



# Introduction to CSS

SENG 4640

Software Engineering for Web Apps  
Winter 2023

Sina Keshvadi

Thompson Rivers University

# Review

---

- You can use an HTML tag's **attributes** to give it properties
- The **style** attribute allows you to change the appearance of the text within that element
- The **class** attribute allows you to group elements so that they can easily have the same style applied

# Plain HTML

---

## Here are some memorable quotes from movies!

You can find more at the [Internet Movie Database \(IMDb\)](#).

You killed my father. Prepare to die.

Inigo Montoya in *The Princess Bride*

I've never been to this part of the castle. Well, not awake. I sleepwalk, you see. That's why I wear shoes to bed.

Luna Lovegood in *Harry Potter and the Half-Blood Prince*

Chewie... we're home

Han Solo in *Star Wars: The Force Awakens*

# Stylish HTML

---

## Here are some memorable quotes from movies!

You can find more at the [Internet Movie Database \(IMDb\)](#).

You killed my father. Prepare to die.

– Inigo Montoya in *The Princess Bride*

I've never been to this part of the castle. Well, not awake. I sleepwalk, you see. That's why I wear shoes to bed.

– Luna Lovegood in *Harry Potter and the Half-Blood Prince*

Chewie... we're home

– Han Solo in *Star Wars: The Force Awakens*

# What is CSS?

---

- **Cascading Style Sheets (CSS)** are a formatting language used to describe the appearance of content in an HTML file
- CSS has a standardized specification defined by the World Wide Web Consortium (W3C)

# Why CSS?

---

- **HTML (“The Content”)**
  - What information does the page contain?
  - What is in the headings, body, etc.?
  - How is the information structured?
  
- **CSS (“The Presentation”)**
  - What does the page look like?
  - What *color, formatting, text size, etc.* should the various parts have?

# How does CSS work?

---

- I. The Web Browser receives the HTML page from the server via HTTP

# How does CSS work?

---

1. The Web Browser receives the HTML page from the server via HTTP
2. The HTML page can include CSS either in same file or with link to separate file
  - If it's a separate file, the web browser will request that file separately via HTTP



## How does CSS work? (2)

---

3. When all HTML and CSS files are available, the browser will render the page
4. For each element in the HTML page, the web browser will display the content and use the CSS to style it
5. Ideally, exactly one set of CSS styles will apply to any given element
6. If there are conflicting styles defined, complex rules determine which gets applied

# How do we use CSS?

---

1. **Inline:** use tag's "style" attribute to specify appearance
2. **Internal:** create `<style>` elements in HTML and assign to different tags, classes, etc.
3. **External:** specify styling in a separate CSS file

# Review: Inline CSS as “style” attribute

---

- Include CSS within the element tag itself as a “style” attribute

# Review: Inline CSS as “style” attribute

---

- Include CSS within the element tag itself as a “style” attribute

```
...  
<h1 style="color:red">  
  Here are some memorable  
    quotes from movies!  
</h1>  
...
```

# Review: Inline CSS as “style” attribute

---

- Include CSS within the element tag itself as a “style” attribute

```
...  
<h1 style="color:red">  
  Here are some memorable  
    quotes from movies!  
</h1>  
...
```

# Review: Inline CSS as “style” attribute

---

- Include CSS within the element tag itself as a “style” attribute

```
...  
<h1 style="color:red">  
  Here are some memorable  
    quotes from movies!  
</h1>  
...
```

## Here are some memorable quotes from movies!

You can find more at the [Internet Movie Database \(IMDb\)](#).

You killed my father. Prepare to die.

Inigo Montoya in *The Princess Bride*

I've never been to this part of the castle. Well, not awake. I sleepwalk, you see. That's why I wear shoes to bed.

Luna Lovegood in *Harry Potter and the Half-Blood Prince*

Chewie... we're home

Han Solo in *Star Wars: The Force Awakens*

# Analysis: Inline CSS as “style” attribute

---

- Advantages
  - Easy to use
  - Good for quick, one-off situations

# Analysis: Inline CSS as “style” attribute

---

- Advantages
  - Easy to use
  - Good for quick, one-off situations
- Disadvantages
  - Mixing content and presentation: this should be avoided
  - Hard to manage for large, complex pages



# Review: Internal CSS using `<style>` tag

---

- Include CSS within the head of the HTML using `<style>` elements

# Review: Internal CSS using <style> tag

---

- Include CSS within the head of the HTML using <style> elements

```
<head>
...
  <style>
    h1 {
      color: red;
      text-transform: capitalize;
    }
  </style>
...
</head>
...
<h1>
  Here are some memorable
  quotes from movies!
</h1>
```

# Review: Internal CSS using <style> tag

---

- Include CSS within the head of the HTML using <style> elements

```
<head>
...
  <style>
    h1 {
      color: red;
      text-transform: capitalize;
    }
  </style>
...
</head>
...
<h1>
  Here are some memorable
  quotes from movies!
</h1>
```

# Review: Internal CSS using <style> tag

---

- Include CSS within the head of the HTML using <style> elements

```
<head>
...
  <style>
    h1 {
      color: red;
      text-transform: capitalize;
    }
  </style>
...
</head>
...
<h1>
  Here are some memorable
  quotes from movies!
</h1>
```

# Review: Internal CSS using <style> tag

---

- Include CSS within the head of the HTML using <style> elements

```
<head>
...
  <style>
    h1 {
      color: red;
      text-transform: capitalize;
    }
  </style>
...
</head>
...
<h1>
  Here are some memorable
  quotes from movies!
</h1>
```

# Review: Internal CSS using <style> tag

---

- Include CSS within the head of the HTML using <style> elements

```
<head>
...
  <style>
    h1 {
      color: red;
      text-transform: capitalize;
    }
  </style>
...
</head>
...
<h1>
  Here are some memorable
  quotes from movies!
</h1>
```

## Here Are Some Memorable Quotes From Movies!

You can find more at the [Internet Movie Database \(IMDb\)](#).

You killed my father. Prepare to die.

Inigo Montoya in *The Princess Bride*

I've never been to this part of the castle. Well, not awake. I sleepwalk, you see. That's why I wear shoes to bed.

Luna Lovegood in *Harry Potter and the Half-Blood Prince*

Chewie... we're home

Han Solo in *Star Wars: The Force Awakens*

# CSS Syntax

---

```
<style>  
  h1 {  
    color: red;  
    text-transform: capitalize;  
  }  
</style>
```

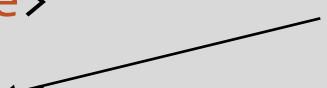
# CSS Syntax

---

- Selector (e.g., h1)

```
<style>
  h1 {
    color: red;
    text-transform: capitalize;
  }
</style>
```

CSS Selector





# CSS Syntax

---

- Selector (e.g., h1)
- Properties and Values (e.g., color:red)

```
<style>
  h1 {
    color: red;
    text-transform: capitalize;
  }
</style>
```

CSS Selector

property: value

The diagram illustrates the components of a CSS rule. A label 'CSS Selector' has an arrow pointing to the 'h1' selector in the code. A label 'property: value' has two arrows pointing to the 'color: red;' and 'text-transform: capitalize;' declarations in the code.

# Analysis: Internal CSS using `<style>` tag

---

- Advantages
  - Separates content and presentation
  - Easy to use
    - In particular, if you want to apply the same style to all tags of a certain type (say `<p>`) it's easier to do it with internal CSS than inline CSS
  - Good if you only have a limited amount of CSS in the page

# Analysis: Internal CSS using `<style>` tag

---

- Advantages
  - Separates content and presentation
  - Easy to use
    - In particular, if you want to apply the same style to all tags of a certain type (say `<p>`) it's easier to do it with internal CSS than inline CSS
  - Good if you only have a limited amount of CSS in the page
- Disadvantages
  - Hard to manage for large, complex pages
  - Cannot reuse across multiple pages

# External CSS

---

- Include CSS in a separate file and link the file in the head of the HTML file

# External CSS

---

- Include CSS in a separate file and link the file in the head of the HTML file

```
<head>
...
<link rel="stylesheet"
      type="text/css"
      href="movie-styles.css" />
...
</head>
...
<h1>
  Here are some memorable
  quotes from movies!
</h1>
```

movies.html

# External CSS

---

- Include CSS in a separate file and link the file in the head of the HTML file

```
<head>
...
<link rel="stylesheet"
      type="text/css"
      href="movie-styles.css" />
...
</head>
...
<h1>
  Here are some memorable
  quotes from movies!
</h1>
```

movies.html

# External CSS

---

- Include CSS in a separate file and link the file in the head of the HTML file

```
<head>
...
<link rel="stylesheet"
      type="text/css"
      href="movie-styles.css" />
...
</head>
...
<h1>
  Here are some memorable
  quotes from movies!
</h1>
```

movies.html

# External CSS

---

- Include CSS in a separate file and link the file in the head of the HTML file

```
<head>
...
<link rel="stylesheet"
      type="text/css"
      href="movie-styles.css" />
...
</head>
...
<h1>
  Here are some memorable
  quotes from movies!
</h1>
```

movies.html

```
h1 {
  color: red;
  text-transform: capitalize;
}
```

movie-styles.cs

s



# External CSS

---

- Include CSS in a separate file and link the file in the head of the HTML file

```
<head>
...
<link rel="stylesheet"
      type="text/css"
      href="movie-styles.css" />
...
</head>
...
<h1>
  Here are some memorable
  quotes from movies!
</h1>
```

movies.html

```
h1 {
  color: red;
  text-transform: capitalize;
}
```

movie-styles.cs

S

# External CSS

---

- Include CSS in a separate file and link the file in the head of the HTML file

```
<head>
...
<link rel="stylesheet"
      type="text/css"
      href="movie-styles.css" />
...
</head>
...
<h1>
  Here are some memorable
  quotes from movies!
</h1>
```

movies.html

```
h1 {
  color: red;
  text-transform: capitalize;
}
```

movie-styles.cs

S

## Here Are Some Memorable Quotes From Movies!

You can find more at the [Internet Movie Database \(IMDb\)](#).

You killed my father. Prepare to die.

Inigo Montoya in *The Princess Bride*

I've never been to this part of the castle. Well, not awake. I sleepwalk, you see. That's why I wear shoes to bed.

Luna Lovegood in *Harry Potter and the Half-Blood Prince*

Chewie... we're home.

Han Solo in *Star Wars: The Force Awakens*

# Analysis: External CSS

---

- Advantages
  - Separates content and presentation
  - Can include many different CSS pages with multiple `<link>` tags

# Analysis: External CSS

---

- Advantages
  - Separates content and presentation
  - Can include many different CSS pages with multiple `<link>` tags
- Disadvantages
  - Lots of different files to manage (which might be overkill for smaller pages)

# CSS Selectors

---

Type of Selector	What's in the CSS File?	What does this selector apply to?	What does the HTML file contain?
Element Selector	<code>h1 { color:red; }</code>	All <code>&lt;h1&gt;</code> elements	<code>&lt;h1&gt; ... &lt;/h1&gt;</code>

# CSS Selectors

---

Type of Selector	What's in the CSS File?	What does this selector apply to?	What does the HTML file contain?
Element Selector	<code>h1 { color:red; }</code>	All <code>&lt;h1&gt;</code> elements	<code>&lt;h1&gt; ... &lt;/h1&gt;</code>
Class selector	<code>.address { ... }</code>	All elements in class "address"	<code>&lt;div class="address"&gt; ... &lt;/div&gt;</code>

# CSS Selectors

Type of Selector	What's in the CSS File?	What does this selector apply to?	What does the HTML file contain?
Element Selector	<code>h1 { color:red; }</code>	All <code>&lt;h1&gt;</code> elements	<code>&lt;h1&gt; ... &lt;/h1&gt;</code>
Class selector	<code>.address { ... }</code>	All elements in class "address"	<code>&lt;div class="address"&gt; ... &lt;/div&gt;</code>
Id Selector	<code>#section1 { ... }</code>	Unique element with ID "section1"	<code>&lt;p id="section1"&gt; ... &lt;/p&gt;</code>

# Summary

---

- **Cascading Style Sheets (CSS)** are a formatting language used to describe the appearance of content in an HTML file
- We can include CSS formatting in HTML in three ways:
  1. inline as style attributes
  2. internal using the `<style>` tag
  3. external in a separate file linked with the `<link>` tag
- A CSS element consists of a selector and property:value pairs