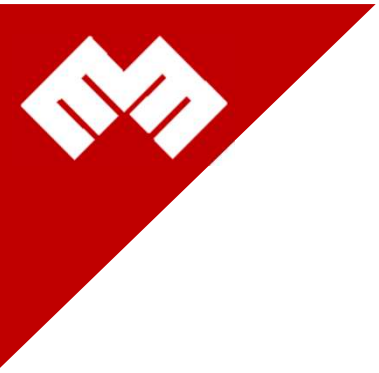
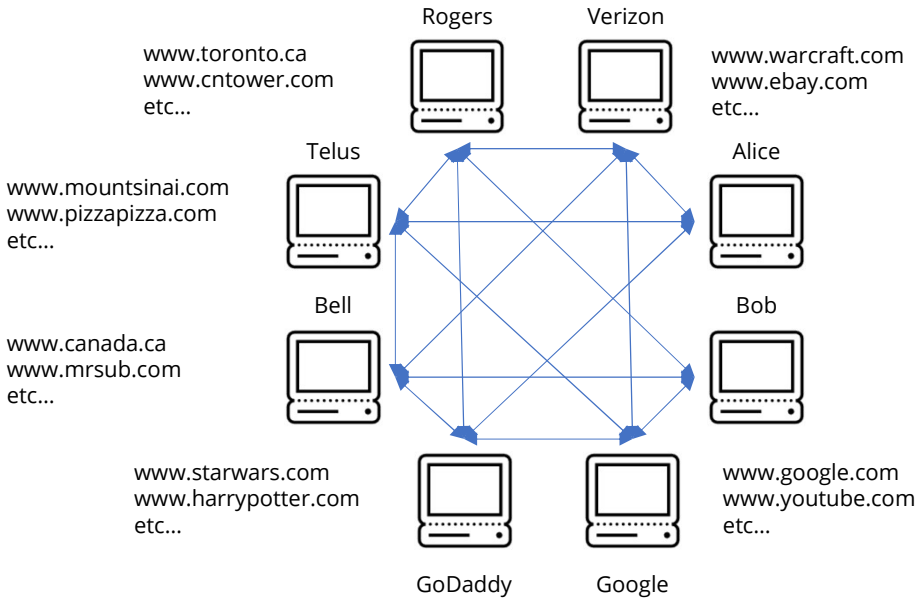

WEBSITE DEVELOPMENT
Introduction to Website Development
https://evermight.com



AGENDA

- What is the **Internet**?
- What is a **Web Server**?
- What is a **Web Page**?
- What is **HTML CSS Coding**?
- What is **Full Stack Development**?

WHAT IS THE INTERNET?

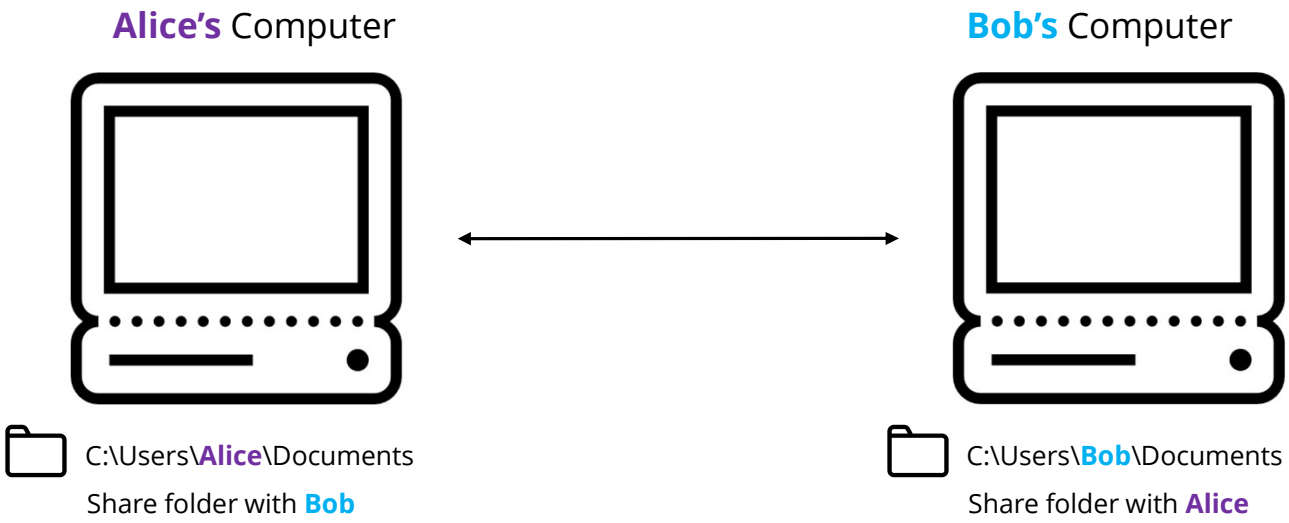


Internet is just a collection of computers connected to each other.

But how does this make a **web page**?

Why is Chrome, Fire Fox, Edge, Safari called a **web browser**?

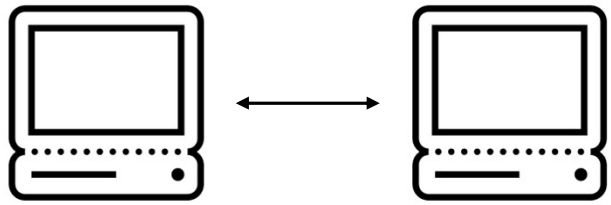
SHARING FILES



SHARING FILES

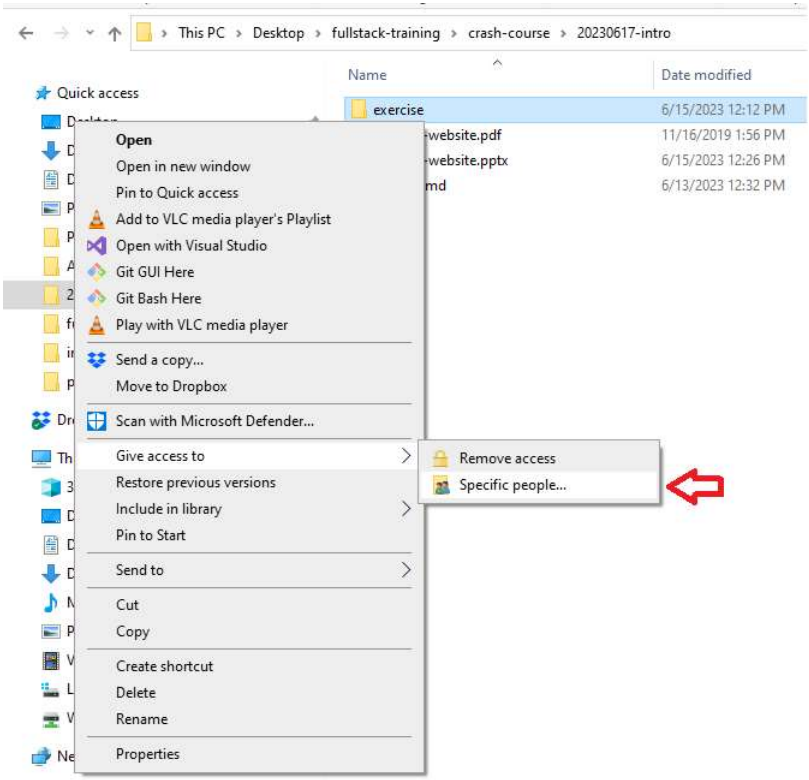
Option 1: Share Files on Local Area Network (LAN)

Give Access To



C:\Users\Alice\Documents
Share folder with Bob

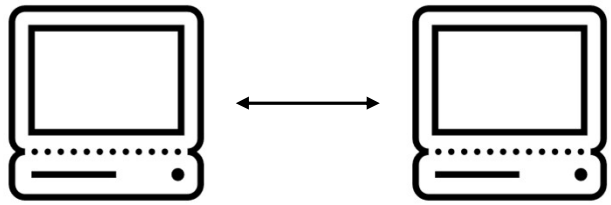
C:\Users\Bob\Documents
Share folder with Alice



SHARING FILES

Option 2: File Sharing Software

Dropbox, Torrent, Napster



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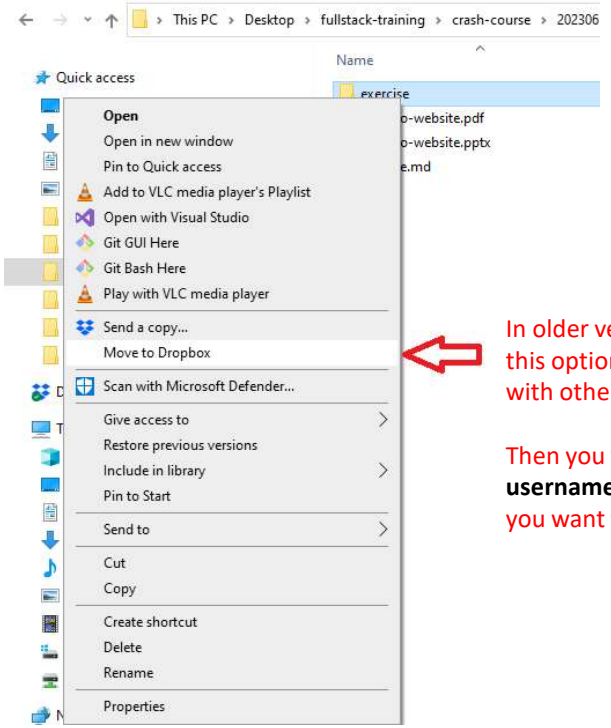
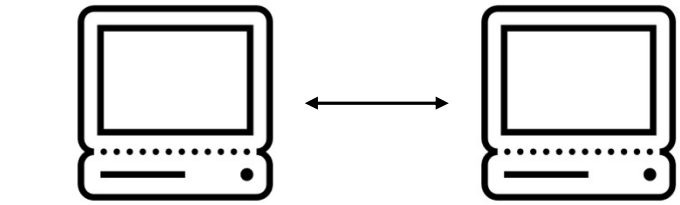


In older versions of Dropbox, this option was “Share folder with other Dropbox users”.

Then you type in the **username** of the Dropbox user you want to share with.

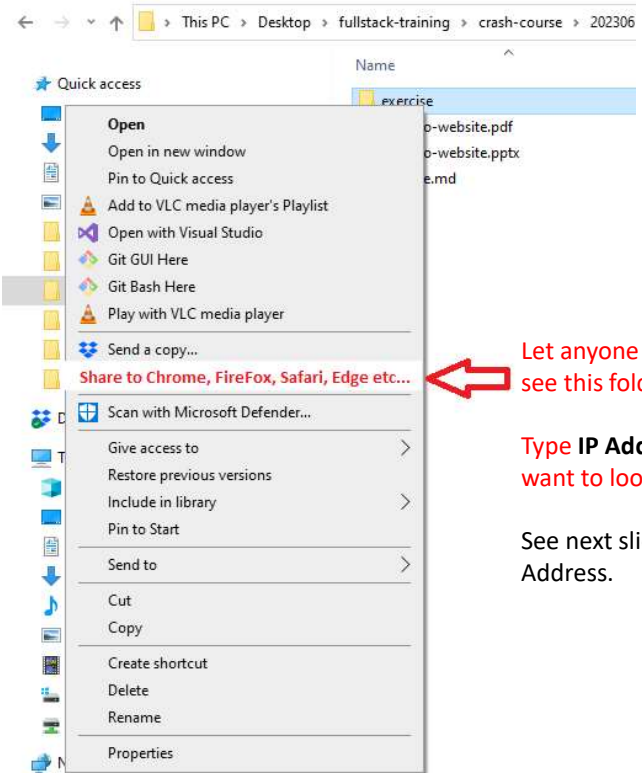
SHARING FILES

Option 3: Web Sharing Software?



C:\Users\Alice\Documents
Share folder with Bob

C:\Users\Bob\Documents
Share folder with Alice

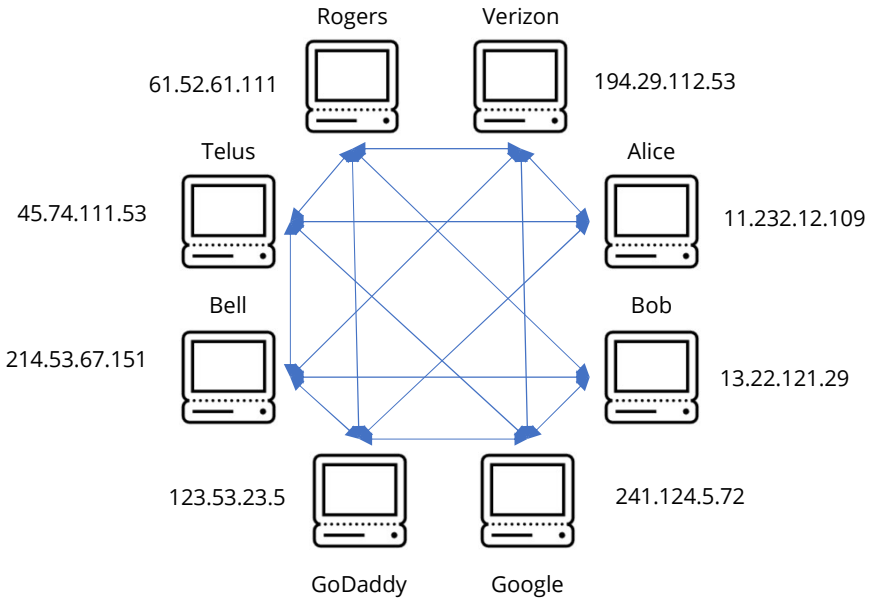


Let anyone with a **web browser** can see this folder.

Type **IP Address** of the computer you want to look at into your web browser.

See next slide for definition of IP Address.

INTERNET PROTOCOL ADDRESS



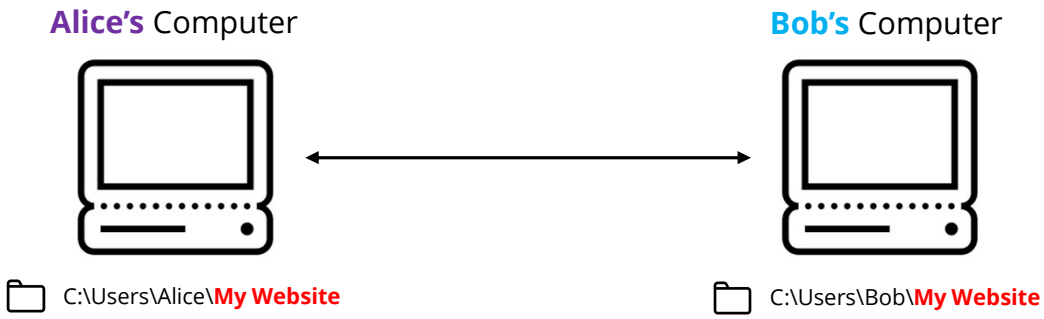
Internet Protocol Address:
When you connect computers together, each computer will identify itself with a unique identifier.

Ipv4 example:
50.12.40.12
45.29.124.30

Ipv6 example:
2607:f798:14:32::d194:cd5b:
2607:f8b0:400b:803::200e:

IP Address serves the same function as **License Plates** for **automobiles**. Or **Latitude** + **Longitude** for **geography**.

SHARING FILES WITH WEB SERVER



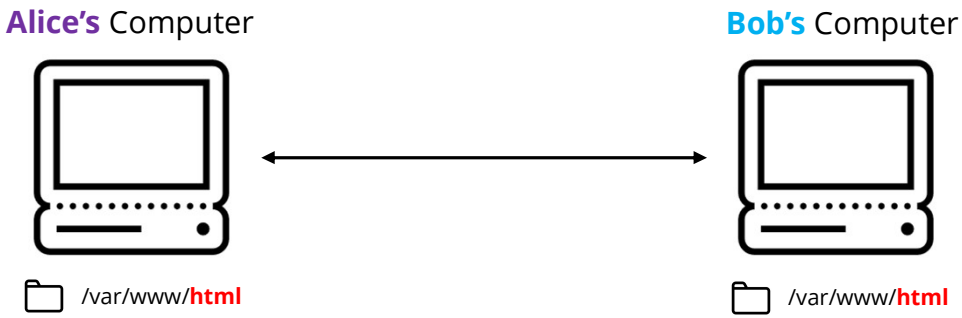
INTERNET INFORMATION SERVICES (Web Server Software)

cat.jpg, dog.mp4, home.html → **Fire Fox / Chrome / Edge / Safari**

Fire Fox / Chrome / Edge / Safari ← **car.jpg, skiing.mp4, home.html**

Show Example Screenshots of IIS

SHARING FILES WITH WEB SERVER



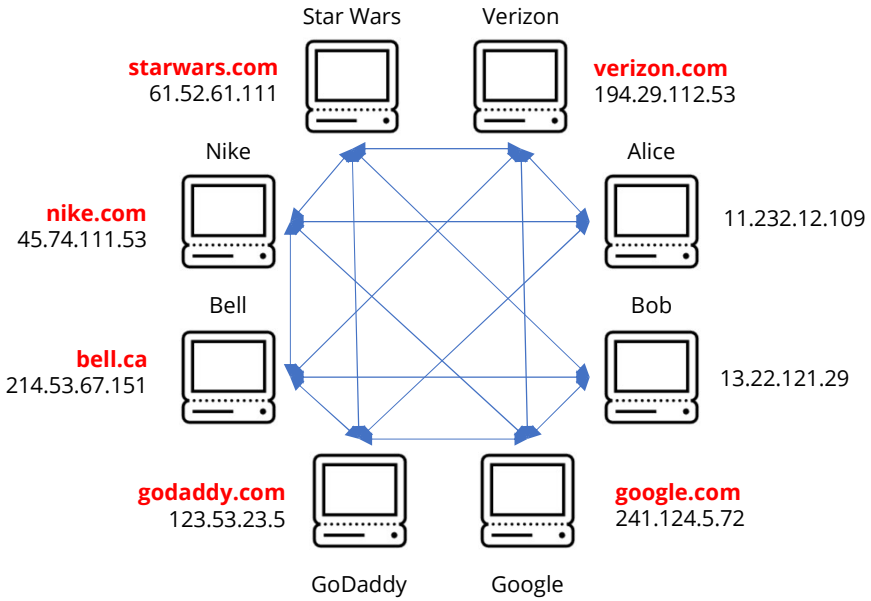
APACHE (Web Server Software)

cat.jpg, dog.mp4, home.html → **Fire Fox / Chrome / Edge / Safari**

Fire Fox / Chrome / Edge / Safari ← **car.jpg, skiing.mp4, home.html**

Demonstrate with Linux

DOMAIN NAMES



IP addresses are hard to remember.

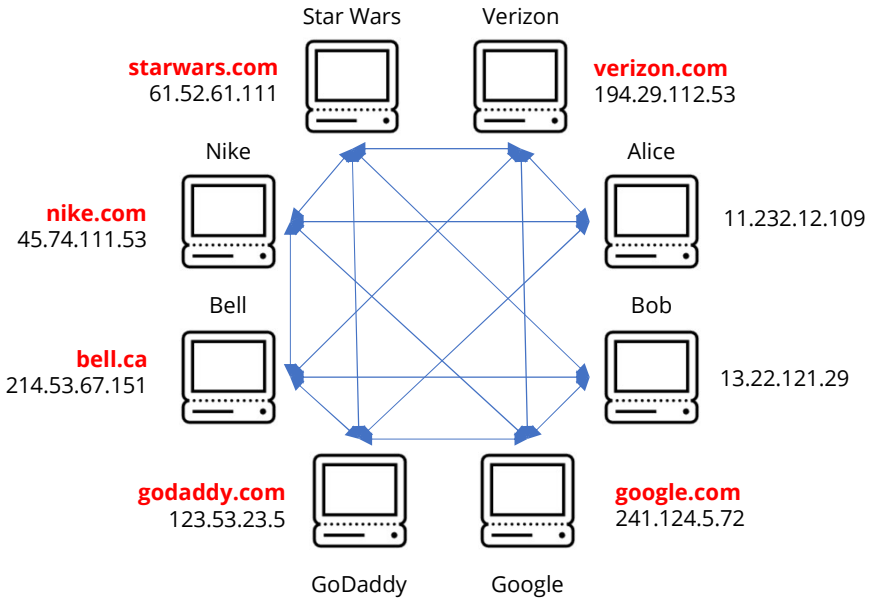
Buy a domain name and point it to IP address. Similar to vanity license plates for vehicles or replacing latitude and longitude with addresses like 24 King Street.

Buy from places like Google, Cloudflare, GoDaddy, etc...

Point your domain to the IP address of any computer.

Wait up to 48 hours for all computers in Internet to recognize the change.

DOMAIN NAMES



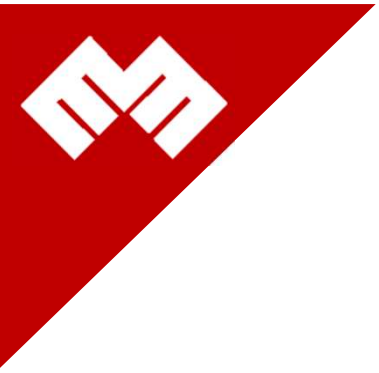
EXAMPLE

https://starwars.com/luke-skywalker.html

You are looking at the file **luke-skywalker.html** in the **/var/www/html** directory on a computer with the IP address **61.52.61.111**.

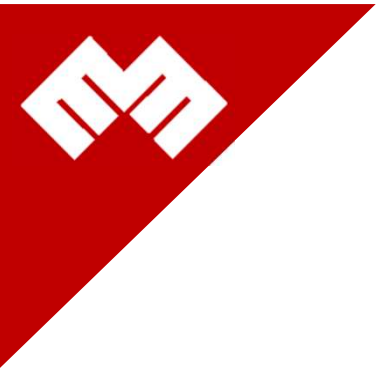
ORIGIN OF INTERNET

- 1960s - academic and government researcher share documents between computers
- Need standards, conventions and universally agreed upon protocols/procedures
- Demonstrate with a **“Book List” exercise**
- **Jan 1, 1983 – Birth of Internet** - most protocols standardized



DATA-TYPE DOCUMENT

- 1969 – Generalized Markup Language – **GML**
- 1986 – Standard Generalized Markup Language – **SGML**
- 1993 – Hyper Text Markup Language – **HTML**
- 1996 – Extensible Markup Language - **XML**



SOURCE FILE VS. SOFTWARE

Before we continue, we should differentiate between **source file** and **software**.

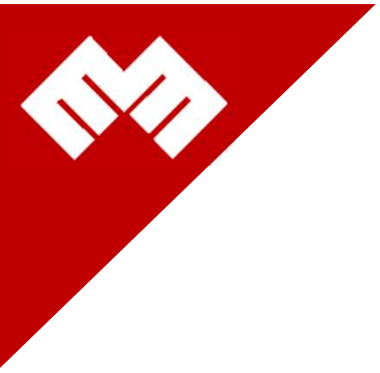
- **CSV File** – View with text editor vs. **MS Excel**
- **JPG File** – View with text editor vs. **Image Viewer**
- **HTML File** – View with text editor vs. **Web Browser**

A **source file** is just data. A **software** decides how to present the data for human readability.

ANATOMY OF WEB PAGE

A **web page** is primarily **data-type document** that people enjoy reading with a **web browser software**. It is often created with 3 different coding languages:

- **HTML** – Hyper Text Markup Language → Content
  note: HTML descended from the IBM's ancient Generalized Markup Language (GML)
- **CSS** – Cascading Style Sheet → Aesthetics
- **JavaScript** – Programming Language → Interactivity

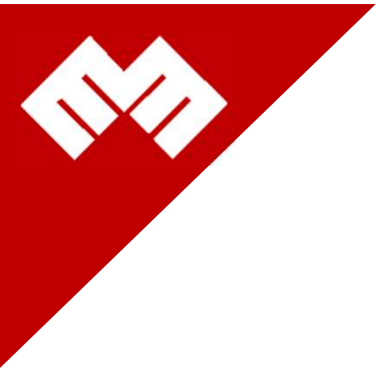


HTML

Commonly used HTML tags:

<html>	Begin HTML document	<p>	Paragraph
<head>	Description of page		Ordered list
<title>	Title of web page		Unordered list
<body>	Body content		List item
<h1>	Main header (<h2> to <h6>)	<a>	Anchor link
<nav>	Navigation	<img>	Image
		<table>	Tabular data (<tr><td>)

Search google for full HTML reference



WEB SEMANTIC

- **Search Engine Optimization** – Search engines better understand your content.
- **Accessibility** – Individuals using assistive devices
- **Standardization** – For interoperability and system integration

WHAT IS CSS?

Cascading Style Sheets (CSS) is a language that consist of declarations / rules that describe the visual representation of HTML documents in a web browser. Here are 3 different ways to incorporate CSS into HTML:

Inline

```
<!DOCTYPE html>
<html>
 <head>
 </head>
 <body>
  <p style="color:red;“>hello world</p>
 </body>
</html>
```

Style Block

```
<!DOCTYPE html>
<html>
 <head>
  <style>
   p {color:red;}
  </style>
 </head>
 <body>
  <p>hello world</p>
 </body>
</html>
```

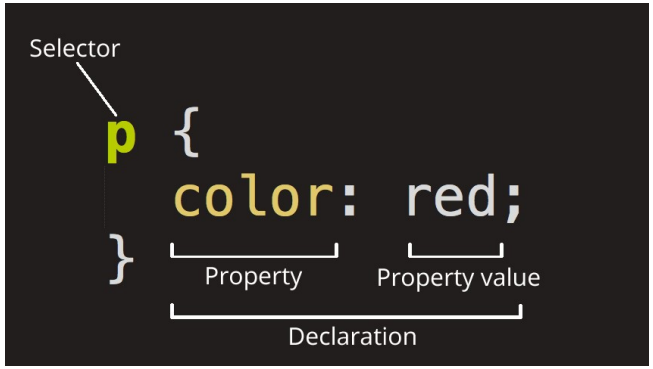
Separate File

```
/* my-style.css */
p {color:red;}
```

```
<!DOCTYPE html>
<html>
 <head>
  <link href="my-style.css" rel="stylesheet" />
 </head>
 <body>
  <p>hello world</p>
 </body>
</html>
```

In all 3 examples above, the page will show hello world in red.

ANATOMY OF CSS DECLARATION

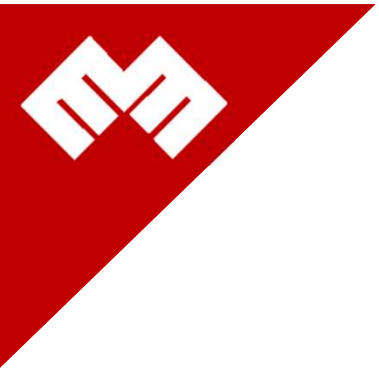


Selector – The HTML tags to style. We will learn shortly that there are many ways to express the specific HTML tag you wish to style. In this example, we are selecting ALL <p> tags.

Declaration – The style rule to apply. In this example, we have only one declaration. However, we can have multiple style declarations separated by the semi-colon. Each declaration is made up of a **property** and and a **property value**.

Property – The style property to change. There are many types of properties to choose from, most of which are obvious like font, background, padding, margin, etc...

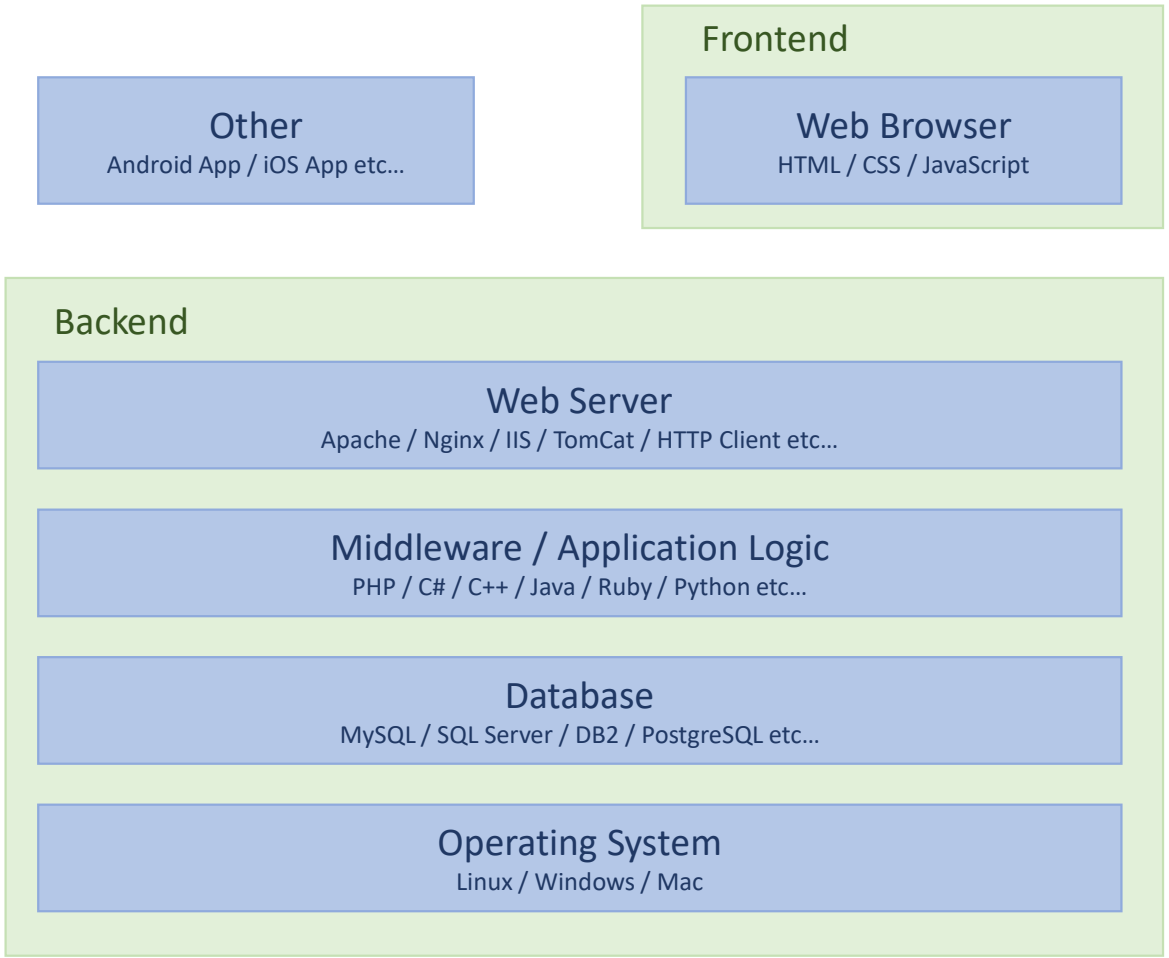
Property Value – The specific style you wish to apply to a property. The acceptable properties will depend on the property you are trying to change.



CSS – SEPARATE CONCERNS

- **Maintainability** – Easier to update themes separate from HTML
- **Accessibility** – Individuals using assistive devices
- **Performance/Speed** – Decrease page load time

Technical Layers of a Cloud Software (Simplified)



Frontend layers reside completely on a user's device

Backend layers reside completely on a remote server.

Frontend developers work on front end. Backend developers work on backend. Full stack developers work on both frontend and backend.

Developers do their best to insulate one layer from the other. Generally, the further down the technical stack you are, the more rigid the architecture will be. E.g. Changing a button in a web page on the front end may not affect your database structure. But changing your database structure will likely affect your middleware code and your web browser code.