

Workshop Technology

259106 (2025 Semester 2)

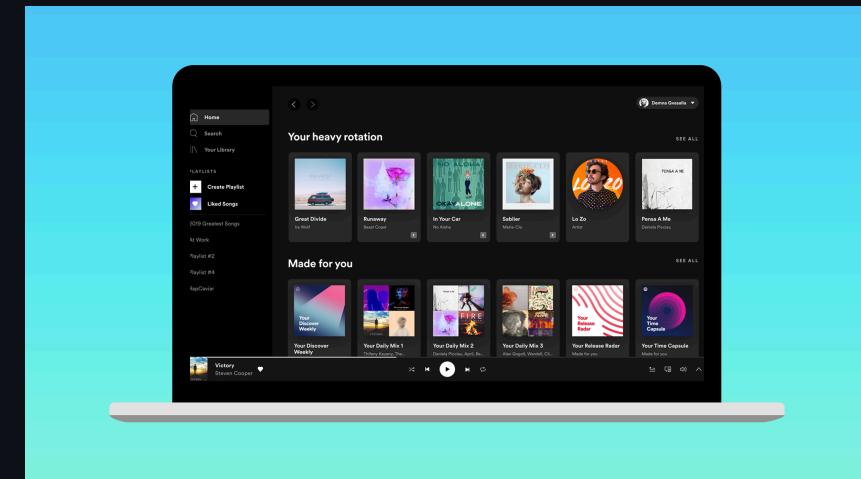
Web Application Development

| 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 technologies/languages
 - HTML, CSS, JavaScript



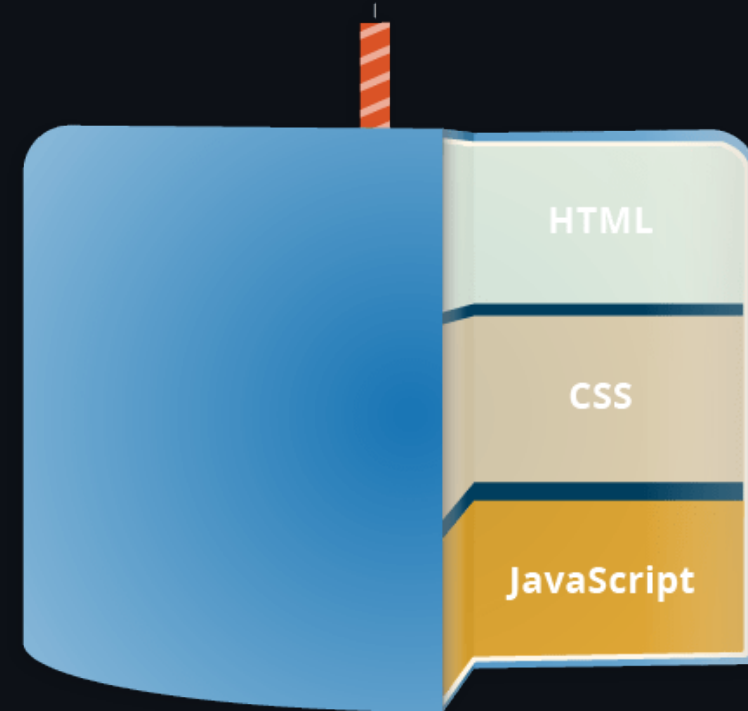
Setup

- 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



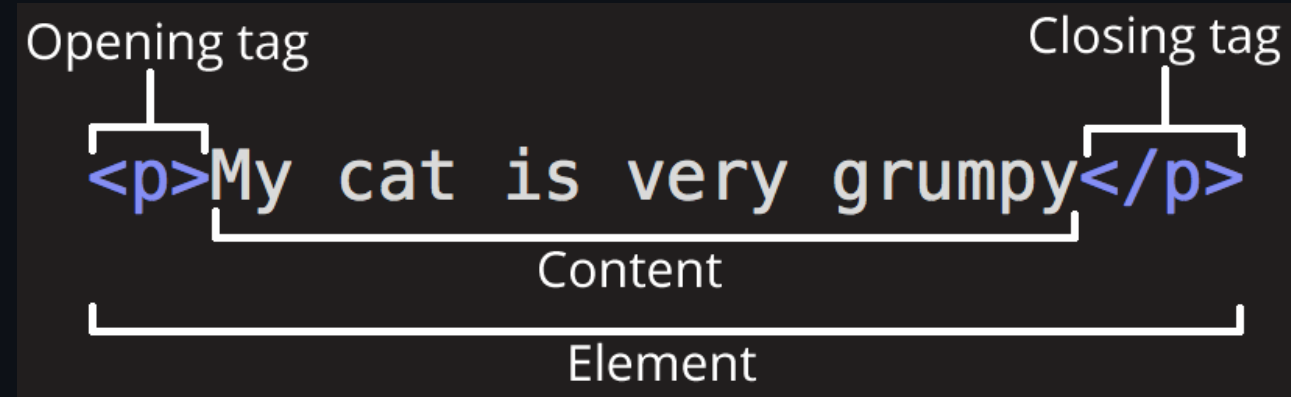
HTML

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.

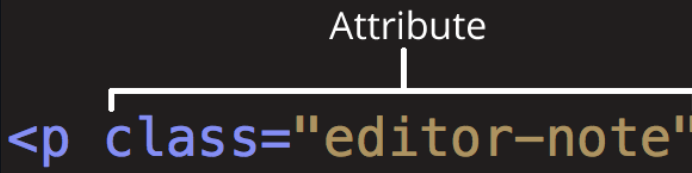
HTML element

- 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.



Attribute

```
<p class="editor-note">My cat is very grumpy</p>
```

Empty element

```

```

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

```

```

HTML document

```
<!DOCTYPE html>
<html>
  <head>
    <meta charset="utf-8" />
    <title>My test page</title>
  </head>
  <body>
    
  </body>
</html>
```

<!DOCTYPE html>

- A required preamble (คำนำ).

```
<!DOCTYPE html>
<html>
  <head>
    <meta charset="utf-8" />
    <title>My test page</title>
  </head>
  <body>
    
  </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>
    
  </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>
    
  </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>
    
  </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>
    
  </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>
    
  </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

The diagram illustrates the components of a CSS rule. The selector 'p' is highlighted in yellow and labeled 'Selector' with a line pointing to it. The opening curly brace '{' follows the selector. The property 'color' is highlighted in yellow and labeled 'Property' with a bracket underneath. The value 'red' is highlighted in yellow and labeled 'Property value' with a bracket underneath. A large bracket spanning from the opening curly brace to the semicolon ';' is labeled 'Declaration'.

```
Selector  
p {  
  color: red;  
}
```

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

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

```
#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

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

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

Deploy

<https://www.netlify.com/>