# PHP & MySQL (MariaDB))

Week 5

Recap

- What we did were all FRONT END / CLIENT SIDE Development for BROWSERS using CLIENT SIDE TECHNOLOGY – HTML, CSS and Javascript

  – HTML for data container

  – CSS for appearance and style

  – Javacript for client-side scripting / programming

  – Nowadays CSS & Javascript are used to enhance USER INTERFACE (UI) & USER EXERIENCE (UX)

Notice

- We are NOT DONE with Javascript but today let's not to think about it.

- Let's answer this question - Where do this web pages / or web apps come from?
  - We will answer this question by making our own web Server and making our own apps.

Where do we get those **web pages/apps**?
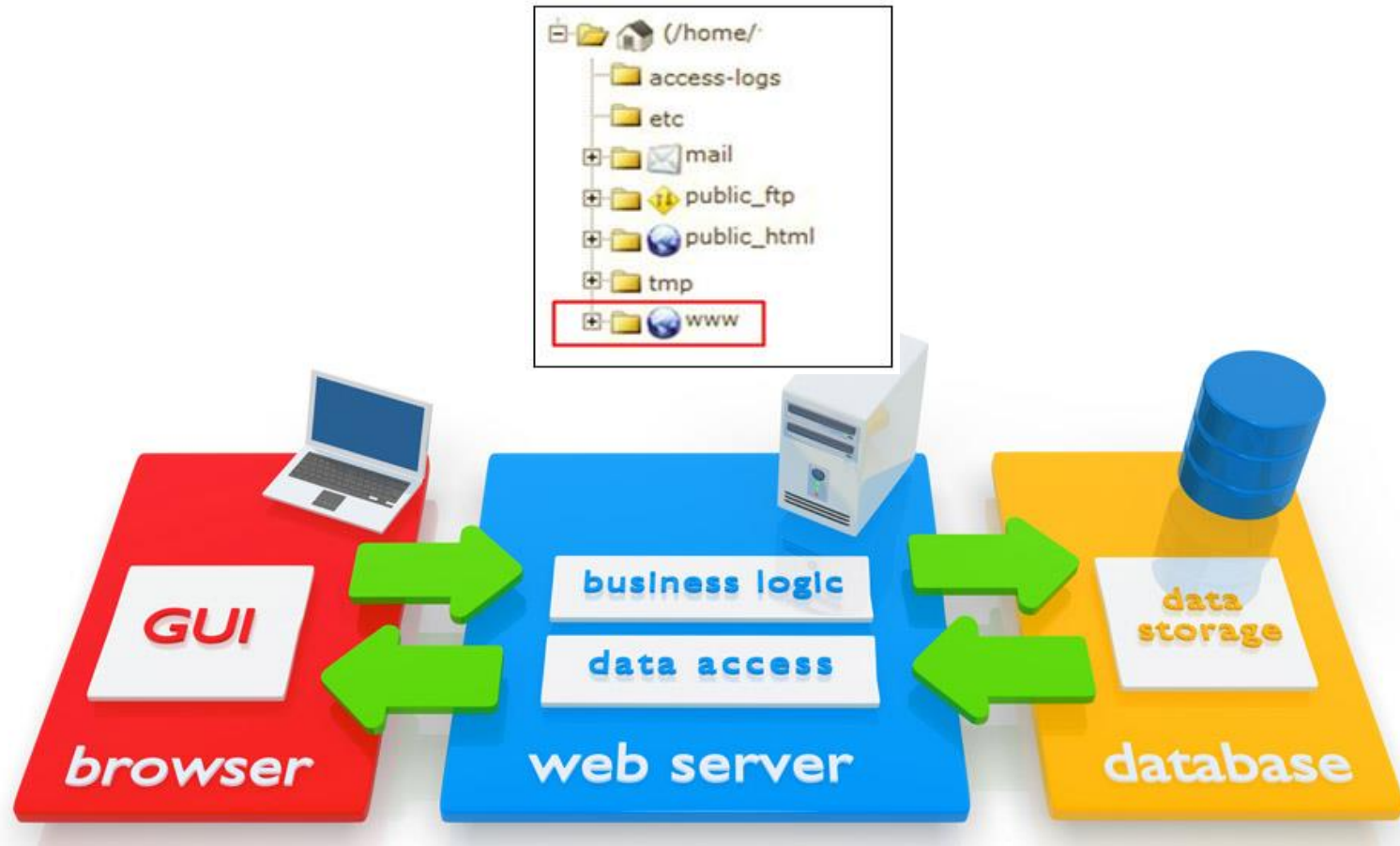
HTTP (Default Port: 80)
HTTPS (Default Port: 443)

```
#
# If your host doesn't have a registered DNS name, enter its IP address here.
#
ServerName localhost:80

#
# Deny access to the entirety of your server's filesystem. You must
# explicitly permit access to web content directories in other
# <Directory> blocks below.
#
<Directory />
    AllowOverride none
    Require all denied
</Directory>

#
# Note that from this point forward you must specifically allow
# particular features to be enabled - so if something's not working as
# you might expect, make sure that you have specifically enabled it
# below.
#

#
# DocumentRoot: The directory out of which you will serve your
# documents. By default, all requests are taken from this directory, but
# symbolic links and aliases may be used to point to other locations.
#
DocumentRoot "C:/xampp/public_html"
<Directory "C:/xampp/public_html">
    #
    # Possible values for the Options directive are "None", "All",
    # or any combination of:
    #   Indexes Includes FollowSymLinks SymLinksifOwnerMatch ExecCGI MultiViews
    #
    # Note that "MultiViews" must be named *explicitly* --- "Options All"
    # doesn't give it to you.
```

Server Common Ports

- 21 FTP
- 22 SSH
- 23 TELNET
- 25 SMTP
- 53 DNS
- **80 HTTP (Web Default)**
- 110 POP3
- 115 SFTP
- 135 RPC
- 139 NetBIOS

- 143 IMAP
- 194 IRC
- **443 SSL / TLS**
- 445 SMB
- 1433 MSSQL
- **3306 MySQL**
- 3389 Remote Desktop
- 5632 PCAnywhere
- 5900 VNC

First, What is a Server?

- In computing, a **server** is a **computer program** or a device that provides functionality for other programs or devices, called **"clients"**.
- Types
  - Application server
  - Catalog server
  - Database Server
  - File Server
  - Game Server
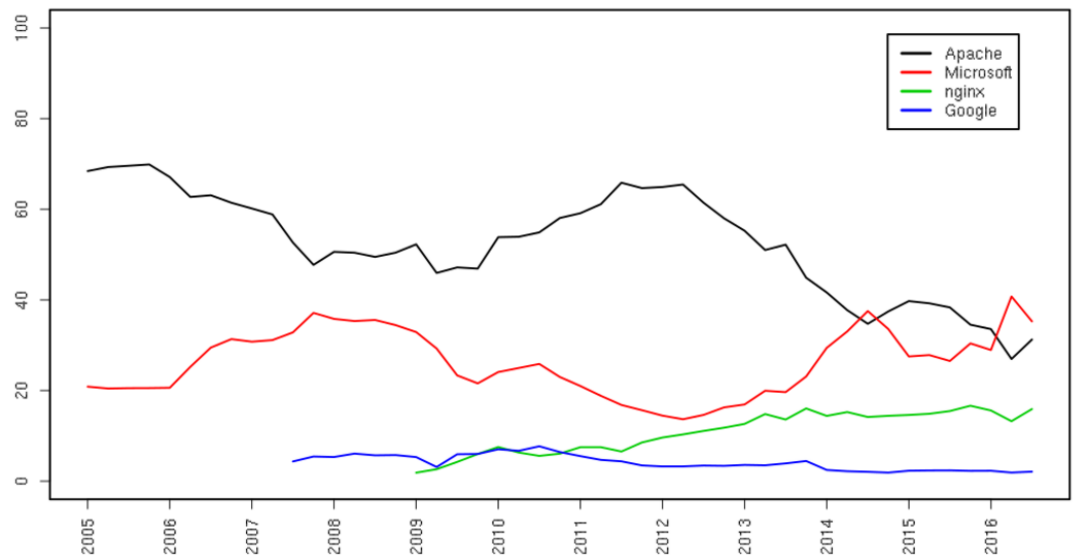 - Mail Server
  - Print Server
  - Proxy Server
  - Web Server

What is a web Server?

- The primary function of a web server is to **store**, **process** and **deliver web pages** to **clients**.

Browser on users computer

Internet
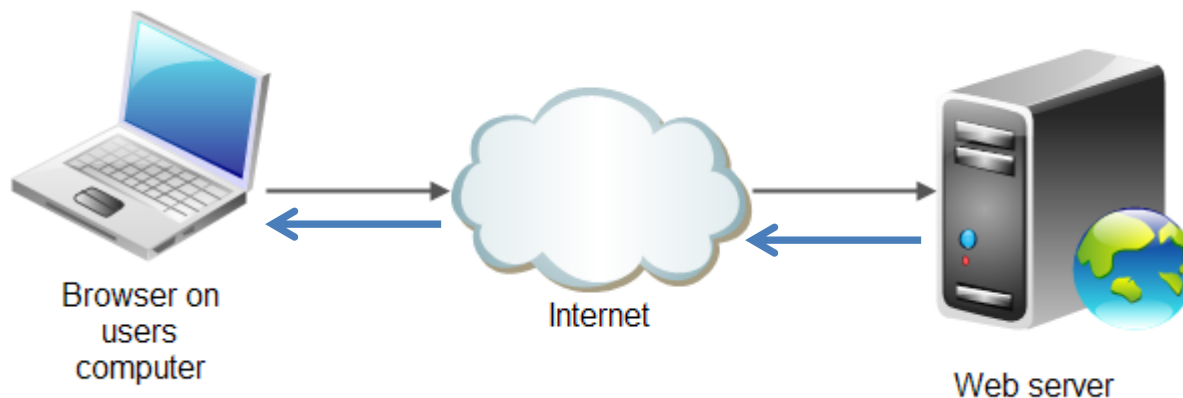
Web server

Top Web Servers

Source: Wikipedia

Product	Vendor	January 2017	Percent	February 2017	Percent	Change	Chart color
IIS	Microsoft	821,905,283	45.66%	773,552,454	43.16%	-2.50	red
Apache	Apache	387,211,503	21.51%	374,297,080	20.89%	-0.63	black
nginx	NGINX, Inc.	317,398,317	17.63%	348,025,788	19.42%	1.79	green
GWS	Google	17,933,762	1.00%	18,438,702	1.03%	0.03	blue

Product	Vendor	January 2016	Percent	February 2016	Percent	Change	Chart color
Apache	Apache	304,271,061	33.56%	306,292,557	32.80%	0.76	black
IIS	Microsoft	262,471,886	28.95%	278,593,041	29.83%	0.88	red
nginx	NGINX, Inc.	141,443,630	15.60%	137,459,391	16.61%	-0.88	green
GWS	Google	20,799,087	2.29%	20,640,058	2.21%	-0.08	blue

More on Web Servers

- What is a Web Server?

https://en.wikipedia.org/wiki/Web_server

- Comparison of Web Servers

https://en.wikipedia.org/wiki/Comparison_of_web_server_software

Node.js

- **Node.js** is an open-source, cross-platform **JavaScript run-time environment** for executing **JavaScript code server-side**. It is considered an Application Server, and can also be used as a Web Server.

- **Node.js enables JavaScript** to be **used for server-side scripting**, and runs scripts server-side to produce dynamic web page content before the page is sent to the user's web browser.

- WE WILL HAVE THIS when we study AngularJS and ReactJS

- https://en.wikipedia.org/wiki/Node.js
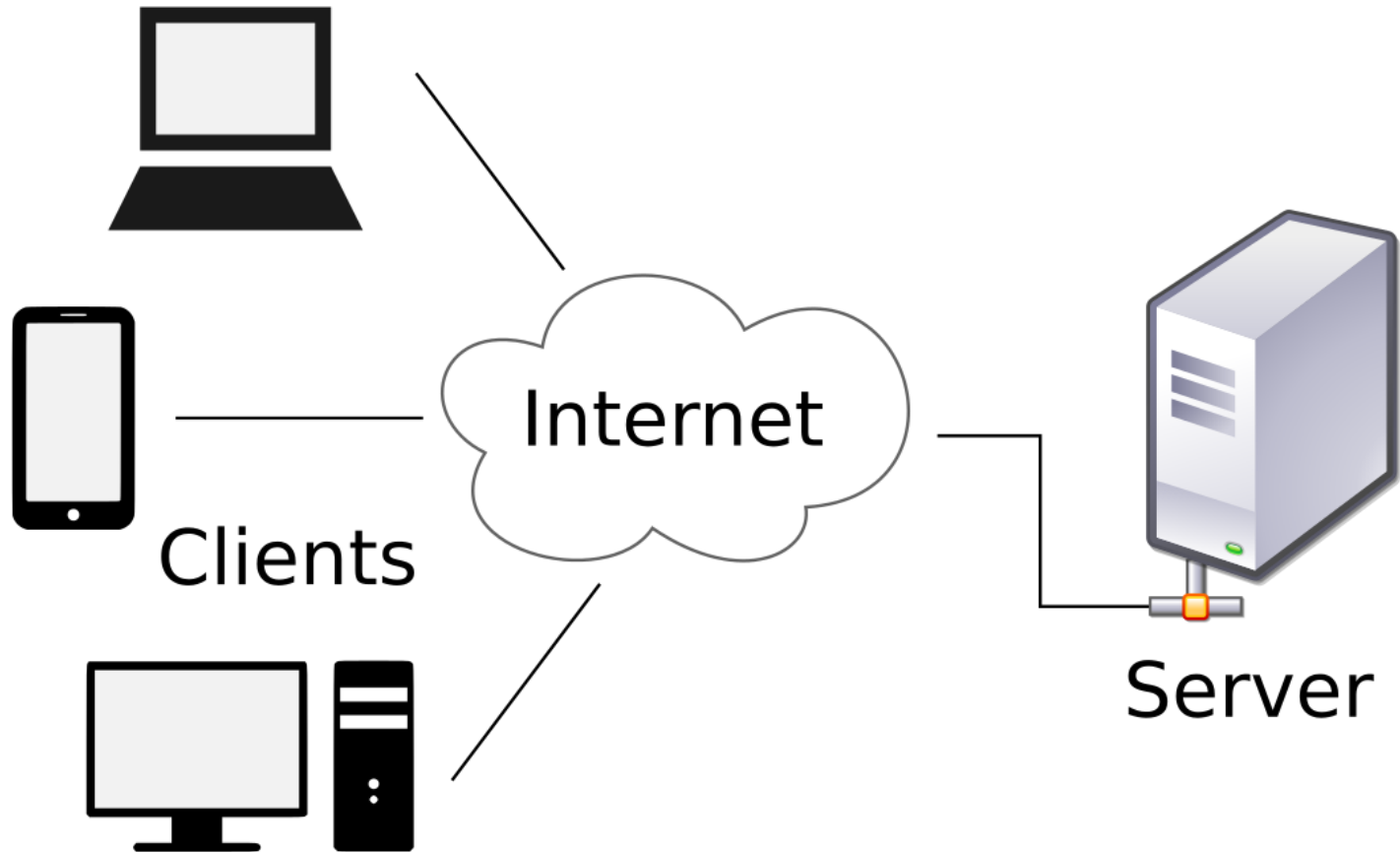
Apache Web Server

- Apache is the most widely used web server software.

- Developed and maintained by Apache Software Foundation, Apache is an open source software available for free.

- It runs on **67%(???)** of all webservers in the world. It is fast, reliable, and secure. It can be highly customized to meet the needs of many different environments by using extensions and modules.
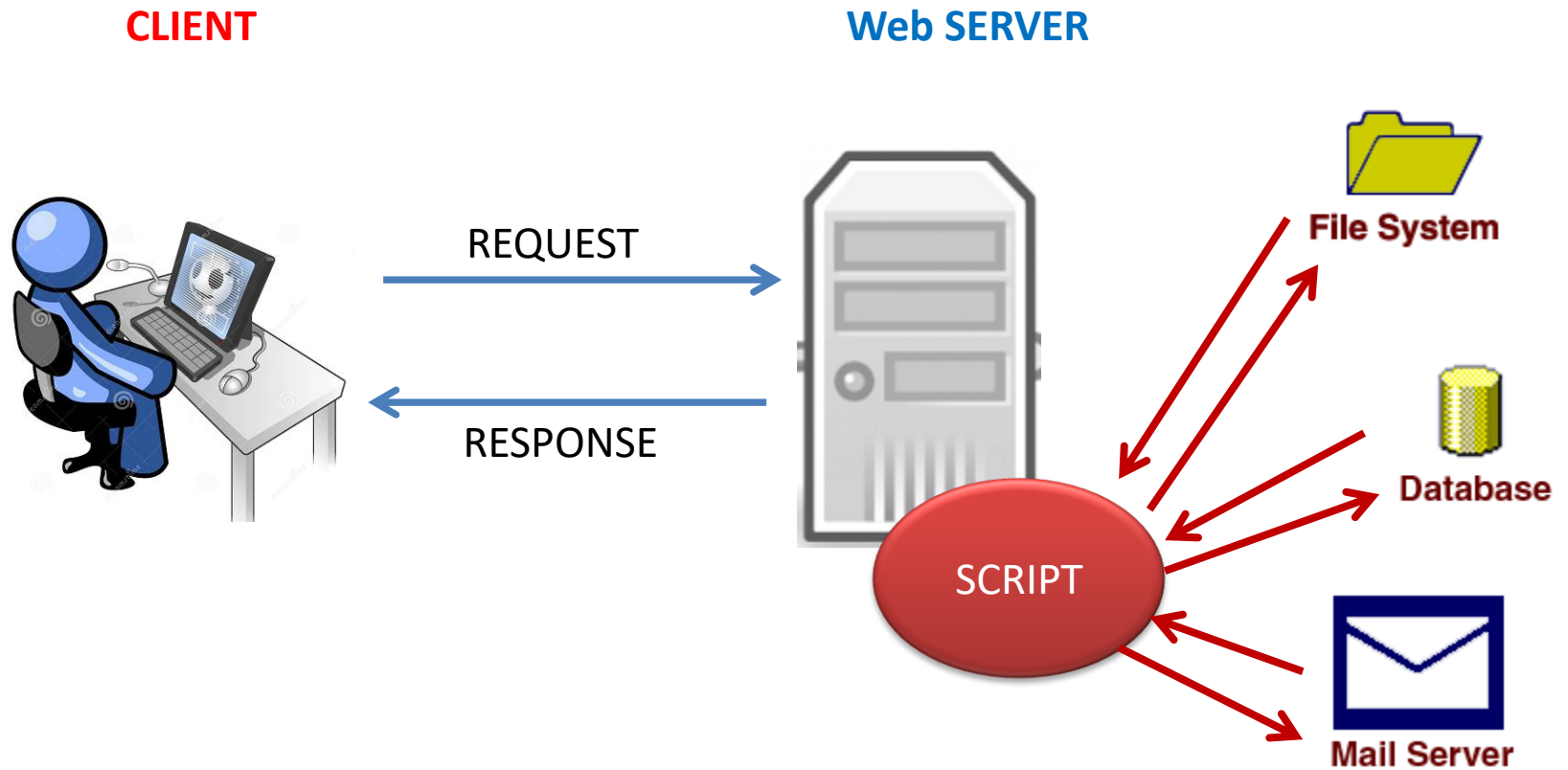
Installing our own Web Server

- For easy web development, having your own server is great. You can install one by one on your computer, but that takes time to install and difficult manage.

- There are LAMP Bundles (Solution Stack) for Apache, PHP & MySQL you can choose: One popular one is XAMPP from http://apachefriends.org

Web Client-Server Model

A Typical Client-Web Server

Server Side Scripting Languages

- There are plenty of Server-Side Scripting Languages. Most web servers (IIS, Apache, Tomcat, Nginx) and other web servers: https://en.wikipedia.org/wiki/Comparison_of_web_server_software have capability to communicate with them.

- Here are some of the popular ones:
  - ASP
  - **PHP**
  - PERL / CGI
  - PYTHON
  - JAVASCRIPT (Popularly used in Node.js Server)
  - JSP

  Others: https://en.wikipedia.org/wiki/Server-side_scripting

Why Server-Side Script?

- Access to Server-side Resources
  - Files Specially Private Ones
  - Database
  - Controls data (CUSTOMIZE the response) sent to the CLIENT.

What is PHP?

- PHP (recursive acronym for **PHP**: Hypertext Preprocessor) is a widely-used **open source general-purpose scripting language** that is especially suited for web development and can be embedded into HTML.

```
<h1>Hello
    <?php echo $name; ?>
</h1>
```

Why PHP?

- There are plenty of reasons why PHP is so popular. Here are some.

    – It's FREE and it is OPEN SOURCE

    – Simplicity in programming

    – PHP can be used on all major operating systems, including Linux, many Unix variants (including HP-UX, Solaris and OpenBSD), Microsoft Windows, Mac OS X, RISC OS, and probably others. PHP has also support for most of the web servers today.

PHP Basics

- Extension name of PHP files: **.php**

  (You can change this in the configuration file php.ini if you don't want to use that extension name.)

- Inside php.ini

  Hiding PHP as another language

```
# Make PHP code look like other code types
AddType application/x-httpd-php .asp .py .pl
```

PHP is Embedded

- Every time your write a php code, make sure it is enclosed in <?php //php code here ?>

- Example:

```
<h1>Hello
    <?php echo "World! " ?>
</h1>
```

PHP is about functions

- PHP is more on functions: Visit **http://php.net** for the uses and the syntax. There are plenty of examples available.
- If you can't find a function that you want to use you can create one:

```php
<?php
    function function_name(){
    }
?>
```

Useful functions

- phpinfo()
- include(), include_once()
- require(), require_once()
- session_start(), session_destroy()

- Visit **php.net** for the functions of these:
  ARRAY, DATE & TIME, STRING, FILE, MYSQL

Useful Variables

- $_GET
- $_POST
- $_SESSION
- $_SERVER

- Visit php.net or display phpinfo() for more information.

What is MySQL and MariaDB?

- **MySQL**, the most popular Open Source SQL database management system, is developed, distributed, and supported by Oracle Corporation.

- **MariaDB**, is developed by the previous owners of MySQL.

Why MySQL & MariaDB

- Databases are relational.

- Open Source.

- Database Server is very fast, reliable, scalable, and easy to use.

- Both works in client/server or embedded systems.

SQL

- Structured Query Language
- Language for Relational Databases
- Types of SQL Languages
  - Data Definition Language - DDL
  - Data Manipulation Language – DML
    - INSERT, UPDATE, DELETE
  - Data Query Language – DQL
    - SELECT
  - Data Control Language - DCL

MySQL Command Syntax

https://dev.mysql.com/doc/

https://mariadb.com/kb/en/library/

Now we have

- We can install each one of this:
  - Apache – apache.org
  - PHP – php.net
  - MySQL or MariaDB – mariadb.com /mysql.com

- Instead of installing one by one, there are packages we can use. One of it is XAMPP
  - http://apachefriends.org

Getting & Configuring XAMPP

1. Download XAMPP from apachefriends.org

2. Install XAMMP and make sure you know the folder where it is installed. (example XAMPP folder: - c:/xampp/)

3. Run XAMPP Control to Manage XAMPP.

4. Default http folder is "d:/xampp/htdocs"
     Rename this and make a new "htdocs" folder

XAMPP Control

- You can't see **php** here but it is already part configured as the scripting language.