Server-side scripting:PHP

Unit -2

PHP Include Files

- The include (or require) statement takes all the text/code/markup that exists in the specified file and copies it into the file that uses the include statement.
- It is possible to insert the content of one PHP file into another PHP file (before the server executes it), with the include or require statement.

The include and require statements are identical, except upon failure:

require will produce a fatal error (E_COMPILE_ERROR) and stop the script

include will only produce a warning (E_WARNING) and the script will continue

PHP File Handling

- PHP has several functions for creating, reading, uploading, and editing files.

readfile() Function

- The readfile() function reads a file and writes it to the output buffer.

```
<?php
    echo readfile(“phpmanual.txt");
?>
```

Open File - fopen()

- A better method to open files is with the fopen() function. This function gives you more options than the readfile() function.
- The fopen() function is also used to create a file. Maybe a little confusing, but in PHP, a file is created using the same function used to open files.
If you use fopen() on a file that does not exist, it will create it, given that the file is opened for writing (w) or appending (a).
- The first parameter of fopen() contains the name of the file to be opened and the second parameter specifies in which mode the file should be opened.

Modes

r	**Open a file for read only**. File pointer starts at the beginning of the file
w	**Open a file for write only**. Erases the contents of the file or creates a new file if it doesn't exist. File pointer starts at the beginning of the file
a	**Open a file for write only**. The existing data in file is preserved. File pointer starts at the end of the file. Creates a new file if the file doesn't exist
x	**Creates a new file for write only**. Returns FALSE and an error if file already exists
r+	**Open a file for read/write**. File pointer starts at the beginning of the file
w+	**Open a file for read/write**. Erases the contents of the file or creates a new file if it doesn't exist. File pointer starts at the beginning of the file
a+	**Open a file for read/write**. The existing data in file is preserved. File pointer starts at the end of the file. Creates a new file if the file doesn't exist
x+	**Creates a new file for read/write**. Returns FALSE and an error if file already exists

Read File - fread()

- The fread() function reads from an open file.
- The first parameter of fread() contains the name of the file to read from and the second parameter specifies the maximum number of bytes to read.
- The following PHP code reads the "webdictionary.txt" file to the end:

```
fread($myfile,filesize("webdictionary.txt"));
```

Close File - fclose()

- The fclose() function is used to close an open file.
- It's a good programming practice to close all files after you have finished with them. You don't want an open file running around on your server taking up resources!
- The fclose() requires the name of the file (or a variable that holds the filename) we want to close.

File handling functions

fgets() :The fgets() function is used to read a single line from a file.

fgetc(): The fgetc() function is used to read a single character from a file.

Check End-Of-File - feof()

- The feof() function checks if the "end-of-file" (EOF) has been reached.
- The feof() function is useful for looping through data of unknown length.

fwrite()

- The fwrite() function is used to write to a file.
- The first parameter of fwrite() contains the name of the file to write to and the second parameter is the string to be written.

File Upload

Some rules to follow for the HTML form above:

- **Make sure that the form uses method="post"**
- **The form also needs the following attribute: enctype="multipart/form-data". It specifies which content-type to use when submitting the form**

Without the requirements above, the file upload will not work.

Stateless nature of HTTP

Stateless means there is no record of previous interactions and each interaction request has be handled based entirely on information that comes with it.

The HTTP , an application layer above TCP/ IP is also stateless.

Each request from a user for a web page or URL results in the requested pages being remembering the request later.

- **Hidden field (<input type="hidden" name="Fieldname" >)**
- **Cookies**
- **Sessions**

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.

Cookie Operations

- Create/Retrieve a Cookie
- Modify a Cookie value
- Delete a Cookie

PHP Sessions

- 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.

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

When a session is started following things happen?

- PHP first creates a unique identifier for that particular session which is a random string of 32 hexadecimal numbers such as 3c7foj34c3jj973hjkop2fc937e3443.
- A cookie called **PHPSESSID** is automatically sent to the user's computer to store unique session identification string.
- A file is automatically created on the server in the designated temporary directory and bears the name of the unique identifier prefixed by sess_ ie sess_3c7foj34c3jj973hjkop2fc937e3443.

PHP Session

- A PHP session is easily started by making a call to the **session_start()** function. This function first checks if a session is already started and if none is started then it starts one. It is recommended to put the call to **session_start()** at the beginning of the page.
- Session variables are stored in associative array called **$_SESSION[]**. These variables can be accessed during lifetime of a session.
- Make use of **isset()** function to check if session variable is already set or not.

Session Operations

- Start Session
- Retrieve Session Variable Values
- Modify Session variable values
- Destroy Session: A PHP session can be destroyed by **session_destroy()** function. This function does not need any argument and a single call can destroy all the session variables. If you want to destroy a single session variable then you can use **unset()** function to unset a session variable.

What is a Database?

- A database is a separate application that stores a collection of data.
- Each database has one or more distinct APIs for creating, accessing, managing, searching and replicating the data it holds.

It comes in two flavors:

- **A flat database**
- **A relational database**

Relational databases

A **Relational DataBase Management System (RDBMS)** is a software that –

- Enables you to implement a database with tables, columns and indexes.
- Guarantees the Referential Integrity between rows of various tables.
- Updates the indexes automatically.
- Interprets an SQL query and combines information from various tables.

MySQL Database

- MySQL is the most popular Open Source Relational SQL Database Management System.
- MySQL is developed, marketed and supported by MySQL AB, which is a Swedish company.
- It works in perfect harmony with PHP, Perl, Python and other languages.

Benefits of MySql

- MySQL is released under an open-source license. So you have nothing to pay to use it.
- MySQL is a very powerful program in its own right.
- It handles a large subset of the functionality of the most expensive and powerful database packages.
- MySQL uses a standard form of the well-known SQL data language.
- MySQL works on many operating systems and with many languages including PHP, PERL, C, C++, JAVA, etc.
- MySQL works very quickly and works well even with large data sets.
- MySQL is very friendly to PHP, the most appreciated language for web development.
- MySQL supports large databases, up to 50 million rows or more in a table. The default file size limit for a table is 4GB, but you can increase this (if your operating system can handle it) to a theoretical limit of 8 million terabytes (TB).
- MySQL is customizable. The open-source GPL license allows programmers to modify the MySQL software to fit their own specific environments

Using MySQL with PHP

- Php's strongest feature is its capability interface with a database. Connecting to the internet has never been easy.
- PHP supports many of the most popular database servers in the market including PHP.

PHP mysqli_connect function

The PHP mysql connect function is used to connect to a MySQL database server.

It has the following syntax.

<?php; $db_handle = mysqli_connect($db_server_name, $db_user_name, $db_password); ?>

PHP mysqli_select_db function

The mysqli_select_db function is used to select a database.

It has the following syntax.

```
<?php mysqli_select_db($db_handle,$database_name); ?>
```

PHP mysqli_query function

The mysqli_query function is used to execute SQL queries.
The function can be used to execute the following query types: Insert, Select, Update, delete

It has the following syntax.
<?php mysqli_query($db_handle,$query) ; ?>

PHP mysqli_num_rows function

The mysqli_num_rows function is used to get the number of rows returned from a select query.

It has the following syntax.

```
<?php mysqli_num_rows($result); ?>
```

PHP mysqli_fetch_array function

The mysqli_fetch_array function is used fetch row arrays from a query result set.

It has the following syntax.

```
<?php mysqli_fetch_array($result); ?>
```

PHP mysqli_close function

The mysqli_close function is used to close an open database connection.

It has the following syntax.

```
<?php mysqli_close($db_handle); ?>
```

OOP Programming with PHP

OOP stands for Object-Oriented Programming.

Object-oriented programming has several advantages over procedural programming:

- OOP is faster and easier to execute
- OOP provides a clear structure for the programs
- OOP helps to keep the PHP code DRY "Don't Repeat Yourself", and makes the code easier to maintain, modify and debug
- OOP makes it possible to create full reusable applications with less code and shorter development time

PHP - What are Classes and Objects?

A class is a template for objects, and an object is an instance of a class.

When the individual objects are created, they inherit all the properties and behaviours from the class, but each object will have different values for the properties.

Define a Class

A class is defined by using the class keyword, followed by the name of the class and a pair of curly braces ({})

Syntax:

```
<?php
class Fruit {
  // code goes here...
}
?>
```

Define Objects

Classes are nothing without objects! We can create multiple objects from a class. Each object has all the properties and methods defined in the class, but they will have different property values.

Objects of a class is created using the new keyword.
e.g. $apple = new Fruit();

Commom OOP Terminologies

$this Keyword: The $this keyword refers to the current object, and is only available inside methods.

instanceof: the instanceof keyword to check if an object belongs to a specific class

```
<?php
$apple = new Fruit();
var_dump($apple instanceof Fruit);
?>
```

OOP - Constructor

A constructor allows you to initialize an object's properties upon creation of the object.

If you create a __construct() function, PHP will automatically call this function when you create an object from a class.

Notice that the construct function starts with two underscores (__)!

OOP - Destructor

A destructor is called when the object is destructed or the script is stopped or exited.

If you create a __destruct() function, PHP will automatically call this function at the end of the script.

OOP - Access Modifiers

Properties and methods can have access modifiers which control where they can be accessed.

There are three access modifiers:

- public - the property or method can be accessed from everywhere. This is default
- protected - the property or method can be accessed within the class and by classes derived from that class
- private - the property or method can ONLY be accessed within the class

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