Workshop Technology

> 259106 (2025 Semester 2)

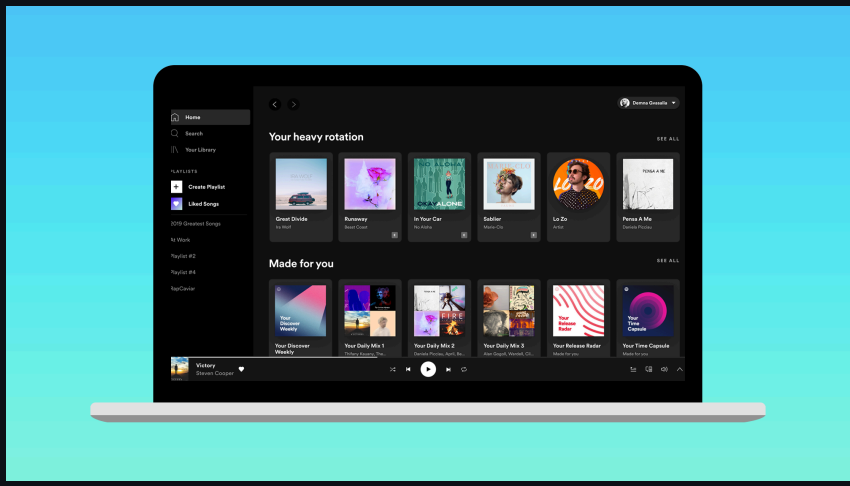
Web Application Development

> HTML CSS JavaScript, React

Software ➡️ Web Application

"Software"

- Applications that runs on top of an operating system
  - Windows, MacOS, Linux, Android, iOS
- "Talk" to OSs directly.
- Cannot be used between operation systems.
- Use different technologies/languages
  - C# (Windows), Swift (MacOS, iOS), Kotlin (Android), C++ (Linux)



Web Application

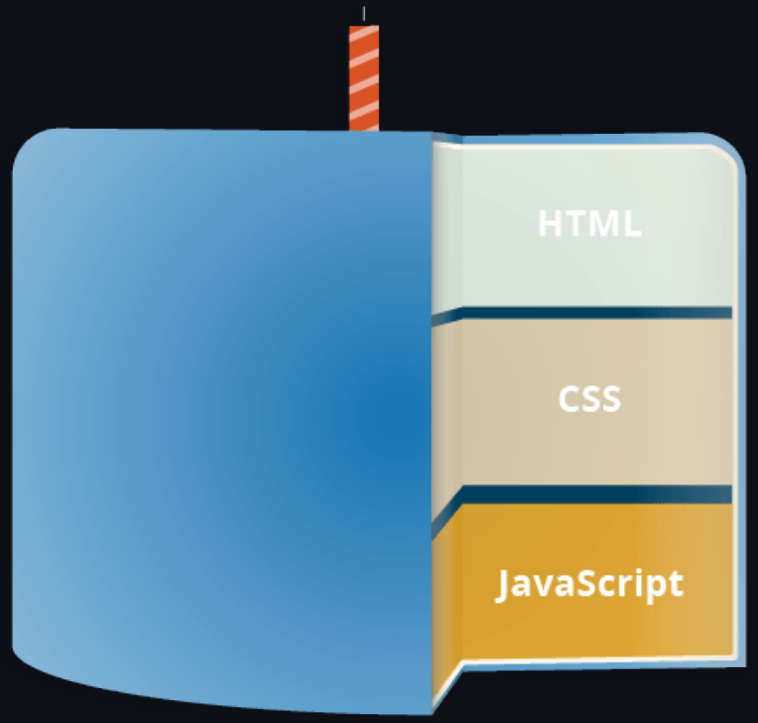
- Applications that execute on a browser (another application) that runs on top of an operating system.
- Does not "talk" to the system directly.
- *Cross platform*
  - "Write once, use anywhere"
- Use similar technogoies/languages
  - HTML, CSS, JavaScript

Setup

- VS Code
- Settings
  - Enable: Format on save
  - Extension: Prettier
  - Extension: Auto Rename Tag

3 Layers in Web Technology

- `HTML` : markup language
  - Defining structure
- `CSS` : stylesheet language
  - Apply styling to HTML content
- `JavaScript` : scripting language
  - Add dynamics to content



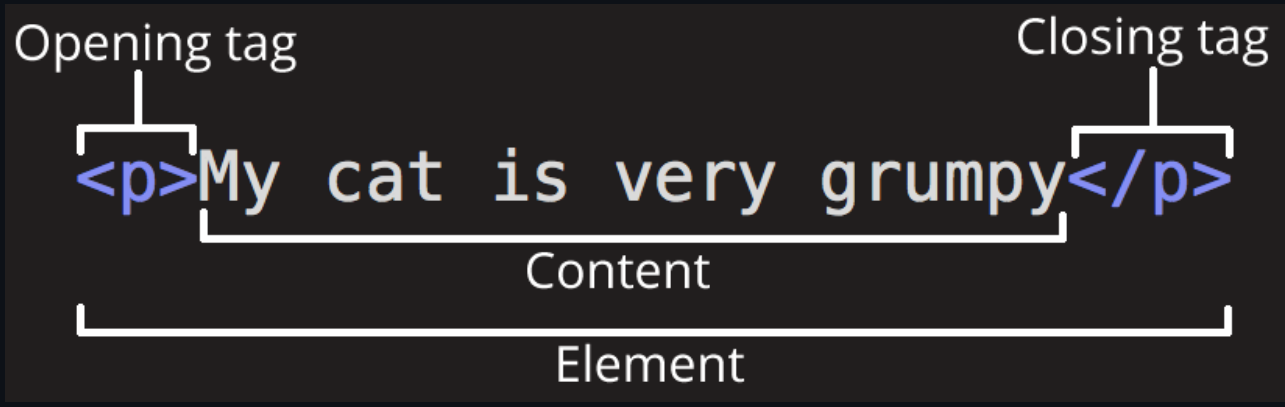
HTML

HTML

- HyperText Markup Language
- Standard markup language for documents designed to be displayed in a web browser.
- Can be assisted by technologies such as Cascading Style Sheets (CSS) and scripting languages such as JavaScript.

HTML element

- Encloses parts of the content to make it appear a certain way.
- Consists of
  - Opening tag
  - Closing tag
  - Content



Attribute

- Contain extra information about the element.

Empty element

```
<img src="images/firefox-icon.png" alt="My test image" />
```

- Two attributes
- No content
- Does not require `/` at the end.
- However, in React JS, this is required. Therefore you should write

```
<img src="images/firefox-icon.png" alt="My test image" />
```

HTML document

```
<!DOCTYPE html>
<html>
  <head>
    <meta charset="utf-8" />
    <title>My test page</title>
  </head>
  <body>
    <img src="images/firefox-icon.png" alt="My test image" />
  </body>
</html>
```

<!DOCTYPE html>

- A required preamble (คำนำ).

```
<!DOCTYPE html>
<html>
  <head>
    <meta charset="utf-8" />
    <title>My test page</title>
  </head>
  <body>
    <img src="images/firefox-icon.png" alt="My test image" />
  </body>
</html>
```

`<html></html>`

- Wraps all the content on the entire page
- *Root element*

```
<!DOCTYPE html>
<html>
  <head>
    <meta charset="utf-8" />
    <title>My test page</title>
  </head>
  <body>
    <img src="images/firefox-icon.png" alt="My test image" />
  </body>
</html>
```

<head></head>

- Container for all the stuff to include on the HTML page that isn't the content you are showing to your page's viewers.

```
<!DOCTYPE html>
<html>
  <head>
    <meta charset="utf-8" />
    <title>My test page</title>
  </head>
  <body>
    <img src="images/firefox-icon.png" alt="My test image" />
  </body>
</html>
```

`<meta charset="utf-8">`

- Set the *character set* of the document to *UTF-8*.
  - Includes most characters from the vast majority of written languages.
- No reason not to set this.

```
<!DOCTYPE html>
<html>
  <head>
    <meta charset="utf-8" />
    <title>My test page</title>
  </head>
  <body>
    <img src="images/firefox-icon.png" alt="My test image" />
  </body>
</html>
```

`<title></title>`

- Sets the title of the page
  - Browser tab the page
  - Bookmark/favorite

```
<!DOCTYPE html>
<html>
  <head>
    <meta charset="utf-8" />
    <title>My test page</title>
  </head>
  <body>
    <img src="images/firefox-icon.png" alt="My test image" />
  </body>
</html>
```

<body></body>

- Contains all the content shown to web users
  - Text, images, videos, games, playable audio tracks, …

```
<!DOCTYPE html>
<html>
  <head>
    <meta charset="utf-8" />
    <title>My test page</title>
  </head>
  <body>
    <img src="images/firefox-icon.png" alt="My test image" />
  </body>
</html>
```

CSS

CSS

- Cascading Style Sheets (CSS)
- Stylesheet language used to describe the presentation of a document written in HTML.
- Not a programming language nor a markup language.

External stylesheet

`index.html`

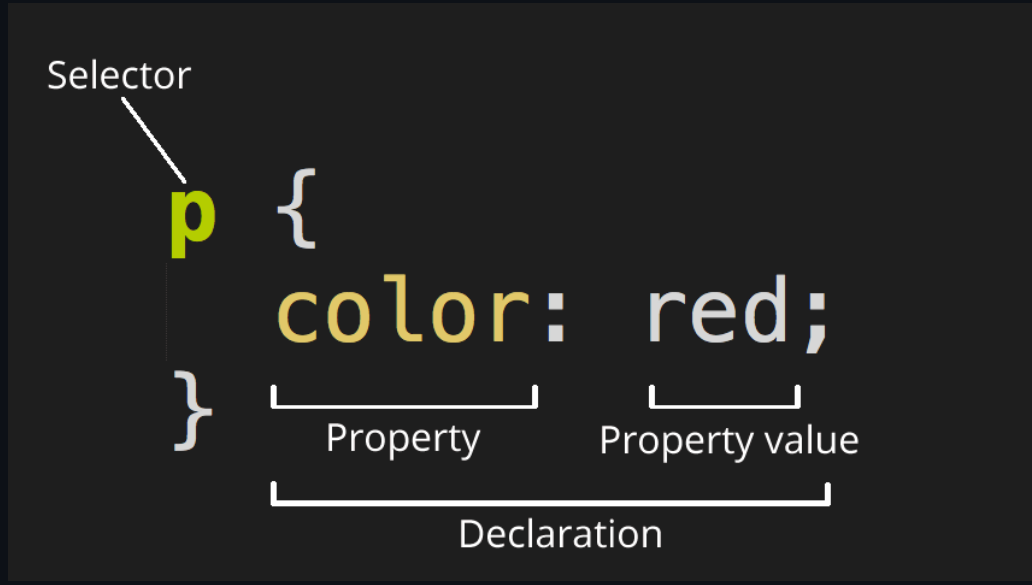
```
<head>
  ...
  <link rel="stylesheet" href="style.css" />
  ...
</head>
```

`style.css`

```
h1 {
  color: blue;
}
```

Anatomy

- Selector
  - Defines the element(s) to be styled
- Properties
- Property values



Selectors

- Element selector
  - Also called a tag or type selector
- ID selector
- Class selector
- Attribute selector *(Skip today)*
- Pseudo-class selector *(Skip today)*
- Pseudo-element selector *(Skip today)*

Element selector

- Select all `<h1>` elements

```
h1 {
  color: blue;
}
```

ID Selector

- Select the element on the page with the specified ID

```html
<p id="my-id">Text</p>
```

```css
#my-id {
  color: blue;
}
```

Class selector

- Select the element(s) on the page with the specified class.
  - Multiple instances of the same class can appear on a page.

```
<p class="my-class">Text</p>
```

```
.my-class {
  color: blue;
}
```

Font

- Google Font
- Add `@import` statement
- Add `font-family` attribute.

JavaScript

JavaScript

- JavaScript is a scripting or programming language
- Allows implementation of complex features on web pages.
  - Content updates
  - Animation
  - Interactive maps
  - Audio/video contents

Setup

- Add `<script src="script.js" defer></script>` in `header` tag.
- Create `script.js`

Example 1

```
alert("Hello World");
```

Example 2

```
<button id="btn">Click me</button>
```

```
function createParagraph() {
  let para = document.createElement("p");
  para.textContent = "You clicked the button!";
  document.body.appendChild(para);
}

const button = document.getElementById("btn");
button.addEventListener("click", createParagraph);
```

Example 3

```html
<button id="btn">Click me</button>
```

```javascript
const button = document.getElementById("btn");
button.addEventListener("mouseover", () => {
  alert("พี่ขาอย่าทับหนู");
});
```

Deploy

https://www.netlify.com/