# CMPSC 104 – Document Engineering
## Prof. Hang Zhao

DOCUMENT
ENGINEERING

ALLEGHENY COLLEGE
1815

# Overview

**What is HTML?**

- HTML (HyperText Markup Language) is the standard language used to structure and display content on the web. It organizes text, images, links, and other elements to create web pages.

**Examples of JAMstack:**

- Google Homepage: Simple, HTML-structured layout that loads quickly.
- BBC News: HTML structures news articles, making them accessible and readable on different devices.

# Choosing a Text Editor

**File Extension**

- .html Extension: Save your HTML files with the .html extension to ensure they are recognized as HTML documents by browsers.

**Basic Editors**

- Notepad (Windows) and TextEdit (Mac). Basic, pre-installed text editors useful for simple HTML editing.

**Specialized HTML Editors**

- Some popular programs specially designed to write HTML, such as atom, sublime, brackets, webstorm.

# index.html

```html
<html>
<head>
 <meta charset="UTF-8">
 <title>Document</title>
</head>
<body>
 <h1>Hello World</h1>
 <p>This is a paragraph explaining the content of the page.</p>
 <a href="https://github.com/allegheny-college-cmpsc-104-Fall-2024">Visit DocEng 104</a>
</body>
</html>
```

# HTML Tags

- HTML tags are the building blocks of HTML, used to create and define elements on a web page.
- Most tags come in pairs: an opening tag `<tagname>` and a closing tag `</tagname>`.

**Basic HTML Tags**
- **<html>**: Wraps all HTML content on the page. The root of the document.
- **<head>**: Contains metadata, links to CSS, scripts, and the page title.
- **<title>**: Sets the title of the page, displayed in the browser tab.
- **<body>**: Holds all content displayed on the page, such as text, images, and links.

# HTML Tags

**Common Content Tags**
- **<h1> to <h6>:** Headings for sections, from largest (<h1>) to smallest (<h6>).
- **<p>:** Paragraph tag, used for blocks of text.
- **<a>:** Anchor tag, used to create hyperlinks (<a href="URL">Link Text</a>).
- **<img>:** Image tag, displays images (<img src="image.jpg" alt="description">).

# Creating an HTML File

```html
<!DOCTYPE html>
<html>
  <head>
    <title>CMPSC104 HTML Website</title>
  </head>
  <body>
    <p>Hello World!</p>
  </body>
</html>
```

# Head Tag

```html
<!DOCTYPE html>
<html>
  <head>
    <meta charset="UTF-8">
    <meta name="description" content="This is an awesome website">
    <title>CMPSC104 HTML Website</title>
  </head>
  <body>
    <p>Hello World!</p>
  </body>
</html>
```

# Header

```
<!DOCTYPE html>
<html>
  <head>
    <meta charset="UTF-8">
    <meta name="description" content="This is an awesome website">
    <title>CMPSC104 HTML Website</title>
  </head>
  <body>
    <h1>HTML Website</h1>
  </body>
</html>
```

# Header

```html
<!DOCTYPE html>
<html>
  <head>
    <meta charset="UTF-8">
    <meta name="description" content="This is an awesome website">
    <title>CMPSC104 HTML Website</title>
  </head>
  <body>
    <h2>HTML Website</h2>
  </body>
</html>
```

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# Paragraph Tags

```html
<!DOCTYPE html>
<html>
    <head>
        <meta charset="UTF-8">
        <meta name="description" content="This is an awesome website">
        <title>CMPSC104 HTML Website</title>
    </head>
    <body>
        <h2>HTML Website</h2>
        <p>This is my paragraph</p>
        <p>This is my paragraph #2</p>
    </body>
</html>
```

# Bold Tags

```html
<!DOCTYPE html>
<html>
    <head>
        <meta charset="UTF-8">
        <meta name="description" content="This is an awesome website">
        <title>CMPSC104 HTML Website</title>
    </head>
    <body>
        <h2>HTML Website</h2>
        <p>This is my <b>paragraph</b></p>
        <p>This is my paragraph #2</p>
    </body>
</html>
```

# Italic Tags

```html
<!DOCTYPE html>
<html>
    <head>
        <meta charset="UTF-8">
        <meta name="description" content="This is an awesome website">
        <title>CMPSC104 HTML Website</title>
    </head>
    <body>
        <h2>HTML Website</h2>
        <p>This is my <b>paragraph</b></p>
        <p>This is my <i>paragraph #2</i></p>
    </body>
</html>
```

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# Bold & Italic Tags

```html
<!DOCTYPE html>
<html>
    <head>
        <meta charset="UTF-8">
        <meta name="description" content="This is an awesome website">
        <title>CMPSC104 HTML Website</title>
    </head>
    <body>
        <h2>HTML Website</h2>
        <p>This is my <b>paragraph</b></p>
        <p>This is my <b><i>paragraph #2</i></b></p>
    </body>
</html>
```

# Layout

```html
<!DOCTYPE html>
<html>
    <head>
        <meta charset="UTF-8">
        <meta name="description" content="This is an awesome website">
        <title>CMPSC104 HTML Website</title>
    </head>
    <body>
        <p>This is my <b><i>paragraph #2</i></b></p>
        <h2>HTML Website</h2>
        <p>This is my <b>paragraph</b></p>
    </body>
</html>
```

# Layout

```html
<!DOCTYPE html>
<html>
    <head>
        <meta charset="UTF-8">
        <meta name="description" content="This is an awesome website">
        <title>CMPSC104 HTML Website</title>
    </head>
    <body>


        <p>This is my <b><i>paragraph #2</i></b></p>
        <h2>HTML Website</h2>
        <p>This is my <b>paragraph</b></p>



    </body>
</html>
```

# Break Tags

```html
<!DOCTYPE html>
<html>
    <head>
        <meta charset="UTF-8">
        <meta name="description" content="This is an awesome website">
        <title>CMPSC104 HTML Website</title>
    </head>
    <body>
        <h2>HTML Website</h2>
        <br/>
        <p>This is my <b><i>paragraph #2</i></b></p>
        <p>This is my <b>paragraph</b></p>
    </body>
</html>
```

# Break Tags

```html
<!DOCTYPE html>
<html>
    <head>
        <meta charset="UTF-8">
        <meta name="description" content="This is an awesome website">
        <title>CMPSC104 HTML Website</title>
    </head>
    <body>
        <h2>HTML Website</h2>
        <br/><br/>
        <p>This is my <b><i>paragraph #2</i></b></p>
        <p>This is my <b>paragraph</b></p>
    </body>
</html>
```

# Horizontal Rule Tag

```html
<!DOCTYPE html>
<html>
    <head>
        <meta charset="UTF-8">
        <meta name="description" content="This is an awesome website">
        <title>CMPSC104 HTML Website</title>
    </head>
    <body>
        <h2>HTML Website</h2>
        <hr/>
        <p>This is my <b><i>paragraph #2</i></b></p>
        <p>This is my <b>paragraph</b></p>
    </body>
</html>
```

# Big & Small Tags

```
<!DOCTYPE html>
<html>
    <head>
        <meta charset="UTF-8">
        <meta name="description" content="This is an awesome website">
        <title>CMPSC104 HTML Website</title>
    </head>
    <body>
        <h2>HTML Website</h2>
        <hr/>
        <p>This is my <b><i>paragraph #2</i></b></p>
        <p><big>This</big> is <small>my</small> <b>paragraph</b></p>
    </body>
</html>
```

# Subscripts & Superscripts Tags

```html
<!DOCTYPE html>
<html>
    <head>
        <meta charset="UTF-8">
        <meta name="description" content="This is an awesome website">
        <title>CMPSC104 HTML Website</title>
    </head>
    <body>
        <h2>HTML Website</h2>
        <hr/>
        <p>This is my <b><i>paragraph #2</i></b></p>
        <p><big>This</big> is <small>my</small> <b>paragraph</b></p>
        <p>H<sub>20</sub></p>
        <p>10<sup>2</sup></p>
    </body>
</html>
```

# Comments

```html
<!DOCTYPE html>
<html>
    <head>
        <meta charset="UTF-8">
        <meta name="description" content="This is an awesome website">
        <title>CMPSC104 HTML Website</title>
    </head>
    <body>
        <h2>HTML Website</h2>
        <hr/>
        <!-- html comments: TODO -->
    </body>
</html>
```

# Comments

```
<!DOCTYPE html>
<html>
    <head>
        <meta charset="UTF-8">
        <meta name="description" content="This is an awesome website">
        <title>CMPSC104 HTML Website</title>
    </head>
    <!-- Redoing this with error 4785
    <body>
        <h2>HTML Website</h2>
        <hr/>
    -->
    </body>
</html>
```

# Style and Colors

```html
<!DOCTYPE html>
<html>
    <head>
        <meta charset="UTF-8">
        <meta name="description" content="This is an awesome website">
        <title>CMPSC104 HTML Website</title>
    </head>
    <body>
        <h2>HTML Website</h2>
        <hr/>
        <p style="color: blue;">Style and colors</p>
    </body>
</html>
```

# Style and Colors

```
<!DOCTYPE html>
<html>
    <head>
        <meta charset="UTF-8">
        <meta name="description" content="This is an awesome website">
        <title>CMPSC104 HTML Website</title>
    </head>
    <body>
        <h2>HTML Website</h2>
        <hr/>
        <p style="color: blue; background-color: red">Style and colors</p>
    </body>
</html>
```

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# Style and Colors

```html
<!DOCTYPE html>
<html>
    <head>
        <meta charset="UTF-8">
        <meta name="description" content="This is an awesome website">
        <title>CMPSC104 HTML Website</title>
    </head>
    <body style="background-color:lightblue">
        <h2 style="color:green">HTML Website</h2>
        <hr/>
        <p style="color:blue; background-color: red">Style and colors</p>
    </body>
</html>
```

[HTML Color Names](#)

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# Links

```html
<!DOCTYPE html>
<html>
    <head>
        <meta charset="UTF-8">
        <meta name="description" content="This is an awesome website">
        <title>CMPSC104 HTML Website</title>
    </head>
    <body>
        <a href="https://www.google.com"><h1>Google's Homepage</h1></a>
    </body>
</html>
```

# Links – Open in a New Page

```html
<!DOCTYPE html>
<html>
    <head>
        <meta charset="UTF-8">
        <meta name="description" content="This is an awesome website">
        <title>CMPSC104 HTML Website</title>
    </head>
    <body>
        <a href="https://www.google.com" target="_blank"><h1>Google's
Homepage</h1></a>
    </body>
</html>
```

# Links

**Add a Page2.html, dir1/Page3.html & image1.jpg in the working directory.**

```
<!DOCTYPE html>
<html>
    <head>
        <meta charset="UTF-8">
        <meta name="description" content="This is an awesome website">
        <title>CMPSC104 HTML Website</title>
    </head>
    <body>
        <a href="page2.html"><h1>Page2</h1></a>
    </body>
</html>
```

# Links

**Add a Page2.html, dir1/Page3.html & image1.jpg in the working directory.**

```html
<!DOCTYPE html>
<html>
    <head>
        <meta charset="UTF-8">
        <meta name="description" content="This is an awesome website">
        <title>CMPSC104 HTML Website</title>
    </head>
    <body>
        <a href="page2.html"><h1>Page2</h1></a>
        <a href="dir1/page3.html"><h1>Page3</h1></a>
    </body>
</html>
```

# Links

**Add a Page2.html, dir1/Page3.html & image1.jpg in the working directory.**

```html
<!DOCTYPE html>
<html>
    <head>
        <meta charset="UTF-8">
        <meta name="description" content="This is an awesome website">
        <title>CMPSC104 HTML Website</title>
    </head>
    <body>
        <a href="page2.html"><h1>Page2</h1></a>
        <a href="dir1/page3.html"><h1>Page3</h1></a>
        <a href="image1.jpg"><h1>Image1</h1></a>
    </body>
</html>
```

# Images - Online Resource

```html
<!DOCTYPE html>
<html>
    <head>
        <meta charset="UTF-8">
        <meta name="description" content="This is an awesome website">
        <title>CMPSC104 HTML Website</title>
    </head>
    <body>
        <img src="https://upload.wikimedia.org/wikipedia/commons/c/c3/Eastern_grey_kangaroo_dec07_02.jpg" alt="Kangaroo" />
    </body>
</html>
```

# Images – Own Machine

```html
<!DOCTYPE html>
<html>
    <head>
        <meta charset="UTF-8">
        <meta name="description" content="This is an awesome website">
        <title>CMPSC104 HTML Website</title>
    </head>
    <body>
        <img width="500" height="400" src="image1.jpg" alt="Train
Station" />
    </body>
</html>
```

# Images – Own Machine

```html
<!DOCTYPE html>
<html>
    <head>
        <meta charset="UTF-8">
        <meta name="description" content="This is an awesome website">
        <title>CMPSC104 HTML Website</title>
    </head>
    <body>
        <a href="https://upload.wikimedia.org/wikipedia/commons/c/c3/Eastern_grey_kangaroo_dec07_02.jpg">
        <img width="500" height="400" src="image1.jpg" alt="Train Station" />
        </a>
    </body>
</html>
```

# Videos & Youtube iFrames

```html
<!DOCTYPE html>
<html>
    <head>
        <meta charset="UTF-8">
        <meta name="description" content="This is an awesome website">
        <title>CMPSC104 HTML Website</title>
    </head>
    <body>
        <video src="video1.mp4" controls></video>
    </body>
</html>
```

# Videos & Youtube iFrames

```html
<!DOCTYPE html>
<html>
    <head>
        <meta charset="UTF-8">
        <meta name="description" content="This is an awesome website">
        <title>CMPSC104 HTML Website</title>
    </head>
    <body>
        <video src="video1.mp4" controls width="300"></video>
    </body>
</html>
```

# Videos & Youtube iFrames

```html
<!DOCTYPE html>
<html>
    <head>
        <meta charset="UTF-8">
        <meta name="description" content="This is an awesome website">
        <title>CMPSC104 HTML Website</title>
    </head>
    <body>
        <video src="video1.mp4" poster="image1.jpg" controls width="300"></video>
    </body>
</html>
```

# Videos & Youtube iFrames

[YouTube Video](#)

```html
<!DOCTYPE html>
<html>
    <head>
        <meta charset="UTF-8">
        <meta name="description" content="This is an awesome website">
        <title>CMPSC104 HTML Website</title>
    </head>
    <body>
        <iframe width="560" height="315"
src="https://www.youtube.com/embed/2ePf9rue1Ao" title="What AI is – and isn't |
Sebastian Thrun" frameborder="0" allow="accelerometer; autoplay; clipboard-write;
encrypted-media; gyroscope; picture-in-picture; web-share" referrerpolicy="strict-
origin-when-cross-origin" allowfullscreen></iframe>
    </body>
</html>
```

```html
<!DOCTYPE html>
<html>
    <head>
        <meta charset="UTF-8">
        <meta name="description" content="This is an awesome website">
        <title>CMPSC104 HTML Website</title>
    </head>
    <body>
        <header>
            <nav></nav>
        </header>
        <main>
            <article>
                <section>
                    <h1></h1>
                </section>
                <section>
                    <aside></aside>
                </section>
            </article>
        </main>
        <footer>
        </footer>
    </body>
</html>
```

# Formatting with Tags

**Header, Main and Footer**

# Unordered Lists

```html
<!DOCTYPE html>
<html>
    <head>
        <meta charset="UTF-8">
        <meta name="description" content="This is an awesome website">
        <title>CMPSC104 HTML Website</title>
    </head>
    <body>
        <ul>
            <li>Apples</li>
            <li>Oranges</li>
            <li>Bananas</li>
        </ul>
    </body>
</html>
```

# Ordered Lists

```html
<!DOCTYPE html>
<html>
    <head>
        <meta charset="UTF-8">
        <meta name="description" content="This is an awesome website">
        <title>CMPSC104 HTML Website</title>
    </head>
    <body>
        <ol>
            <li>Apples</li>
            <li>Oranges</li>
            <li>Bananas</li>
        </ol>
    </body>
</html>
```

# Ordered Lists

```
<!DOCTYPE html>
<html>
    <head>
        <meta charset="UTF-8">
        <meta name="description" content="This is an awesome website">
        <title>CMPSC104 HTML Website</title>
    </head>
    <body>
        <ol type="a">
            <li>Apples</li>
            <li>Oranges</li>
                <ol>
                    <li>item1</li>
                </ol>
            <li>Bananas</li>
        </ol>
    </body>
</html>
```

# Tables

```html
<!DOCTYPE html>
<html>
    <head>
        <meta charset="UTF-8">
        <meta name="description"
content="This is an awesome website">
        <title>CMPSC104 HTML Website</title>
    </head>
    <body>
        <table>
            <tr>
                <td>one</td>
                <td>two</td>
                <td>three</td>
            </tr>
            <tr>
                <td>Four</td>
                <td>five</td>
                <td>six</td>
            </tr>
        </table>
    </body>
</html>
```

# Tables

```html
<!DOCTYPE html>
<html>
    <head>
        <meta charset="UTF-8">
        <meta name="description" content="This is an awesome
website">
        <title>CMPSC104 HTML Website</title>
    </head>
    <body>
        <table>
            <caption><h3>List of Numbers</h3></caption>
            <tr>
                <th>num1</th>
                <th>num2</th>
                <th>num3</th>
            </tr>
            <tr>
                <td>one</td>
                <td>two</td>
                <td>three</td>
            </tr>
        </table>
    </body>
</html>
```

# Tables

```html
<!DOCTYPE html>
<html>
    <head>
        <meta charset="UTF-8">
        <meta name="description" content="This is an awesome website">
        <title>CMPSC104 HTML Website</title>
    </head>
    <body>
        <table>
            <caption><h3>List of Numbers</h3></caption>
            <tr>
                <th>num1</th>
                <th>num2</th>
                <th>num3</th>
            </tr>
            <tr>
                <td colspan="2">one</td>
                <td>two</td>
                <td>three</td>
            </tr>
        </table>
    </body>
</html>
```

# Divs & Spans

```html
<!DOCTYPE html>
<html>
    <head>
        <meta charset="UTF-8">
        <meta name="description" content="This is an awesome
website">
        <title>CMPSC104 HTML Website</title>
    </head>
    <body>
        <a href="#">link1</a>
        <a href="#">link2</a>

        <span>span1</span>
        <span>span2</span>

        <div>div1</div>
        <div>div2</div>
    </body>
</html>
```

# Input

```html
<!DOCTYPE html>
<html>
    <head>
        <meta charset="UTF-8">
        <meta name="description" content="This is an awesome
website">
        <title>CMPSC104 HTML Website</title>
    </head>
    <body>
        <input type="text" value="Enter Your Username"/>
        <br/>
        <input type="password" />
    </body>
</html>
```

# Input

```html
<!DOCTYPE html>
<html>
    <head>
        <meta charset="UTF-8">
        <meta name="description" content="This is an awesome
website">
        <title>CMPSC104 HTML Website</title>
    </head>
    <body>
        <input type="text" value="Enter Your Username"/>
        <br/>
        <input type="password"/>
        <br/>
        <textarea rows="10" cols="30">
            Enter a paragraph
        </textarea>
    </body>
</html>
```

# Input & Forms

```html
<!DOCTYPE html>
<html>
    <head>
        <meta charset="UTF-8">
        <meta name="description" content="This is an awesome
website">
        <title>CMPSC104 HTML Website</title>
    </head>
    <body>
        <input type="date" />
        <input type="email" />
        <input type="range" />
        <input type="file" />
        <input type="submit" />
        <input type="checkbox" />
        <input type="checkbox" />
        <input name="button" type="radio" />
        <input name="button" type="radio" />
    </body>
</html>
```

[HTML input tag (w3schools.com)](HTML input tag (w3schools.com))

# Forms

```html
<!DOCTYPE html>
<html>
    <head>
        <meta charset="UTF-8">
        <meta name="description" content="This is an awesome website">
        <title>CMPSC104 HTML Website</title>
    </head>
    <body>
        <form>
            <input type="date" />
            <input type="email" />
            <input type="range" />
            <input type="file" />
            <input type="submit" />
            <input type="checkbox" />
            <input type="checkbox" />
            <input name="button" type="radio" />
            <input name="button" type="radio" />
        </form>
    </body>
</html>
```

# iFrames

```html
<!DOCTYPE html>
<html>
    <head>
        <meta charset="UTF-8">
        <meta name="description" content="This is an awesome
website">
        <title>CMPSC104 HTML Website</title>
    </head>
    <body>
        <form>
            <input type="date" />
            <input type="email" />
            <input type="range" />
            <input type="file" />
            <input type="submit" />
            <input type="checkbox" />
            <input type="checkbox" />
            <input name="button" type="radio" />
            <input name="button" type="radio" />
        </form>
    </body>
</html>
```

# Reference and Resources

- HTML W3School ([https://www.w3schools.com/html/html_intro.asp](https://www.w3schools.com/html/html_intro.asp))