Introduction to PHP

Introduction to PHP

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Course webpage
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Outline

1. Introduction to website development
2. Introduction to PHP
3. Installing PHP
4. Running PHP Scripts
5. Basic Building Blocks

Introduction to Website Development

1. At its core, Web development is all about building websites

2. The foundation of every website is:

   - ***HTML:*** It's the **main file type** that is loaded in your browser when you look at a website. (Define the content)
   - ***CSS:*** You can add **colors** of all kinds, compelling **fonts**, and **layout** the website, add animations and draw shapes using more advanced CSS. (Specify the layout)
   - ***JavaScript:*** A programming language that allows you to **interact** with elements on the website and make website **dynamic.** (Program the behaviour of web pages)

3. A website may be a simple one page site, or it could be an incredibly complex web application

Introduction to Website Development (2)

A Simple explanation of how websites on the internet work:

1. ***Websites:***
   - A bunch of files stored on computer called servers
   - Google.com, Facebook.com, Baidu.com, Wikipedia.org
2. ***Servers:***
   - Computers that are used to host websites.
   - These servers are connected to the giant network called www (or internet)
   - GoDaddy, Bluehost, SiteGround, BigRock
3. ***Browsers:***
   - Program that you run on your computer.
   - They load the website files via your internet connection.
   - Client(your computer) which connects to the server
   - Chrome, Firefox, Internet Explorer, Opera

Introduction to Website Development (2)

A Simple explaination of how websites on the internet work:

1. ***Websites:*** { **whois –** to know domain details }
   - A bunch of files stored on computer called servers
   - Google.com, Facebook.com, Baidu.com, Wikipedia.org
2. ***Servers:*** { **hostingchecker.com –** to know hosting details }
   - Computers that are used to host websites.
   - These servers are connected to the giant network called www (or internet)
   - GoDaddy, Bluehost, SiteGround, BigRock
3. ***Browsers:*** { **gs.statcounter.com –** to know Browser market share}
   - Program that you run on your computer.
   - They load the website files via your internet connection.
   - Client(your computer) which connects to the server
   - Chrome, Safari, Firefox, Opera

Front End and Back End

1. **Front End** (Client-Side)
   - Refers to what is loaded by the user's browser(client)
   - Involves making the site behave in a way that makes sense to user.
   - It is all about user interface(UI), user experience(UX).
   - HTML, CSS, JavaScript

2. **Back End** (Server Side)
   - All about functionality and making sure everything works
   - Handling request to the **server and database**
   - Also involves setting up website on server, handling deployment, and setting up SQL database.
   - PHP, JSP, ASP.NET, NodeJS

Developers@2020

Front End -: **10%**

Back End -: 20%

Full Stack -: 70%

Front End and Back End

Website Building Tools

1 Editors
- Text Editors (Notepad, gedit)
- IDE's (Netbeans, MS Visual Studio, Dreamweaver)

2 CSS Frameworks
- Bootstrap
- Sass(Syntactically Awesome style sheets)

3 JavaScript Frameworks
- AngularJS
- React
- Vue.js

4 Server Side Programming
- PHP (83.2 %)
- ASP.NET (13.9 %)
- Java (2.4 %)
- Others(~2%)

5 PHP Frameworks/CMS
- Wordpress (59.7 %)
- Joomla (6.7 %)
- Drupal (4.7 %)
- Magento (2.3 %)

Introduction to PHP

- PHP is an acronym for "PHP: Hypertext Preprocessor", was originally created by Rasmus Lerdorf in 1994.
- PHP is a widely-used, open source, server side scripting language.
- A powerful tool for making dynamic and interactive Web pages.
- PHP files can contain text, HTML, CSS, JavaScript, and PHP code.
- PHP code is executed on the server, and the result is returned to the browser as plain HTML
- PHP files have extension ".php"
- Currently, there are three supported versions of PHP, i.e PHP 5.6, 7.0 and 7.1.

What Can PHP Do?

- PHP can generate dynamic page content
- PHP can create, open, read, write, delete, and close files on the server
- PHP can collect form data
- PHP can send and receive cookies
- PHP can add, delete, modify data in your database
- PHP can be used to control user-access
- PHP can encrypt data

Why PHP?

- PHP runs on various platforms (Windows, Linux, Unix, Mac OS X, etc.)
- PHP is compatible with almost all servers used today (Apache, IIS, etc.)
- PHP supports a wide range of databases (MySQL, Oracle, PostGreSQL, etc.)
- PHP is free. Download it from the official PHP resource: www.php.net
- PHP is easy to learn and runs efficiently on the server side.

Installing PHP (Ubuntu)

1. Update and Upgrade packages
   - sudo apt-get update
   - sudo apt-get upgrade
2. Install Server (Apache2)
   - sudo apt-get install apache2
3. Install PHP
   - sudo apt-get install php
4. Install DBMS (MySQL)
   - sudo apt-get install mysql-server mysql-client
5. Install PHPMyAdmin[optional]
   - sudo apt-get install phpmyadmin

Running PHP (Ubuntu)

1 Where to save you PHP file.

- Save your PHP file under **/var/www/html/** directory
- Example: *hello.php file* will be saved inside **/var/www/html/hello.php**

2 How to run you PHP file (when saved under /var/www/html/)

- http://localhost/hello.php

3 How to run you PHP file (when saved under any sub folder)

- http://localhost/MyFolder/hello.php

* To start/stop apache2 server(sometimes you may need to do it)

- sudo service apache2 stop/start/restart or
- sudo /etc/init.d/apache2 stop/start/restart

PHP Syntax

- A PHP script can be placed anywhere in the document.
- A PHP file normally contains HTML tags, and some PHP scripting code.
- A PHP script starts with **<?php** and ends with **?>**
- The default file extension for PHP files is **".php"**.
- PHP statements end with a semicolon (;) .
- In PHP, keywords, classes, functions, and user-defined functions are **case-insensitive.**
- However; all variable names are **case-sensitive**!

```
<?php
// PHP code goes here
?>
```

A sample PHP script: **hello.php**

- Example of simple **hello.php** file

```
<!DOCTYPE html>
<html>
<body>
<h1>My first PHP page</h1>
<?php
echo "Hello World!" ;
?>
</body>
</html>
```

1. Write your PHP script using any editor preferably **gedit**:

2. Save your program as **hello.php** under:
   /var/www/html/

3. To run your script, open the browser and type:
   localhost/hello.php

Comments in PHP

- A comment in PHP code is a line that is not executed as a part of the program.

```
<!DOCTYPE html>
<html>
<body>
<?php
// This is a single-line comment

# This is also a single-line comment

/*
This is a multiple-lines comment block that spans
over multiple lines
*/

?>
</body>
</html>
```

Variables in PHP

- Variables are ”containers” for storing information
- In PHP, a variable starts with the **$** sign, followed by the **name** of the variable:

```
<?php

$name = "Rohit Sharma";

$age = 32;

$salary = 100000.00;

print "<h2>Output: </h2><br/>";
echo "My Fav Cricketor is $name !";

?>
```

R1 A variable starts with the $ sign, followed by the name of the variable.

R2 A variable name must start with a letter or the underscore character.

R3 A variable name cannot start with a number.

R4 A variable name can only contain alpha-numeric characters and underscores (A-z, 0-9, and _)

R4 Variable names are case-sensitive ($age and $AGE are two different variables)

Data Types in PHP

- Variables can store data of different types and different data types can do different things. PHP supports the following data types:

- **String** // $name = "Amitabh Bachchan";
- **Integer** // $year=2020;
- **Float (floating point numbers - also called double)** // marks = 50.5;
- **Boolean** // $test = true;
- **Array** // $city = array(“Shimla”, “Manali”, “Kalpa”, “Dharamshala”);
- **Object**
- **NULL** // $x = null;
- **Resource**

- The PHP **var_dump( )** function returns the data type and value:

Operators in PHP

- Operators are used to perform operations on variables and values.

• **Arithmetic operators**	**[+, - , * , / , %, **]**	**// $x ** $y;**
• **Assignment operators**	**[=, += , -=, *= , /= , %=]**	**// $x *= $y;**
• **Comparison operator**	**[==, != , >, < , >= , <=]**	**// $x >= $y;**
• **Increment/Decrement operators**	**[++, --]**	**// $x++; --$y;**
• **Logical operators**	**[and, or, xor, &&, ||, !]**	**// $x && $y**
• **String operators**	**[. , .=]**	**// $txt1 .= $txt2**
• **Array operators**	**[+, ==]**	**// $x + $y**
• **Conditional assignment operators**	**[?: , ??]**	**// $x = expr1 ? expr2 : expr3**

PHP Conditional Statements

1 The if statement

```
if (condition) {
    code to be executed if condition is true;
}
```

2 The if..else statement

```
if (condition) {
    code to be executed if condition is true;
} else {
    code to be executed if condition is false;
}
```

3 The if...elseif...else

```
if (condition) {
    code to be executed if this condition is true;
} elseif (condition) {
    code to be executed if first condition is false and this
condition is true;
} else {
    code to be executed if all conditions are false;
}
```

4 The switch statement (will be discussed later)

PHP Conditional Statements - Example

1 The if statement

```
<?php
$t = 15;
if ($t < "20") {
   echo "Have a good day!";
}
?>
```

2 The if..else statement

```
<?php
$t = 15;
if ($t < "20") {
   echo "Have a good day!";
} else {
   echo "Have a good night!";
}
?>
```

3 The if...elseif...else

```
<?php
$t = 15;
if ($t < "10") {
   echo "Have a good morning!";
} elseif ($t < "20") {
   echo "Have a good day!";
} else {
   echo "Have a good night!";
}
?>
```

4 The switch statement (will be discussed later)

The switch statement

- Use the switch statement to select one of many blocks of code to be executed.

```
switch (n) {
    case label1:
        code to be executed if n=label1;
        break;
    case label2:
        code to be executed if n=label2;
        break;
    case label3:
        code to be executed if n=label3;
        break;
    ...
    default:
        code to be executed if n is
different from all labels;
}
```

```
<?php
$favcolor = "red";
switch ($favcolor) {
    case "red":
        echo "Your favorite color is red!";
        break;
    case "blue":
        echo "Your favorite color is blue!";
        break;
    case "green":
        echo "Your favorite color is green!";
        break;
    default:
        echo "Your favorite color is neither red,
blue, nor green!";
}
?>
```

PHP Loops

1 The while loop

```
while (condition is true) {

   code to be executed;

}
```

2 The do...while Loop

```
do {

   code to be executed;

} while (condition is true);
```

3 The for loop

```
for (init counter; test counter; increment counter) {

   code to be executed for each iteration;

}
```

3 The foreach loop

```
foreach ($array as $value) {

  code to be executed;

}
```

# The foreach loop works only on arrays, will discuss later

PHP Loops - Examples

1 The while loop

```
<?php
$x = 1;
while($x <= 5) {
    echo "The number is: $x <br>";
    $x++;
}
?>
```

2 The do...while Loop

```
<?php
$x = 6;
do {
    echo "The number is: $x <br>";
    $x++;
} while ($x <= 5);
?>
```

3 The for loop

```
<?php

for ($x = 0; $x <= 10; $x++) {

    echo "The number is: $x <br>";

}

?>
```

PHP Strings

- A string is a sequence of characters, like "Hello world!" or ‘Hello world!’
- strlen() - Return the Length of a String

```
echo strlen("Hello world!");                    // outputs 12
```

- str_word_count() - Count Words in a String

```
echo str_word_count("Hello world!");            // outputs 2
```

- strrev() - Reverse a String

```
echo strrev("Hello world!");                    // outputs !dlrow olleH
```

- strpos() - Search For a Text Within a String

```
echo strpos("Hello world!", "world");           // outputs 6 , If no match is found, it will return FALSE.
```

- str_replace() - Replace Text Within a String

```
echo str_replace("world", "India", "Hello world!");          // outputs Hello India!
```

References

R Reference for this topic

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