Session 2

PHP Basics and Syntax

Session Overview

In this session, learners would be able to:

- Describe system requirements for running PHP
- Explain installation process of PHP on different platforms
- Outline basics of PHP
- Compare various tags of PHP
- Explain how PHP works with HTML
- Illustrate how to write and run PHP scripts
- Explain how to add comments in PHP

PHP Installation [1-6]

System Requirements to run PHP are:

1. A Web Server such as Apache

2. PHP Interpreter

3. A Database such as MySQL

PHP Installation [2-6]

XAMPP

WAMP

LAMP

MAMP

PHP Installation [3-6]

Apache HTTP Server

- It runs the open source Web server on Windows or Linux. When Apache Web server is running on a local Windows/Linux machine, it is possible to test Web pages locally by a developer in a browser.

MySQL

- Open-source relational database

PHP

- Scripting language that can be utilized to access data from the high-speed database such as MySQL.

PHP Installation [4-6]

Web Server:

For executing PHP code, the user requires access to a Web server in which the PHP interpreter is running. The user has three options to choose from.

Option 1:

In this option, users must either install Apache and PHP from their open source respective Websites or install an all-in-one package (such as WAMP, LAMP, MAMP, or XAMPP) according to the choice of their OS.

PHP Installation [5-6]

Post-installation, following actions can be performed:

- Launch Apache Server and PHP from the program list. In the Apache installation folder, the user will find the *www* directory.
- Create and save PHP scripts or create project folders in the *www* directory.
- Open any browser and execute the scripts by typing *http://localhost/filename.php*.

PHP Installation [6-6]

Option 2: Install PHP and MySQL from their open source respective Websites, create appropriate scripts, and then, find a Web hosting plan with Apache, PHP, and MySQL support to execute your PHP scripts on the Web host.

Option 3: The user can also make use of the interface at *http://www.runphponline.com* to interpret PHP code online without installing anything locally except an editor to create PHP scripts. However, this approach is not feasible for large applications or frequent use.

Installation of PHP on Windows 8.0 and Higher Versions

The minimum requirement for PHP is at least Windows 2008/Vista, either 32-bit or 64-bit.

Windows 2008 or Vista are not supported from PHP 7.2.0 onwards. PHP requires the Visual C Runtime (CRT). Since many applications require it, the chances are that it may already be installed.

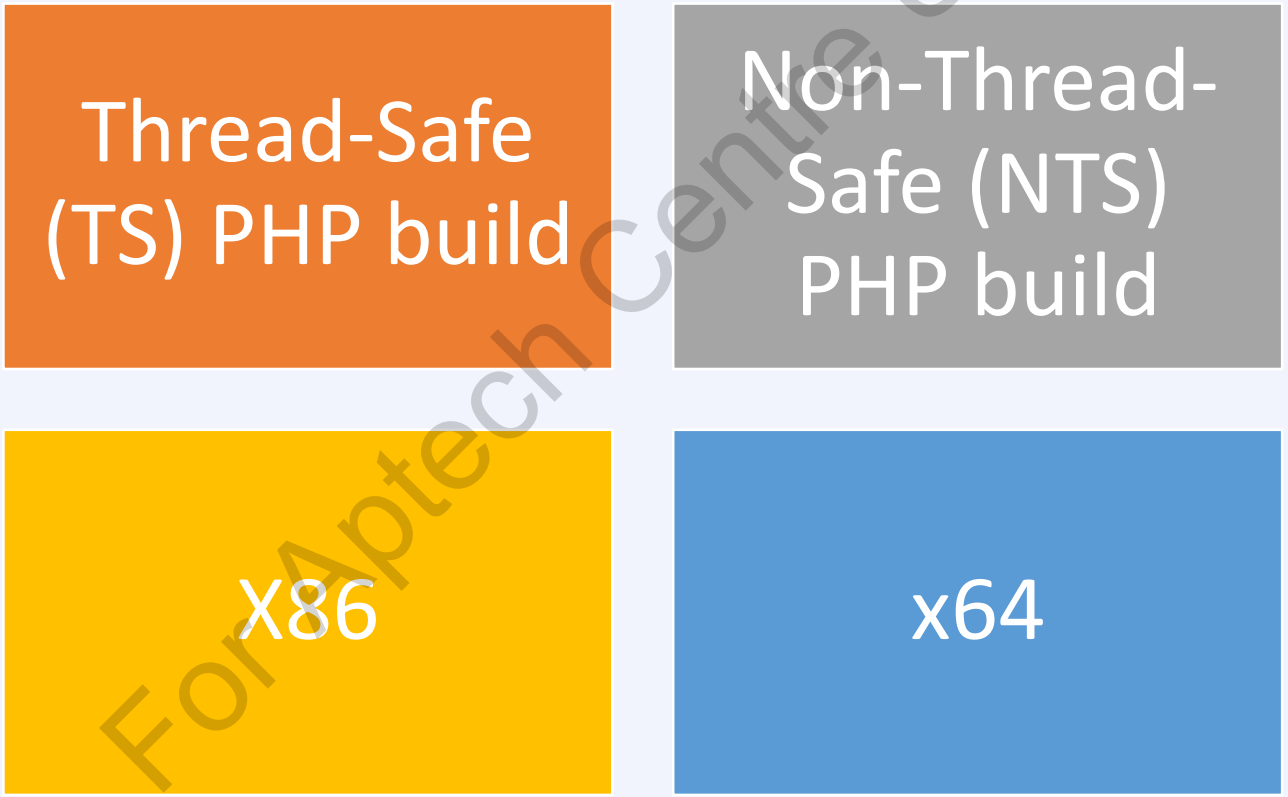
Manual PHP Installation on Windows [1-2]

1. Choose Web Server Apache: There exist several builds of Apache 2 for Windows. It is recommended that the user should use the Apache builds of Apache Lounge. Other options include BitNami, XAMPP, and WampServer. These three offer automatic installer tools.

2. Choose Source Build of PHP: Windows-based builds of the latest versions of PHP can be downloaded from *http://windows.php.net/download/*.

Manual PHP Installation on Windows [2-2]

There are four types of PHP builds:



Apache 2.4 on Microsoft Windows

There are three ways to set up PHP and make it work with Apache 2.4 on the Windows platform:

- PHP can be run as a handler
- PHP can run as a CGI
- PHP can run under FastCGI

Option 1: Installing as an Apache Handler

Step 1: To load the PHP module for Apache 2.4, following lines in the Apache `httpd.conf` configuration file must be inserted:

```
LoadModule php_module "c:/php/php8apache2_4.dll"
<FilesMatch \.php$>
    SetHandler application/x-httpd-php
</FilesMatch>
```

Step 2: configure the path to php.ini

```
PHPIniDir "C:/php"
```

Option 2: Running PHP as CGI

The PHP-CGI files must be placed in a directory designated as a CGI directory using the `ScriptAlias` directive, to execute PHP as CGI.

Example: PHP and Apache 2.x as CGI

```
#!C:/php/php.exe
<?php
  phpinfo();
?>
```

This code shows the location of PHP binary files

Option 3: Running PHP under FastCGI

Obtain and install `mod_fcgid` from https://www.apachelounge.com and configure the Web server as shown in the following example and also take care to adjust any paths:

```
LoadModule fcgid_module modules/mod_fcgid.so
# Where is your php.ini file?
FcgidInitialEnv PHPRC "c:/php"
<FilesMatch \.php$>   /* code to configure PHP and will run program using
SetHandler fcgid-script FastCGI wrapper*/
</FilesMatch>
FcgidWrapper "c:/php/php-cgi.exe" .php
```

Once completed, the files with a .php extension will now be executed by the PHP FastCGI wrapper.

Install Apache with PHP 8.0 on Windows

The Apache server can be downloaded from:
www.apache.org/dist/httpd/binaries/win32

It is advised to download the current version of the stable release with the `no_src.msi` extension.

PHP Installation on MacOS X with Apache

Homebrew package management system provides the quickest installation of PHP on MacOS.

- Go to the Homebrew site (https://brew.sh/) and install homebrew.
- Use following command to start the installation:

```
brew install php
```

The user can also refer to following alternative resources for easy-to-install packages and precompiled binaries for PHP on MacOS:

- MacPorts: http://www.macports.org/
- Fink: http://www.finkproject.org/

PHP Installation on Linux and Unix with Apache

PHP can be installed on UNIX variants or Linux. It requires following pre-requisites:

- The PHP source distribution for version 8

  http://www.php.net/downloads.php
- Latest Apache source distribution
- Database, if required (such as MySQL, Oracle, and so on)
- make utility - you can freely download it at

  http://www.gnu.org/software/make

Installation of Apache and PHP 8 on Linux /Unix [1-3]

Step 1: Unzip and extract the tar files of the Apache source distribution.

Step 2: Configure Apache Server.

Step 3: Unzip and extract the tar files of the PHP source distribution.

Installation of Apache and PHP 8 on Linux /Unix [2-3]

Step 4: If a MySQL database is being used, configure PHP to work it

Step 5: The php.ini file must be installed and edited to get configuration directives

Step 6: Edit httpd.conf to inform Apache server where to serve files from and what extension(s) to identify PHP files.

Installation of Apache and PHP 8 on Linux/Unix [3-3]

Step 7: The user can add at least one PHP extension directive, followed by a second handler to parse all HTML files as PHP.

Step 8: Restart server. Whenever user changes HTTP configuration or php.ini file, the server must be stopped and restarted again.

Step 9: Finally, create and test a simple PHP script similar to how it was described in earlier steps.

PHP Basics

PHP is used commonly for building highly dynamic and interactive Web pages for a robust user experience.

It also communicates with the databases and provides with better flexibility and simplicity.

Writing PHP Scripts

The basic structure of a PHP script mainly consists of following:

- PHP Start and End Tags
- PHP code with HTML markup
- Comments in PHP (optional)

PHP Tags

A PHP code block starts with `<?php` tag and ends with `?>` tag.

Syntax for declaring PHP tags is as follows:

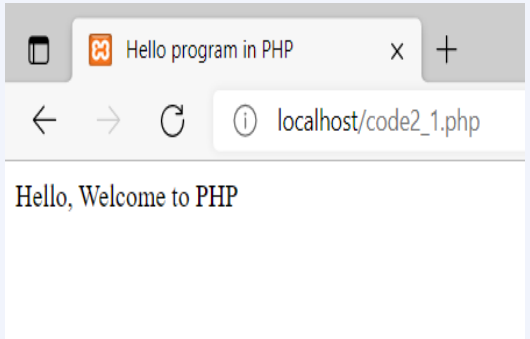
```
<?php
    //your php code goes here
?>
```

PHP with HTML

PHP has been designed to work with HTML. Therefore, the user can easily write and embed PHP code within HTML and vice versa.

Example:

```
<!DOCTYPE html>
<html lang="en">
<title>Hello program in PHP</title>
<body>
<?php echo "Hello, Welcome to PHP"; ?>
</body>
</html>
```



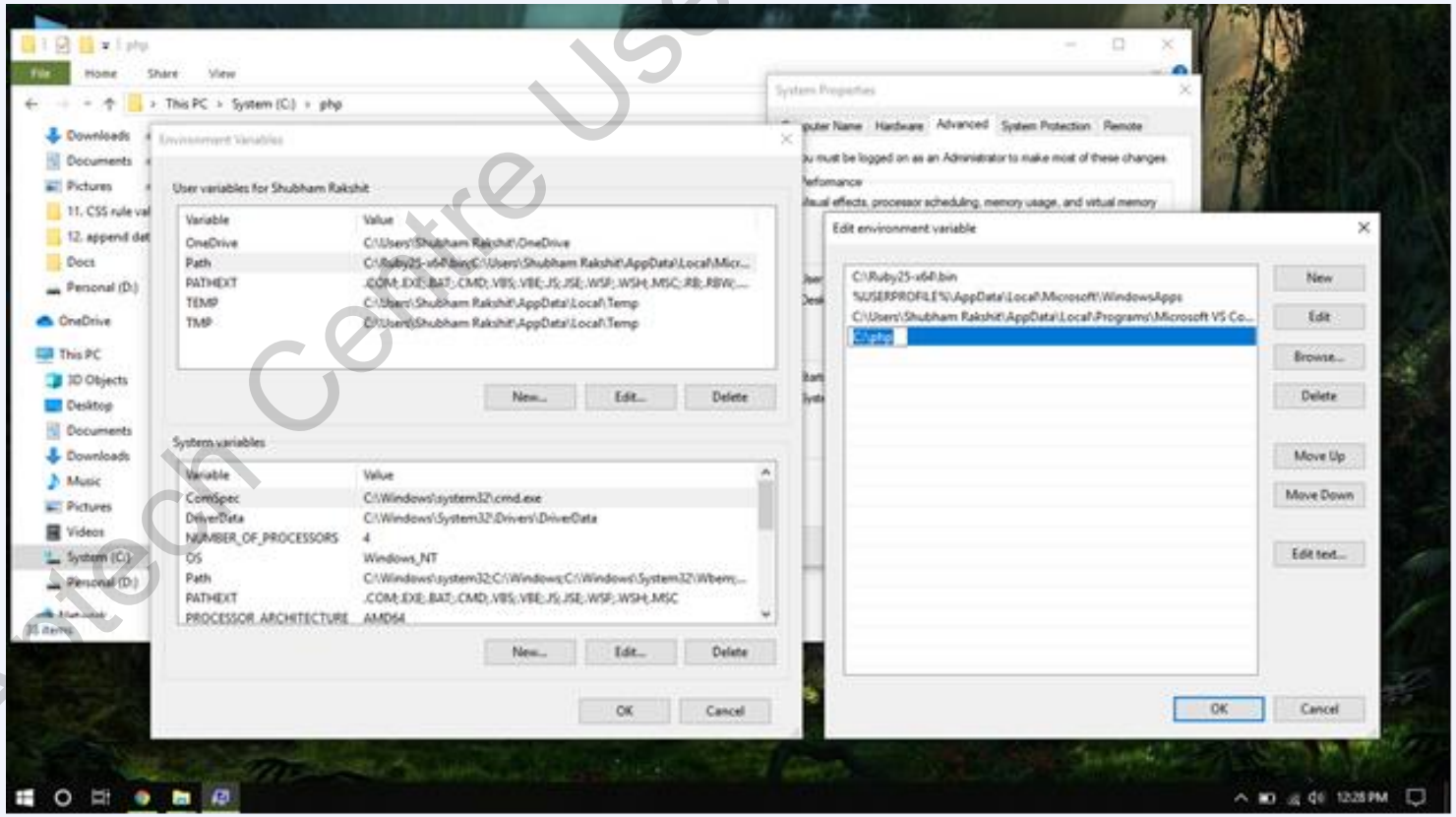
Executing PHP Scripts

To run or execute a PHP program, the user must save the code to the Web server under the www or htdocs directory (depending on how the installation is done) with a .php or .html extension (if PHP is embedded within HTML). Once it is done, the server has to be started.

Users can also run or execute a PHP script on the command prompt without the HTML tags.

Running PHP Script from Command Prompt [1-2]

Users must add the PHP installation path (such as C:\php) to the system environment variable paths for it to become accessible from the command prompt.



Running PHP Script from Command Prompt [2-2]

Once the environment variable has been set, users can run PHP script from command prompt. Consider the program1.php has a code as shown here:

```
<?php
 echo "Hello, Welcome to PHP!";
?>
```

The script can be executed from command prompt as follows:

```
D:\php_project> php program1.php
Hello, Welcome to PHP!
```

Comments in PHP

Code Snippet:

```
<html>
<body>
<?php
// This is a single line commented text, and
# This is another single line commented text
/*
This is
a Multi-line comment
*/
echo 'This script made use of comments in PHP';
?>
</body>
</html>
```

Summary

- Users require a Web Server, PHP interpreter, and optionally database installed on their local machines to run PHP.
- PHP installations can be done on various operating systems such as Windows, Linux, and macOS.
- There are all-in-one packages such as LAMP, WAMP, and XAMPP that facilitate easy installation of Apache Web server, PHP, and MySQL.
- The basic structure of a PHP script mainly consists of PHP start and end tags, PHP code with HTML markup, and optionally comments.
- The echo command displays the output data to the browser.
- PHP interpreter ignores the execution of the comment block.
- PHP scripts can be executed on the command prompt without the HTML tags.