Web Solution Stacks

Web server software: LAMP, WAMP, MAMP

Beyond Front-end: Web Stacks

- **Stack**: a set of software subsystems or components to build and/or run an application
- For web applications typical server stacks:
  - LAMP
  - WAMP
  - MAMP
  - …and others
- Remember:
  - “Front end” = what you SEE on the web
  - “Back end” = what you DO on the web

The LAMP, WAMP or MAMP stack

- For Web Applications…
  - More than just HTTP
  - Databases and scripting languages
- *Software running on an Internet connected computer…*
  - Linux, Windows, Mac OS – the operating system
  - Apache – the web server software (responds to HTTP requests)
  - MySQL – the database (for structured data)
  - PHP – programming (actually, scripting) language

Typical Web Solution Stacks

- LAMP, MAMP and WAMP
- A computer running an operating system
  - Linux, Windows, Mac OS
  - A continuous connection to the internet (for production)
  - A web server software package
    - Apache
    - IIS (Microsoft's Internet Information Server)
  - Scripting software program
    - PHP, .net,
  - A database program
    - MySQL, SQL, Oracle
    - SQL example: `UPDATE users SET name = "ROBERT" WHERE ID = 1`

The Operating System

- Operating System
- File System
- System utilities
- Optional utilities

The Web Server Software

- First: **HTTPd** (Hypertext Transfer Protocol daemon)
  - Designates a local folder "web root"
  - Responds and replies to Hypertext Transfer Protocol (HTTP) requests

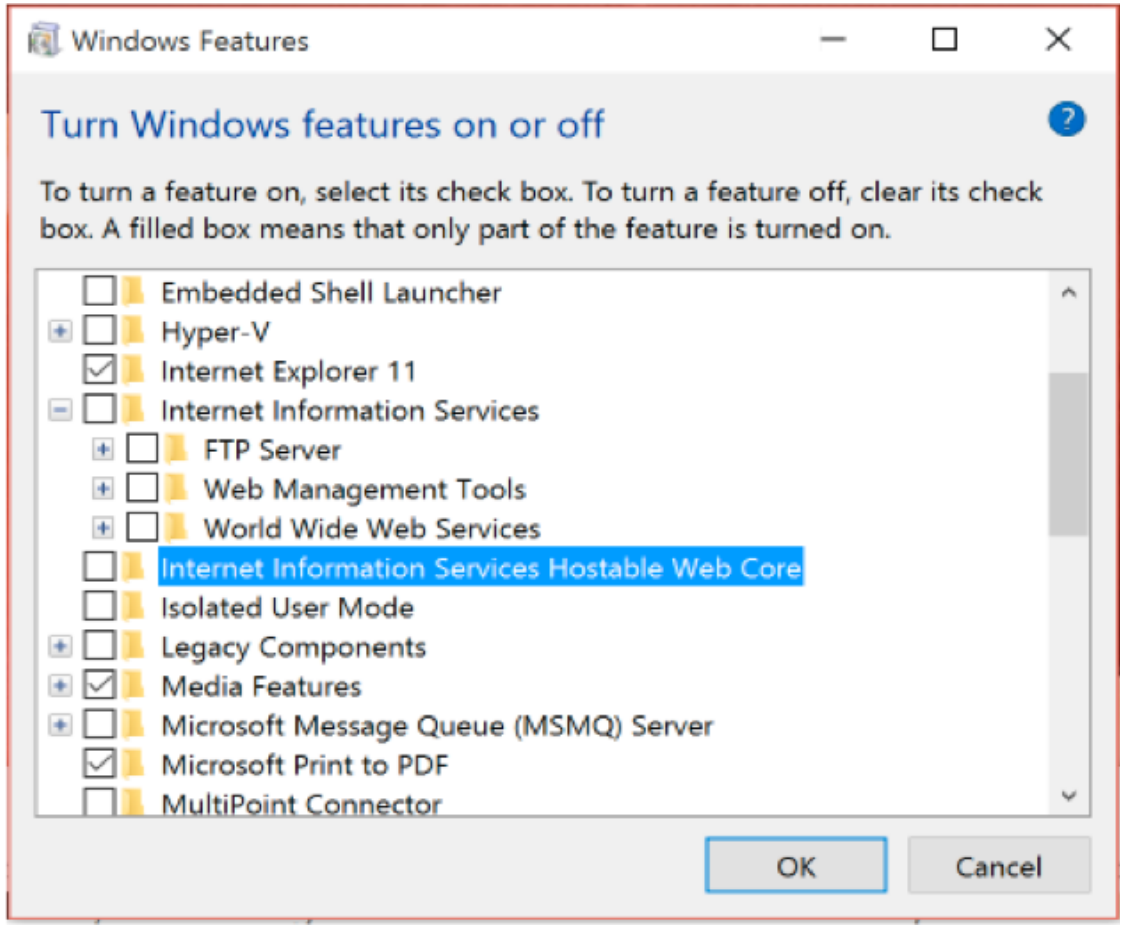
- Apache (www.apache.org)
- Microsoft's Internet Information Services (IIS)
- Nginx (pronounced engine-x)

Databases and Scripting

- Typical software for web applications:
  - Open source database software: MySQL
  - Open source scripting language: PHP
- MySQL
  - Relational Database Management System (RDBMS)
  - Uses Structured Query Language (SQL)
  - E.g. `UPDATE users SET name = 'Robert' WHERE id = 1`
- PHP
  - A scripting language that can be embedded in HTML documents
  - Executes code after an HTTP request is received and *before* the response is sent to the client
  - Works well with MySQL

Running your own local web solution stack

- You can manually Install:
  - Apache Web Server http://www.apache.org/
  - PHP http://www.php.net/
  - MySQL https://www.mysql.com/
  - Optional (recommended): phpMyAdmin https://www.phpmyadmin.net/
- Or Install a Package:
  - WAMP Server http://www.wampserver.com/en/
  - MAMP Server https://www.mamp.info/en/
- BTW - Windows comes with IIS and Macs come with Apache (?)



Using “localhost” instead of the file system

- File system protocol:

  file:///C:/Users/rober_000/www/index.html
- Hypertext Transfer Protocol (HTTP):

  http://localhost/index.html
- Server-side capabilities (if you install them)
  - PHP
  - MySQL
- Keep files in the “web root” for the local web host to work
- *Where is the “web root”?*

Assignment 1: Website On Your *localhost*

- Install a WAMP or MAMP solution stack on your own computer
  - You're going to need it this semester
  - Alternatively be familiar with the installed WAMP or MAMP software on the University computers
- Know where your web root folder is
- Build a two-page website using PHP includes
  - One page about yourself
  - Second page about your CSC 174 initial role selection
  - Use PHP includes as necessary to factor-out redundant code (like top-part, navigation, anything else that makes sense to remove)
- Check your work at: http://localhost
- Demonstrate your work for credit (pass/fail)
  - Due today or at the beginning of next class