevent two users' data from getting confused with one another when visiting the same web page.
- Before you can begin storing user information in your PHP session, you must first start the session. When you start a session, it must be at the very beginning of your code, before any HTML or text is sent.

```
<?php session_start(); ?>
```

- *This tiny piece of code will register the user's session with the server, allow you to start saving user information and assign a UID (unique identification number) for that user's session.*

php - session data

- When you want to store user data in a session use the $_SESSION associative array. This is where you both store and retrieve session data.

```
<?php
session_start();
$_SESSION['views'] = 1; // store session data
echo "Pageviews = ". $_SESSION['views'];
  //retrieve data
?>
```

```
Pageviews = 1
```

php - session data

- With our previous example, we can create a very simple pageview counter by using isset to check if the pageview variable has already been created. If it has we can increment our counter. If it doesn't exist we can create a pageview counter and set it to one.

```
<?php
session_start();
if(isset($_SESSION['views']))
      $_SESSION['views'] = $_SESSION['views']+ 1;
else
      $_SESSION['views'] = 1;
echo "views = ". $_SESSION['views'];
?>
```

```
views = 2
```

php - functions

- A typical php function:

```
<?php
function mySum($numX, $numY){
    $total = $numX + $numY;
    return $total;
}
$myNumber = 0;
echo "Before the function, myNumber = ". $myNumber ."<br />";
$myNumber = mySum(3, 4); // Store the result of mySum in
  $myNumber
echo "After the function, myNumber = " . $myNumber ."<br />";
?>
```

```
Before the function, myNumber = 0
After the function, myNumber = 7
```

php - arrays

- Arrays in php are very simple:

```
$employee_array[0] = "Bob";
$employee_array[1] = "Jinhee";
$employee_array[2] = "Ali";
$employee_array[3] = "Maria";
echo "Two of my employees are "
. $employee_array[0] . " & " . $employee_array[1];
echo "<br>Two more employees of mine are "
. $employee_array[2] . " & " . $employee_array[3];
```

```
Two of my employees are Bob & Jinhee
Two more employees of mine are Ali & Maria
```

php - associative arrays

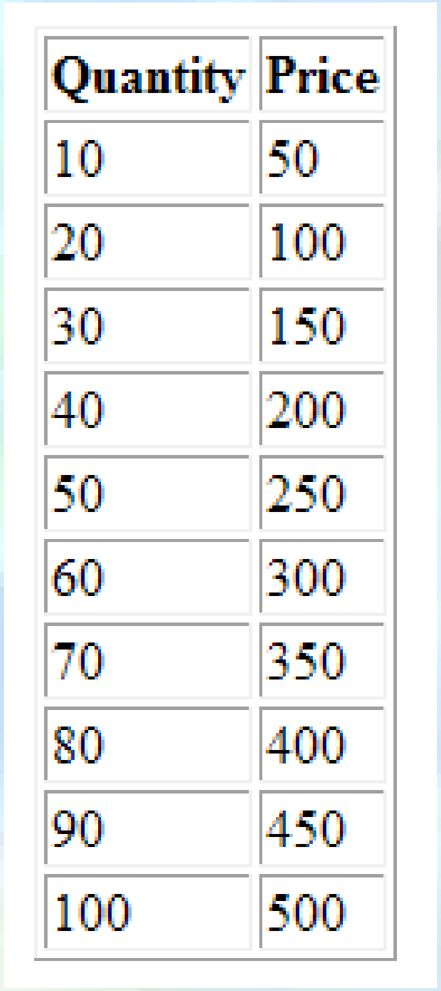
- In an associative array a key is associated with a value.

```
$salaries["Bob"] = 3500;
$salaries["Jinhee"] = 4000;
$salaries["Ali"] = 4500;
$salaries["Maria"] = 4550;
echo "Bob is being paid - $" . $salaries["Bob"] . "<br />";
echo "Jinhee is being paid - $" . $salaries["Jinhee"] . "<br />";
echo "Ali is being paid - $" . $salaries["Ali"] . "<br />";
echo "Maria is being paid - $" . $salaries["Maria"];
```

```
Bob is being paid - $3500
Jinhee is being paid - $4000
Ali is being paid - $4500
Maria is being paid - $4550
```

php - loops (while)

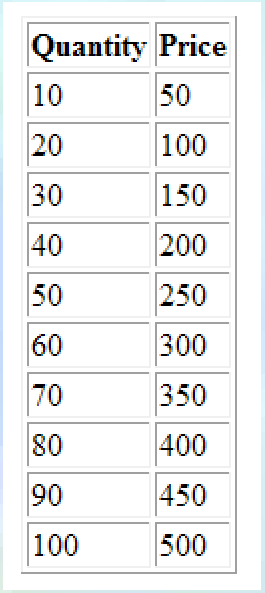
```
$brush_price = 5;
$counter = 10;
echo "<table border=\"1\" align=\"center\">";
echo "<tr><th>Quantity</th>";
echo "<th>Price</th></tr>";
while ( $counter <= 100 ) {
    echo "<tr><td>";
    echo $counter;
    echo "</td><td>";
    echo $brush_price * $counter;
    echo "</td></tr>";
    $counter = $counter + 10;
}
echo "</table>";
```



Quantity	Price
10	50
20	100
30	150
40	200
50	250
60	300
70	350
80	400
90	450
100	500

php - loops (for)

```
$brush_price = 5;
echo "<table border=\"1\" align=\"center\">";
echo "<tr><th>Quantity</th>";
echo "<th>Price</th></tr>";
for ( $counter = 10; $counter <= 100; $counter += 10) {
    echo "<tr><td>";
    echo $counter;
    echo "</td><td>";
    echo $brush_price * $counter;
    echo "</td></tr>";
}
echo "</table>";
```

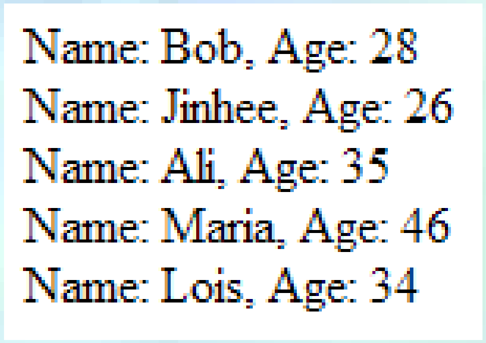


Quantity	Price
10	50
20	100
30	150
40	200
50	250
60	300
70	350
80	400
90	450
100	500

php - loops (foreach)

```
$employeeAges["Bob"] = "28";
$employeeAges["Jinhee"] = "26";
$employeeAges["Ali"] = "35";
$employeeAges["Maria"] = "46";
$employeeAges["Lois"] = "34";

foreach( $employeeAges as $key => $value){
    echo "Name: $key, Age: $value <br>";
}
/* this will give the same output */
foreach( $employeeAges as $name => $age){
    echo "Name: $name, Age: $age <br>";
}
```

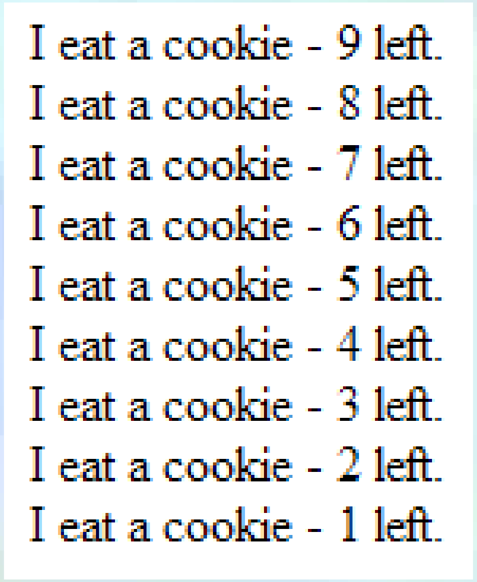


```
Name: Bob, Age: 28
Name: Jinhee, Age: 26
Name: Ali, Age: 35
Name: Maria, Age: 46
Name: Lois, Age: 34
```

php - loops (do while)

- Do while loops are executed at least once.

```
$cookies = 10;
do {
  echo "I eat a cookie - ";
    $cookies --;
    echo "$cookies left.<br>";
} while ($cookies > 1);
```



```
I eat a cookie - 9 left.
I eat a cookie - 8 left.
I eat a cookie - 7 left.
I eat a cookie - 6 left.
I eat a cookie - 5 left.
I eat a cookie - 4 left.
I eat a cookie - 3 left.
I eat a cookie - 2 left.
I eat a cookie - 1 left.
```

php - how to create a file

- The fopen function needs two important pieces of information to operate correctly. First, we must supply it with the name of the file that we want it to open. Secondly, we must tell the function what we plan on doing with that file (i.e. read from the file, write information, etc).

```
$ourFileName = "testFile.txt";
$ourFileHandle = fopen($ourFileName, 'w') or
   die("can't open file");
fclose($ourFileHandle);
```

php - file opening modes

- 'r' (read): Open a file for read only use. The file pointer begins at the start of the file.
- 'w' (write): Open a file for write only use. In addition, the data in the file is erased and you will begin writing data at the beginning of the file. The file pointer begins at the start of the file.
- 'a' (append): Open a file for write only use. However, the data in the file is preserved and you will be writing data at the end of the file. The file pointer begins at the end of the file.
- 'r+' (read/write): Opens a file so that it can be read from and written to. The file pointer is at the beginning of the file.
- 'w+' (write/read): This is exactly the same as r+, except that it deletes all information in the file when the file is opened.

php - file writing (fwrite)

- The fwrite function allows data to be written to any type of file. Fwrite's first parameter is the file handle and its second parameter is the string of data that is to be written.

```
$myFile = "testFile.txt";
$fh = fopen($myFile, 'w') or die("can't open file");
$stringData = "Bobby Bopper\n";
fwrite($fh, $stringData);
$stringData = "Tracy Tanner\n";
fwrite($fh, $stringData);
fclose($fh);
```

php - file reading (fread)

- The fread function is the staple for getting data out of a file. The function requires a file handle, which we have, and an integer to tell the function how much data, in bytes, it is supposed to read. One character is equal to one byte.

```
$myFile = "testFile.txt";
$fh = fopen($myFile, 'r');
$theData = fread($fh, 5);
fclose($fh);
echo $theData;
```

- If you wanted to read all the data from the file, then you need to get the size of the file. The filesize function returns the length of a file, in bytes. The filesize function requires the name of the file that is to be sized up.

```
$theData = fread($fh, filesize($myFile));
```

php - file reading (gets)

- PHP also lets you read a line of data at a time from a file with the gets function.

```
$myFile = "testFile.txt";
$fh = fopen($myFile, 'r');
$theData = fgets($fh);
fclose($fh);
echo $theData;
```

Will display the first line of the data file.

php - file deleting (unlink)

- In PHP you delete files by calling the unlink function. Before you can delete (unlink) a file, you must first be sure that it is not open in your program. Use the fclose function to close down an open file.

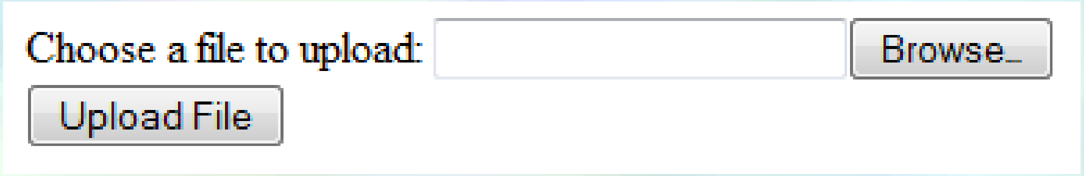
```
$myFile = "testFile.txt";
unlink($myFile);
```

- *This will destroy the testFile.txt file on the server's disk. You have to be careful with that one.*

php - file upload

- A very useful aspect of PHP is its ability to manage file uploads to your server. Allowing users to upload a file to your server opens a whole can of worms, so please be careful when enabling file uploads.
- Before you can use PHP to manage your uploads, you must first build an HTML form that lets users select a file to upload.

```
<form enctype="multipart/form-data" action="uploader.php"
    method="POST">
<input type="hidden" name="MAX_FILE_SIZE" value="100000">
Choose a file to upload: <input name="uploadedfile"
    type="file"><br>
<input type="submit" value="Upload File">
</form>
```



php - file upload

- After the user clicks submit, the data will be posted to the server and the user will be redirected to uploader.php. This PHP file is going to process the form data and do all the work.
- Typically, the PHP file should make a key decision with all uploads: keep the file or throw it away. A file might be thrown away from many reasons, including
  - *The file is too large and you do not want to have it on your server*
  - *You wanted the person to upload a picture and they uploaded something else, like an executable file (.exe).*
  - *There were problems uploading the file and so you can't keep it.*
- When the uploader.php file is executed, the uploaded file exists in a temporary storage area on the server. If the file is not moved to a different location it will be destroyed. To save our file we are going to need to make use of the $_FILES associative array.

php - file upload

- The $_FILES array is where PHP stores all the information about files.
- * uploadedfile - uploadedfile is the reference we assigned in our HTML form. We will need this to tell the $_FILES array which file we want to play around with.
- * $_FILES['uploadedfile']['name'] - name contains the original path of the user uploaded file.
- * $_FILES['uploadedfile']['tmp_name'] - tmp_name contains the path to the temporary file that resides on the server. The file should exist on the server in a temporary directory with a temporary name.

```
$target_path = "uploads/"; /* destination folder */
$target_path = $target_path . basename( $_FILES['uploadedfile']
   ['name']); /* complete path - folder+file name */
```

php - file upload

- Now all we have to do is call the move_uploaded_file function and let PHP do its magic.

```
if(move_uploaded_file($_FILES['uploadedfile']['tmp_name'],
    $target_path)) {
    echo "The file ".  basename( $_FILES['uploadedfile']['name']).
    " has been uploaded";
} else{
    echo "There was an error uploading the file, please try again!";
}
```

- Danger! Do not place this script on a web page viewable to the public.

php - strings (strpos)

- The way strpos works is it takes some string you want to search in as its first argument and another string, which is what you are actually searching for, as the second argument. If the function can find a search match, then it will return the position of the first match. However, if it can't find a match it will return false.

```
$numberedString = "1234567890123456789O";
$fivePos = strpos($numberedString, "5");
echo "The position of 5 in our string was $fivePos";
$fivePos2 = strpos($numberedString, "5", $fivePos + 1);
echo "<br>The position of the second 5 was $fivePos2";
```

```
The position of 5 in our string was 4
The position of the second 5 was 14
```

php - strings (str_replace)

- The str_replace function is similar to a word processor's *Replace All* command that lets you specify a word and what to replace it with, then replaces every occurrence of that word in the document. You can also use arrays for multiple replacements.

```
$rawstring = "Welcome to Toronto. Make sure you visit the
    placeholder.";
$rom = str_replace("placeholder", "ROM", $rawstring);
$ago = str_replace("placeholder", "AGO", $rawstring);
echo "Option 1: ". $rom . "<br>";
echo "Option 2: ". $ago;
```

```
Option 1: Welcome to Toronto. Make sure you visit the ROM.
Option 2: Welcome to Toronto. Make sure you visit the AGO.
```

php strings (substr_replace)

- There are three required parameters for the substr_replace function (original string, replacement string, starting point) and one that's optional (length). A negative staring point specifies the number of characters from the end of the string.

```
$original = "ABC123 Life is Good DEF321";
$clean1 = substr_replace($original, "", 0, 6);
$clean2 = substr_replace($clean1, "", -6, 6);
echo "Original: $original <br>";
echo "Clean #1: $clean1 <br>";
echo "Clean #2: $clean2";
```

```
Original: ABC123 Life is Good DEF321
Clean #1: Life is Good DEF321
Clean #2: Life is Good
```

php strings (explode)

- The first argument that explode takes is the delimiter (our dynamite) which is used to blow up the second argument, the original string. explode returns an array of string pieces from the original and they are numbered in order, starting from 0.

```
$rawPhoneNumber = "800-555-5555";
$phoneChunks = explode("-", $rawPhoneNumber);
echo "Raw Phone Number = $rawPhoneNumber <br>";
echo "First chunk = $phoneChunks[0]<br>";
echo "Second chunk = $phoneChunks[1]<br>";
echo "Third chunk = $phoneChunks[2]";
```

```
Raw Phone Number = 800-555-5555
First chunk = 800
Second chunk = 555
Third chunk = 5555
```

php strings (implode)

- The PHP function implode operates on an array and is known as the "undo" function of explode. If you have used explode to break up a string into chunks or just have an array of stuff you can use implode to put them all into one string.

```
$pieces = array("Hello", "World,", "I", "am", "Here!");
$gluedTogetherSpaces = implode(" ", $pieces);
$gluedTogetherDashes = implode("-", $pieces);
echo "Glued with Spaces = $gluedTogetherSpaces <br>";
echo "Glued with Dashes = $gluedTogetherDashes";
```

```
Glued with Spaces = Hello World, I am Here!
Glued with Dashes = Hello-World,-I-am-Here!
```

php date

- The date function uses letters of the alphabet to represent various parts of a typical date and time format. Here are the basics:
- d: The day of the month. The type of output you can expect is 01 through 31.
- m: The current month, as a number. You can expect 01 through 12.
- y: The current year in two digits ##. You can expect 00 through 99

```
<?php
echo date("m/d/y");
?>
```

php date: time options

- a: am or pm depending on the time
- A: AM or PM depending on the time
- g: Hour without leading zeroes. Values are 1 through 12.
- G: Hour in 24-hour format without leading zeroes. Values are 0 through 23.
- h: Hour with leading zeroes. Values 01 through 12.
- H: Hour in 24-hour format with leading zeroes. Values 00 through 23.
- i: Minute with leading zeroes. Values 00 through 59.
- s: Seconds with leading zeroes. Values 00 through 59.

php date: day options

- d: Day of the month with leading zeroes. Values are 01 through 31.
- j: Day of the month without leading zeroes. Values 1 through 31
- D: Day of the week abbreviations. Sun through Sat
- l: Day of the week. Values Sunday through Saturday
- w: Day of the week without leading zeroes. Values 0 through 6.
- z: Day of the year without leading zeroes. Values 0 through 365.

php date: other options

- m: Month number with leading zeroes. Values 01 through 12
- n: Month number without leading zeroes. Values 1 through 12
- M: Abbreviation for the month. Values Jan through Dec
- F: Normal month representation. Values January through December.
- t: The number of days in the month. Values 28 through 31.
- L: 1 if it's a leap year and 0 if it isn't.
- Y: A four digit year format
- y: A two digit year format. Values 00 through 99.
- O: represents the Timezone offset, which is the difference from Greenwich Meridian Time (GMT). 100 = 1 hour, -600 = -6 hours

php - security issues

- Whenever you allow your users to submit text to your website, you need to be careful that you don't leave any security holes open for malicious users to exploit. If you are ever going to allow user submitted text to be visible by the public you should consider using removing the script tags to prevent them from running html code and scripts that may be harmful to your visitors.

```
$userinput = "I am going to hack your site, ha ha ha!
   <script type='text/javascript'>
   window.location = 'http://www.ryerson.ca/'
   </script>'";
$cleaninput = str_replace("script", "skript", $userinput);
echo $cleaninput;
```

See more examples at: www.ihypress.net/programming/php

php - security issues

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```
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echo $cleaninput;
```

See more examples at: www.ihypress.net/programming/php

What is .htaccess?

- .htaccess (hypertext access) is the default name of Apache's directory-level configuration file. It provides the ability to customize configuration for requests to the particular directory.
- .htaccess is the file extension. It is not file.htaccess or somepage.htaccess, it is simply named .htaccess.
- .htaccess files are commonly used for...

Uses of .htaccess

- Authorization, authentication: .htaccess files are often used to specify the security restrictions for the particular directory, hence the filename "access". The .htaccess file is often accompanied by an .htpasswd file which stores valid usernames and their passwords.
- Customized error responses: Changing the page that is shown when a server-side error occurs, for example HTTP 404 Not Found.
- Rewriting URLs: Various server-side PHP scripts use .htaccess to rewrite "ugly" URLs to shorter and prettier ones.

Writing .htaccess

- htaccess files must be uploaded as ASCII, not binary. The CHMOD of an htaccess file should be 644 or (RW- R-- R--). That setting makes it usable as well as more secure.
- If you have password protected directories, and a browser could read the .htaccess file, then they could get the location of the password file.
- There are different ways to prevent this, one being to place authentication files above the root directory (public_html or www) so that they are not web accessible, and the other is through an .htaccess series of commands.

Writing .htaccess

- Most commands in .htaccess are meant to be placed on one line only, so if you use a text editor that uses word-wrap, make sure it is disabled or it might throw in a few characters that annoy Apache to no end, although Apache is typically very forgiving of malformed content in an .htaccess file.
- Before you go off and plant .htaccess everywhere, make sure you don't do anything redundant, since it is possible to cause an infinite loop of redirects or errors if you place something weird in the .htaccess file.

When not to use .htaccess

- You have access to the server configuration file. It is much more secure and much more efficient.
- When performance is important. .htaccess files are loaded even if they are not used, every time a document is loaded. It also checks for the presence of .htaccess files in ALL the parent directories therefore multiplying system calls.

Scope of .htaccess

- htaccess files affect the directory they are placed in and all sub-directories, that is an .htaccess file located in your root directory (yoursite.com) would affect yoursite.com/dir, yoursite.com/dir/dir, etc.
- This can be prevented (if, for example, you did not want certain .htaccess commands to affect a specific directory) by placing a new .htaccess file within the directory you don't want affected with certain changes, and removing the specific command(s) from the new .htaccess file that you do not want affecting this directory. In short, the nearest .htaccess file to the current directory is treated as the .htaccess file.

Warning

- Some hosts do not allow use of .htaccess files, since depending on what they are doing, they can slow down a server overloaded with domains if they are all using .htaccess files.
- You need to make sure you are allowed to use .htaccess before you actually use it.
- Some things that .htaccess can do can compromise a server configuration that has been specifically setup by the admin, so don't get in trouble.

Error Handling

- In order to specify your own ErrorDocuments, you need to be slightly familiar with the server returned error codes (see next slide).
- You do not need to specify error pages for all of these, in fact you shouldn't. An ErrorDocument for code 200 would cause an infinite loop, whenever a page was found...this would not be good.

HTTP Error Codes

- Here a few of the most useful HTTP error codes:
- 200 OK
- 301 Moved Permanently
- 302 Moved Temporarily
- 400 Bad Request
- 401 Authorization Required
- 403 Forbidden
- 404 Not Found
- 500 Internal Server Error

Error Handling

- You will probably want to create an error document for codes 404 and 500, at the least 404 since this would give you a chance to handle requests for pages not found. 500 would help you out with internal server errors in any scripts you have running. You may also want to consider ErrorDocuments for 401 - Authorization Required (as in when somebody tries to enter a protected area of your site without the proper credentials), 403 - Forbidden (as in when a file with permissions not allowing it to be accessed by the user is requested) and 400 - Bad Request, which is one of those generic kind of errors that people get to by doing some weird stuff with your URL or scripts.

Error Handling

- Example:

```
ErrorDocument 400 /errors/badrequest.html
ErrorDocument 401 /errors/authreqd.html
ErrorDocument 403 /errors/forbid.html
ErrorDocument 404 /errors/notfound.html
ErrorDocument 500 /errors/serverr.html
```

- You can use actual html code instead of a file reference. Make sure you do it on one line per error though.

Password Protection

- Ever wanted a specific directory in your site to be available only to people who you want it to be available to? Ever got frustrated with the seeming holes in client-side options for this that allowed virtually anyone with enough skill to mess around in your source to get in? .htaccess is the answer.
- The first thing you will need to do is create a file called .htpasswd. It will contain the list of user names and passwords (encrypted). A few free online tools will take care of the encryption process for you (like htpasswdgenerator.net).

encrypted password

login

falstaff:y4E7Ep8e7EYV

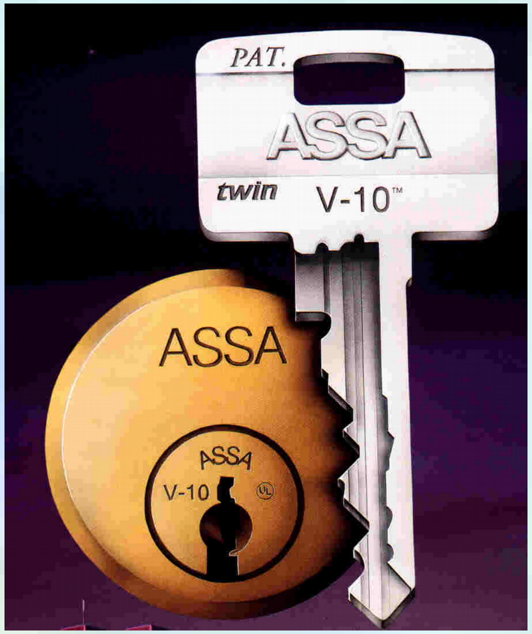
Password Protection

- Create and .htaccess file with the following commands:

```
AuthUserFile /full/path/to/.htpasswd
AuthType Basic
AuthName "My Secret Folder"
Require valid-user
```

For a single file only:

```
AuthUserFile /full/path/to/.htpasswd
AuthType Basic
AuthName "Credentials"
<Files "file_to_protect.html">
  Require valid-user
```



Blocking users by IP

- In your .htaccess file, add the following code (changing the IPs to suit your needs) to block undesirable visitors.

```
order allow,deny
deny from 123.45.6.7
deny from 012.34.5.
allow from all
```

- You can also allow or deny by domain name rather than IP address.

Blocking users by referrer

- Blocking users or sites that originate from a particular domain is another useful trick of .htaccess. Lets say you check your logs one day, and see tons of referrals from a particular site, yet upon inspection you can't find a single visible link to your site on theirs. The referral isn't a "legitimate" one, with the site most likely hot linking to certain files on your site such as images, .css files, or files you can't even make out. Remember, your logs will generate a referrer entry for any kind of reference to your site that has a traceable origin.
- So, to deny access all traffic that originate from a particular domain (referrers) to your site, use the code on the next slide.

Blocking users by referrer

- **Block traffic from a single referrer:**

```
RewriteEngine on
# Options +FollowSymlinks
RewriteCond %{HTTP_REFERER} badsite\.com [NC]
RewriteRule .* - [F]
```

Uncomment if error 500

Not case sensitiv e

Returns a 403 forbidden

Blocking users by referrer

- **Block traffic from a multiple referrers:**

```
RewriteEngine on
# Options +FollowSymlinks
RewriteCond %{HTTP_REFERER} badsite\.com [NC,OR]
RewriteCond %{HTTP_REFERER} anotherbadsite\.com
RewriteRule .* - [F]
```

For multiple domains

Change your default directory page

- Placing the above command in your .htaccess file will cause this to happen:
- When a user types in yoursite.com, your site will look for filename.html in your root directory (or any directory if you specify this in the global .htaccess file), and if it finds it, it will load that page as the default page. If it does not find filename.html, it will then look for index.cgi; if it finds that one, it will load it, if not, it will look for index.pl and the whole process repeats until it finds a file it can use. Basically, the list of files is read from left to right.

```
DirectoryIndex filename.html index.cgi index.pl
   default.htm
```

Redirects

- Ever go through the nightmare of changing significantly portions of your site, then having to deal with the problem of people finding their way from the old pages to the new? It can be nasty. There are different ways of redirecting pages, through http-equiv, javascript or any of the server-side languages. And then you can do it through .htaccess, which is probably the most effective, considering the minimal amount of work required to do it.

```
Redirect /olddirectory/oldfile.html
  http://yoursite.com/newdirectory/newfi
  le.html
```

Prevent viewing of .htaccess file

- It is possible to prevent an .htaccess file from being viewed in this manner.

```
<Files .htaccess>
order allow,deny
deny from all
</Files>
```

Preventing Directory Listing

- Do you have a directory full of images or zips that you do not want people to be able to browse through? Typically a server is setup to prevent directory listing, but sometimes they are not. If not, become self-sufficient and fix it yourself:

```
IndexIgnore *
```

- The * is a wildcard that matches all files, so if you stick that line into an htaccess file in your images directory, nothing in that directory will be allowed to be listed.
- On the other hand, what if you did want the directory contents to be listed, but only if they were HTML pages and not images?

```
IndexIgnore *.gif *.jpg
```

- This would return a list of all files not ending in .jpg or .gif, but would still list .txt, .html, etc.

Preventing "hot linking"

- In the webmaster community, "hot linking" is a curse phrase. Also known as "bandwidth stealing" by the angry site owner, it refers to linking directly to non-html objects not on one own's server, such as images, .js files etc.

```
RewriteEngine on

RewriteCond %{HTTP_REFERER} !^$

RewriteCond %{HTTP_REFERER} !^http://(www\.)?
  mydomain.com/.*$ [NC]

RewriteRule \.(gif|jpg|js|css)$ - [F]
```

allows empty referrals

URL Rewriting (Simplifying URLs)

Dynamic web page have often ugly URLs containing query strings. The resulting links to your pages can therefore end up complicated and search engine-unfriendly. For example www.ihypress.net/programming/perl/exec.php?script=03 with this .htaccess:

```
RewriteEngine on

Options +FollowSymlinks

RewriteRule ([a-zA-Z0-9]+)/$
  ../perl/exec.php?script=$1
```

Remove if problem

would become www.ihypress.net/programming/perl/03

URL Rewriting for www

For search engine optimization, it is better to redirect the non www domain to www (or the other way around) to prevent duplicate entries in the search engine.

With this .htaccess:

```
RewriteEngine On
Options +FollowSymlinks
RewriteCond %{HTTP_HOST} ^ihypress.net$
RewriteRule (.*) http://www.ihypress.net/$1
  [R=301,L]
```

ihypress.net is redirected to *www.ihypress.net*

URL Rewriting for subdomains

If you have a m subdomain for mobile sites, the previous script would redirect m.ihypress.com to www.m.ihypress.com. You don't want that! The fix is easy.

```
RewriteEngine On

Options +FollowSymlinks

RewriteCond %{HTTP_HOST} !^(www|m)\. [NC]

RewriteRule ^(.*)$ http://www.ihypress.net/
  $1 [R=301,L]
```

URL Rewriting (universal)

The following script will work for all domains:

```
RewriteEngine On
Options +FollowSymlinks
RewriteCond %{HTTP_HOST} !^(www|m)\. [NC]
RewriteRule ^(.*)$ http://www.%{HTTP_HOST}/$1
   [R=301,L]
```

See httpd.apache.org/docs/current/mod/mod_rewrite.html for more information.

End of lesson