Chapter 7: Advanced PHP

❖ PHP Cookies

A cookie is often used to identify a user. A cookie is a small file that the server embeds on the user's computer. Each time the same computer requests a page with a browser, it will send the cookie too. With PHP, you can both create and retrieve cookie values.

A cookie is created with the setcookie() function.

Syntax

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

Only the *name* parameter is required. All other parameters are optional.

➢ Create/Retrieve Cookies With PHP

The following example creates a cookie named "user" with the value "John Doe". The cookie will expire after 30 days (86400 * 30). The "/" means that the cookie is available in entire website (otherwise, select the directory you prefer).

We then retrieve the value of the cookie "user" (using the global variable $_COOKIE). We also use the isset() function to find out if the cookie is set:

Ex:

```
<?php
$cookie_name = "user";
$cookie_value = "John Doe";
setcookie($cookie_name, $cookie_value, time() + (86400 * 30), "/"); // 86400
= 1 day
?>
<html>
<body>
<?php
if(!isset($_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>
```

Note: The setcookie() function must appear BEFORE the <html> tag.

Note: The value of the cookie is automatically URLencoded when sending the cookie, and automatically decoded when received (to prevent URLencoding, use setrawcookie() instead).

➢ Modify a Cookie Value

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

➢ Delete a Cookie

To delete a cookie, use the setcookie() function with an expiration date in the past:

Ex:

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

<?php
echo "Cookie 'user' is deleted.";
?>

</body>
</html>
```

❖ PHP Sessions

- A session is a way to store information (in variables) to be used across multiple pages.
- Unlike a cookie, the information is not stored on the users computer.

➢ What is a PHP Session?

When you work with an application, you open it, do some changes, and then you close it. This is much like a Session. The computer knows who you are. It knows when you start the application and when you end. But on the internet, there is one problem: the web server does not know who you are or what you do, because the HTTP address doesn't maintain state.

Session variables solve this problem by storing user information to be used across multiple pages (e.g. username, favorite color, etc). By default, session variables last until the user closes the browser.

So; Session variables hold information about one single user and are available to all pages in one application.

➢ Start a PHP Session

- A session is started with the session_start() function.
- Session variables are set with the PHP global variable: $_SESSION.

Ex: In this example we create a new page called "demo_session1.php". In this page, we start a new PHP session and set some session variables:

```
<?php
// Start the session
session_start();
?>
<!DOCTYPE html>
<html>
<body>
<?php
// Set session variables
$_SESSION["favcolor"] = "green";
$_SESSION["favanimal"] = "cat";
echo "Session variables are set.";
?>
</body>
</html>
```

Note: The session_start() function must be the very first thing in your document. Before any HTML tags.

➢ Get PHP Session Variable Values

we create another page called "demo_session2.php". From this page, we will access the session information we set on the first page ("demo_session1.php").

Notice that session variables are not passed individually to each new page, instead they are retrieved from the session we open at the beginning of each page (session_start()).

Ex:

```
<?php session_start(); ?>
<!DOCTYPE html>
<html>
<body>
<?php
// Echo session variables that were set on previous page
echo "Favorite color is " . $_SESSION["favcolor"] . ".<br>";
echo "Favorite animal is " . $_SESSION["favanimal"] . ".";
?>
</body>
</html>
```

Another way to show all the session variable values for a user session is to run the following code:

Ex:

```
<?php session_start(); ?>
<!DOCTYPE html>
<html>
<body>
<?php print_r($_SESSION); ?>
</body>
</html>
```

How does it work? How does it know it's me?

Most sessions set a user-key on the user's computer that looks something like this: 765487cf34ert8dede5a562e4f3a7e12. Then, when a session is opened on another page, it scans the computer for a user-key. If there is a match, it accesses that session, if not, it starts a new session.

- **Modify a PHP Session Variable**

  To change a session variable, just overwrite it:

- **Destroy a PHP Session**

  To remove all global session variables and destroy the session, use session_unset() and session_destroy():

  Ex:

```
<?php
session_start();
?>
<!DOCTYPE html>
<html>
<body>

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

// destroy the session
session_destroy();
?>

</body>
</html>
```

❖ PHP Filters

- **Validating data**: Determine if the data is in proper form.
- **Sanitizing data**: Remove any illegal character from the data.

➢ The PHP Filter Extension

- PHP filters are used to validate and sanitize external input.
- The PHP filter extension has many of the functions needed for checking user input, and is designed to make data validation easier and quicker.
- The filter_list() function can be used to list what the PHP filter extension offers:

```
<!DOCTYPE html>
<html>
<head>
<style>
table, th, td {
    border: 1px solid black;
    border-collapse: collapse;
}
th, td {
    padding: 5px;
}
</style>
</head>
<body>

<table>
  <tr>
    <td>Filter Name</td>
    <td>Filter ID</td>
  </tr>
  <?php
  foreach (filter_list() as $id =>$filter) {
      echo '<tr><td>' . $filter . '</td><td>' .
                  filter_id($filter) . '</td></tr>';
  }
  ?>
</table>

</body>
</html>
```

Filter Name	Filter ID
int	257
boolean	258
float	259
validate_regexp	272
validate_url	273
validate_email	274
validate_ip	275
string	513
stripped	513
encoded	514
special_chars	515
full_special_chars	522
unsafe_raw	516
email	517
url	518
number_int	519
number_float	520
magic_quotes	521
callback	1024

➢ Why Use Filters?

Many web applications receive external input. External input/data can be:

- User input from a form
- Cookies
- Web services data
- Server variables
- Database query results

You should always validate external data!

Invalid submitted data can lead to security problems and break your webpage. By using PHP filters you can be sure your application gets the correct input.

➢ PHP filter_var() Function

The filter_var() function both validate and sanitize data.

The filter_var() function filters a single variable with a specified filter. It takes two pieces of data:

- The variable you want to check
- The type of check to use

Sanitize a String

Ex: The following example uses the filter_var() function to remove all HTML tags from a string:

```php
<?php
$str = "<h1>Hello World!</h1>";
$newstr = filter_var($str, FILTER_SANITIZE_STRING);
echo $newstr;
?>
```

Validate an Integer

Ex: The following example uses the filter_var() function to check if the variable $int is an integer. If $int is an integer, the output of the code below will be: "Integer is valid". If $int is not an integer, the output will be: "Integer is not valid":

```php
<?php
$int = 100;
if (!filter_var($int, FILTER_VALIDATE_INT) === false) {
    echo("Integer is valid");
} else {
    echo("Integer is not valid");
}
?>
```

Tip: filter_var() and Problem With 0

In the example above, if $int was set to 0, the function above will return "Integer is not valid". To solve this problem, use the code below:

```php
<?php
$int = 0;
if (filter_var($int, FILTER_VALIDATE_INT) === 0 || !filter_var($int,
FILTER_VALIDATE_INT) === false) {
    echo("Integer is valid");
} else {
    echo("Integer is not valid");
}
?>
```

Validate an IP Address

Ex: The following example uses the filter_var() function to check if the variable $ip is a valid IP address:

```php
?php
$ip = "127.0.0.1";

if (!filter_var($ip, FILTER_VALIDATE_IP) === false) {
    echo("$ip is a valid IP address");
} else {
    echo("$ip is not a valid IP address");
}
?>
```