<?php   // Introducing PHP
Overview and Top 5 Best Practices

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Language Overview

PHP is the **P**HP: **H**ypertext **P**reprocessor

- More than a fancy acronym
  - "...a widely-used open source general-purpose scripting language that is especially suited for web development and can be embedded into HTML"

- Syntax and concepts
  - Borrows from other languages – mostly C, Perl and Java
  - Combined with PHP's own innovations
  - Embedded using **<?php** and **?>** tags

- Able to run in multiple environments
  - Web server – similar to CGI or Server-Side-Includes
  - Command line – similar to shell scripting or batch files

- Very well suited for web/internet applications

Architectural Overview

Apache/MySQL/PHP: The Cartel

- **AMP**: Acronym for three key software components
- Basis of modern, dynamic, web/internet applications

Apache	**Provides the transit**
MySQL	**Provides the data**
PHP	**Provides the processing – the "glue"**

"More internet applications speak PHP than any other"
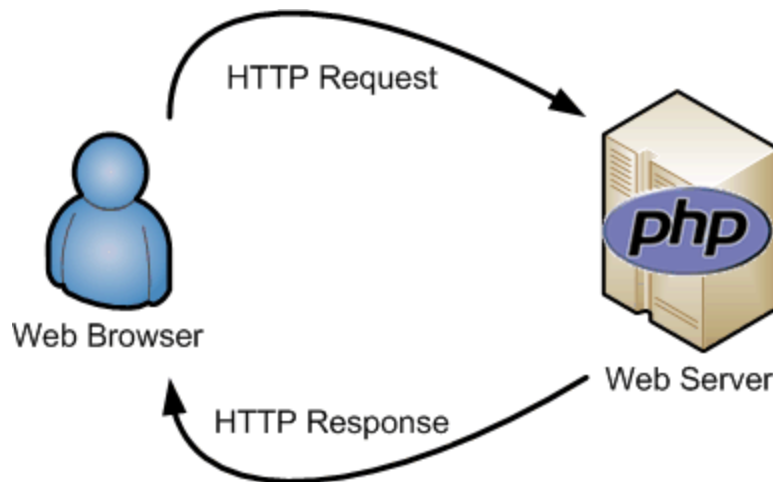
Working on the Web - HTTP

Web Server – Trafficking Partner

- PHP is designed to handle HTTP communication
  - **HTTP** is the **H**yper**T**ext **T**ransfer **P**rotocol, used for exchanging information on the WWW
  - Optionally encrypted for secure communication - **HTTPS**

Working on the Web - HTML
HTML – The "Goods"

- PHP is designed to process hypertext
  - **HTML** is the **H**yper**T**ext **M**arkup **L**anguage, used for giving structure to the information exchanged on the WWW

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"....>
<html>
    <head>  <title>Hello World</title>  </head>
    <body>
        <b>
        <?php
            echo 'Hello World!';
        ?>
        </b>
        <?php
            echo 'At the tone, the time will be: '.date('r');
        ?>
    </body>
</html>
```

Working on the Web - SQL

SQL – The "Supplier"

- ## PHP is designed to communicate with databases

  - ...and other data sources...

  - **SQL** is the **S**imple **Q**uery **L**anguage, used for manipulating and retrieving data

```
SELECT FirstName,LastName,
       DATE_FORMAT(DoB,'%M, %D, %Y') AS DateOfBirth
  FROM Users
 WHERE STRTOUPPER(LEFT(FirstName,1)) = 'H'
```
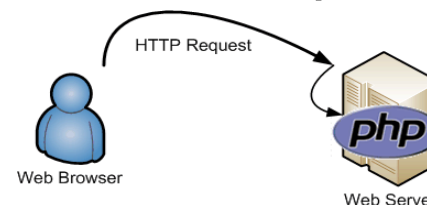
- ## SQL is also used for complex or "relational" data

```
SELECT FirstName,LastName,Address1,Address2
  FROM Users,Address
 WHERE R_UserID=UserID
   AND STRTOUPPER(LEFT(FirstName,1)) = 'H'
```

Putting It All Together

Your Cast – Apache / MySQL / PHP

- Web browser uses HTTP to make web server request

- Web server passes control to PHP

- PHP uses SQL to query the database and fetch data

```php
<?php

$Result = mysql_query("SELECT FirstName,LastName,
                              DATE_FORMAT(DoB,'%M, %D, %Y') AS DateOfBirth
                       FROM Users
                       WHERE STRTOUPPER(LEFT(FirstName,1)) = 'H'",$MYDBR);

$ResultCount = mysql_num_rows($Result);
$ResultArray = array();

for( $i = 0; $i < $ResultCount; ++$i )
{
    $ResultArray[$i] = mysql_fetch_assoc($Result);
}
?>
```

Putting It All Together

The Finale

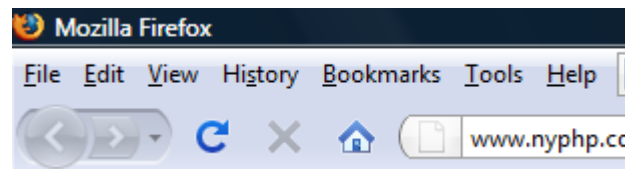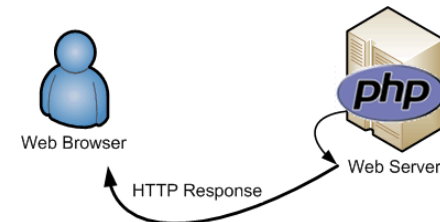- PHP manipulates returned data and processes HTML

```
<!DOCTYPE...>
<ul>
    <?php foreach( $ResultArray as $Key => $Row ): ?>
     <li><?=$Row['LastName']?>, <?=$Row['FirstName']?>  (<?=$Row['DateOfBirth']?>)</li>
    <?php endforeach; ?>
</ul>
```

- PHP and the web server use HTTP to respond

- Web browser receives HTML and displays the results

Web Browser

HTTP Response

Web Server

Mozilla Firefox

File Edit View History Bookmarks Tools Help

www.nyphp.co

- King, Henry (June 28th, 1491)
- Lewis, Huey (July 5th, 1950)
- Zimmer, Hans (September 12th, 1957)

The Top 5 Best Practices
In No Particular Order

1. PHP is loosely typed and automatically converts between types (known as type casting). However, always consider variables typed and only allow type casting to happen explicitly. In fact, explicitly type casting variables can add a significant level of data validation and security.

   http://www.php.net/manual/en/language.types.type-juggling.php

2. Remember that PHP is a dynamic scripting language, allowing execution to jump between files during runtime. However, don't abuse lazily including other files – keep all include/require statements in a centralized place and always know what files you're including.

   http://www.php.net/manual/en/function.require.php
   http://www.php.net/manual/en/function.include.php

The Top 5 Best Practices
In No Particular Order

3. A typical PHP application will deal with a lot of external data, usually from unknown sources – especially someone's web browser, or worse, someone hand-crafting HTTP requests. PHP is on the front-line of security. Always be aware of where your data is coming from, what you'll be doing with it, and where it's going.

    http://www.php.net/manual/en/security.php

4. PHP is very forgiving with it's syntax, style and application structure. People on the web are not forgiving. Write clean, organized, and structured code, using the right tools for the job. Do not take shortcuts, depend on PHP's "**magic**" or convenience functionality, or force PHP into guessing what you want to do. You're the programmer – be specific..

    http://www.php.net/manual/en/tutorial.php

The Top 5 Best Practices

And the #1 Fifth Best Practice!

5. PHP's greatest strength and weakness is it's ease, power and flexibility. As a result, there is a lot of bad PHP code on the Internet, which is the source of PHP's bad reputation. A programming language is only as good as the programmer.
Look at most other publicly available PHP code and if it appears sloppy, do what you know is right. If you have experience in another programming language, use it. If not, take the time to properly learn some programming theory, involve yourself with experienced programmers in the community, learn about the other components of web development, and then apply it all to the PHP syntax.

Your applications will be more secure, more maintainable, and PHP literally becomes a joy to code in.

http://www.nyphp.org
http://httpd.apache.org
http://www.php.net
http://www.mysql.com