Web Design & Programming

PHP

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History

- PHP: Hypertext Preprocessor was created by Rasmus Lerdorf in 1994.
- Initially created for some personal needs, it grew into a full language, with formal specifications.
- The language itself is PHP, the scripting engine used to interpret it is named Zend.
- PHP is very popular; many versions have been released (from 1 to 5). Version 7.3 and 7.4 are still maintained. The most current branch is version 8.

PHP as a language

- Interpreted, not compiled
- Case sensitive
- PHP code must be defined between the `<?php ... ?>` tags
- Instructions ends with a semicolon
- General syntax close to C/C++/Java
- Object-oriented approach is possible
- Syntax is not always consistent

Variables

- You don’t need to specify the variable type.
- Variable names always begin with the dollar sign ($).
- Names are case-sensitive and can contain only the following characters: a-z, A-Z, 0-9 and the underscore symbol.

Superglobal Variables

PHP provides specific variables connected to the web server and HTTP traffic:

$_GET	HTTP GET method
$_POST	HTTP POST method
$_FILES	uploaded files
$_COOKIE	HTTP cookies
$_SESSION	session information
$_SERVER	web server information
$_ENV	script environment information

Using Superglobal Variables

Since the Superglobal Variables are not set under your control, you must **always** sanitize their content before using them:

- Check for valid inputs (types, expected values, regular expressions, …).
- Use the htmlentities function to convert any HTML code.

“If” and “If/Else” Statements

```
if (test)
{
    code;
}
```

```
if (test)
{
    code;
}
else
{
    code;
}
```

“Switch” Statement

```
switch ($variable)
{
case “one”:
      code;
break;
case “two”:
      code;
break;
case “three”:
      code;
break;
default:
      code;
}
```

“While” loop

```
while (test)
{
    code;
}
```

“Do While” Loop

```
do
{
    code;
}
while (test);
```

“For” Loop

```
for (initialization; test; increment)
{
    code;
}
```

“ForEach” Loop

```
foreach (variableList as variable)
{
    code;
}
```

Useful Functions

- date and time
- is_(something) *(variable testing)*
- include/include_once and require/require_once
- htmlentities
- str_(something) *(string functions)*
- preg_(something) *(regular expressions)*
- mb_(something) *(multibyte characters / Unicode)*

Working with Templates

- You can rely on templates to ensure consistency across all pages on your website, this will provide a better experience for the end-users and simplify the site maintenance.
- When prototyping your website, identify content that is identical across multiple pages (header, footer, navigation menus, etc.). Then create files that can be included in all pages to maintain only one version of that content.
- Ideally most of the page structure should be provided by a template; only the actual content should differ from one page to another.

Apache HTTPD and PHP

- PHP needs to be installed as a module:
  - `yum/apt install php`
- PHP rely on the `php.ini` configuration file (and optionally others).
- Use `phpinfo()` to check your installation and configuration; results should not be accessible publicly.

PHP Modules

- Additional modules can be used to extend the core PHP installation.
- Additional feature are available through two projects:
  - PEAR, for PHP components - `https://pear.php.net/`
  - PECL for PHP (and C) extensions - `http://pecl.php.net/`

Databases Access

- PHP can be used to access various types of databases, relying on the PDO extension (*PHP Data Objects*).
- Once the database access has been opened, regular SQL commands can be used.
- MySQL and MariaDB are the most common databases used with PHP.
- Databases can be accessed over the network (when the web server and the database server are not running on the same system).
- Proper credentials and permissions are generally required.

LAMP

- When using the following component, a server is sometimes referred to as a “LAMP Server”:
  - Linux
  - Apache HTTPD
  - MySQL
  - PHP
- Variants are possible.

- PHP Logo: Wikimedia Commons
  https://commons.wikimedia.org/wiki/File:PHP-logo.svg