

ENSF 381

Full Stack Web Development

Lecture 09:

Cascading Style Sheets

Slides: Ahmad Abdellatif, PhD

Instructor: Novarun Deb, PhD



**UNIVERSITY OF
CALGARY**

Outline

- What is CSS?
- CSS importance
- CSS Syntax
- Link CSS with HTML
- CSS Specificity

What is CSS?

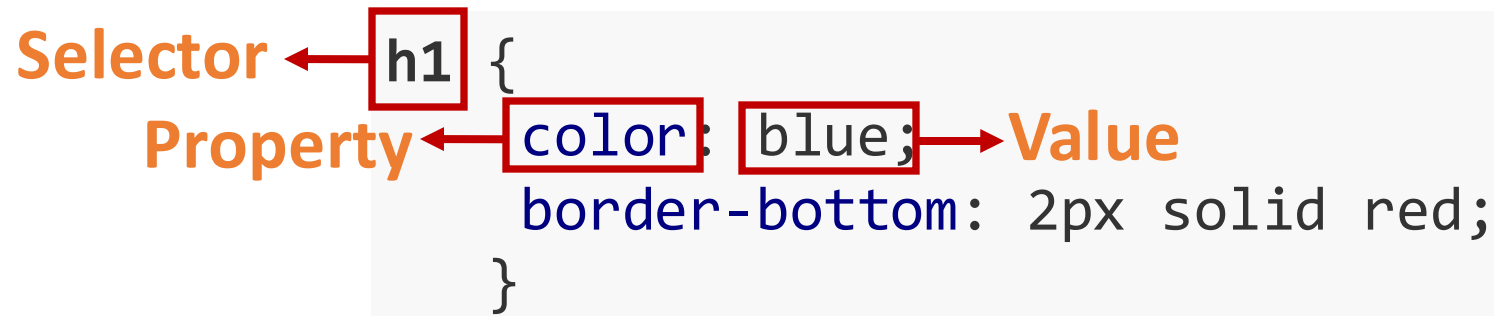
- Stands for Cascading Style Sheets.
- Used for describing the presentation of a document written in a markup language like HTML.
- Allows web developers to control the layout, appearance, and formatting of HTML elements within a web page.

Why is CSS crucial in web development?

1. **Selective Styling:** CSS enables developers to selectively style specific HTML elements. You can target elements based on their tag names, classes, IDs, attributes.
2. **Consistency:** ensure a consistent look and feel across multiple pages of a website.
3. **Responsive Design:** making websites adapt to various devices and screen sizes.
4. **Separation of Concerns:** CSS promotes the separation of concerns in web development. **HTML is responsible for the structure of the content, CSS for presentation, and JavaScript for behavior.** This separation makes the codebase more:
 1. Modular.
 2. Maintainable.
 3. Easier to collaborate on.

CSS Syntax

- To apply the CSS styles to an HTML file, you would include the CSS code within a `<style>` block inside the `<head>` section of the HTML document.



The diagram illustrates the components of a CSS rule. It shows a CSS rule: `h1 { color: blue; border-bottom: 2px solid red; }`. Red boxes highlight the selector `h1`, the property `color`, and the value `blue`. Arrows point from the labels 'Selector', 'Property', and 'Value' to their respective parts in the code. The label 'Value' points to the entire declaration `color: blue;`.

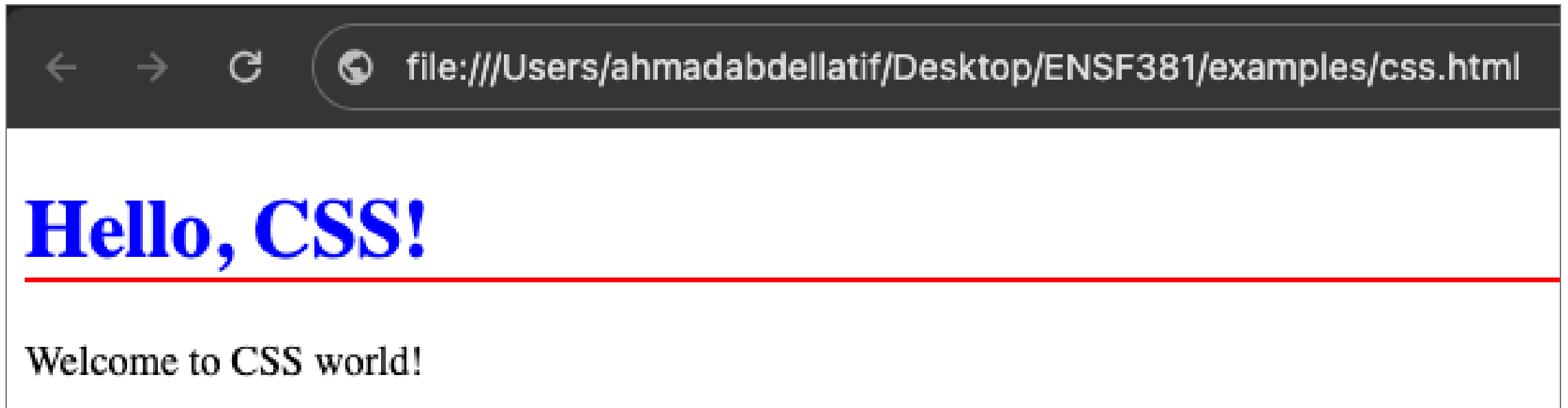
```
Selector ← h1 {  
    Property ← color: blue; → Value  
    border-bottom: 2px solid red;  
}
```

- Selector: the selector is the part of the CSS rule that defines which HTML elements the styling rules will apply to. It can be a tag name, class, ID, or a combination of these. For example:
 - **Tag selector:** `h1` targets all `<h1>` elements.

CSS Syntax - example

```
<!DOCTYPE html>
<html>
<head>
  <title>CSS Example</title>
→ <style>
  h1 {
    color: blue;
    border-bottom: 2px solid red;
  }
→ </style>
</head>
<body>
  <h1>Hello, CSS!</h1>
  <p>Welcome to CSS world!</p>
</body>
</html>
```

CSS Syntax - example



CSS Syntax

- To apply the CSS styles to an HTML file, you would include the CSS code within a `<style>` block inside the `<head>` section of the HTML document.

```
h1 {  
    color: blue;  
    border-bottom: 2px solid red;  
}
```

- Selector: the selector is the part of the CSS rule that defines which HTML elements the styling rules will apply to. It can be a tag name, class, ID, or a combination of these. For example:
 - **Tag selector:** `h1` targets all `<h1>` elements.
 - **Class selector:** `.my-class` targets all elements with the class "my-class".
 - **ID selector:** `#my-id` targets the element with the ID "my-id".

CSS Syntax – example 2

```
<!DOCTYPE html>
<html>
<head>
<title>CSS Example</title>
  <style>
    h1 {
      color: blue;
    }
    p {
      color: pink;
    }
    .my-class {
      font-size: 30px;
      color: orangered;
    }
    #my-id {
      background-color: lightgray;
    }
  </style>
</head>
```

CSS Syntax – example 2

```
<body>
  <h1>Hello, CSS!</h1>

  <p>Welcome to CSS world!</p>

  <h2 class="my-class">This is h2 tag</h2>
  <p class="my-class">This is the p tag that it has a class property
</p>

  <div id="my-id">This is the div tag</div>

</body>
</html>
```

CSS Syntax - example



Can you identify situations in which it becomes necessary to apply styling to elements using classes or ids?

Selective styling for similar elements: When you have multiple elements of the same type (e.g., multiple headings) but you want to style **only a subset of them differently**. This allows you to selectively target and style specific instances of an element type **without affecting others of the same type**.

Styling element using its attribute - example

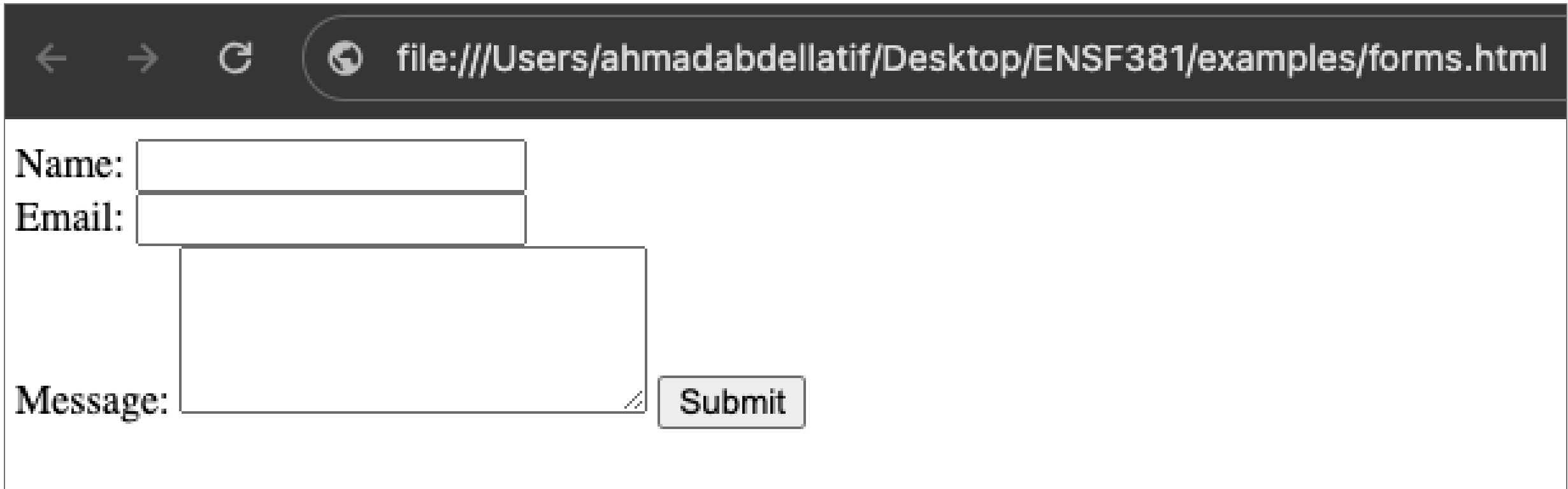
```
<form>
  <label for="name">Name:</label>
  <input type="text" id="name" name="name">
  <br>

  <label for="email">Email:</label>
  <input type="text" id="email" name="email">
  <br>

  <label for="message">Message:</label>
  <textarea id="message" name="message" rows="4"></textarea>

  <input type="submit" value="Submit">
</form>
```

Styling element using its attribute - example



A screenshot of a web browser window displaying a form. The browser's address bar shows the file path: `file:///Users/ahmadabdellatif/Desktop/ENSF381/examples/forms.html`. The form contains three input fields: a text field for "Name:", a text field for "Email:", and a larger text area for "Message:". To the right of the "Message:" field is a "Submit" button. The form is styled with a simple, clean design.

Name:

Email:

Message:

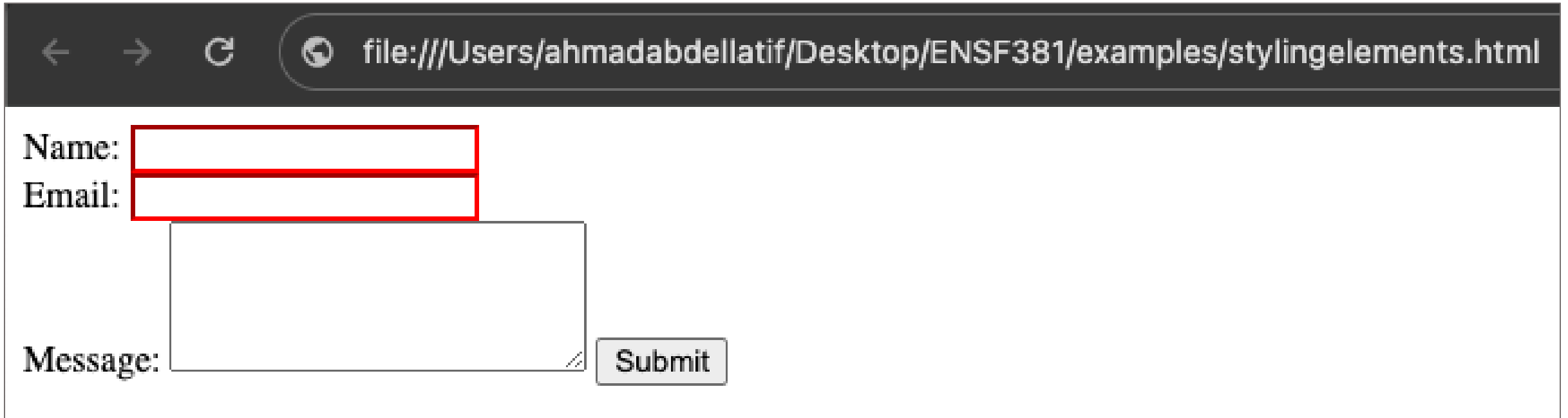
Styling element using its attribute - example

```
<head>
  <style>
    input[type="text"]
    {
      border-color:red;
    }
  </style>
</head>
<body>
<form>
<label for="name">Name:</label>
  <input type="text" id="name" name="name">
    <br>

<label for="email">Email:</label>
<input type="text" id="email" name="email">
  <br>

<label for="message">Message:</label>
  <textarea id="message" name="message" rows="4"></textarea>
  <input type="submit" value="Submit">
</form></body>
```

Styling element using its attribute - example



A screenshot of a web browser window displaying a form. The browser's address bar shows the file path: `file:///Users/ahmadabdellatif/Desktop/ENSF381/examples/stylingelements.html`. The form contains three input fields: "Name:", "Email:", and "Message:". The "Name:" and "Email:" fields are highlighted with red borders. The "Message:" field is a larger text area. To the right of the "Message:" field is a "Submit" button.

Name:

Email:

Message:

Submit

CSS Specificity

- A set of rules that dictate which styles are applied to an element when conflicting styles exist.
- It determines which style declarations are the most relevant or specific to an element and should therefore be applied.
- The specificity of a style is calculated based on the following factors, in order of importance:
 - **Inline styles** - `<h1 style="color: pink;">`
 - **IDs** - `#unique-element {color: blue;}`
 - **Classes** - `.example-class {font-size: 16px;}`
 - **Elements** - `p{font-family: "Arial";}`

CSS Specificity - example

```
<html>
<head>
  <style>
p {color: red;} ←
  </style>
</head>
<body>

<p>Hello World!</p>

</body>
</html>
```

CSS Specificity - example



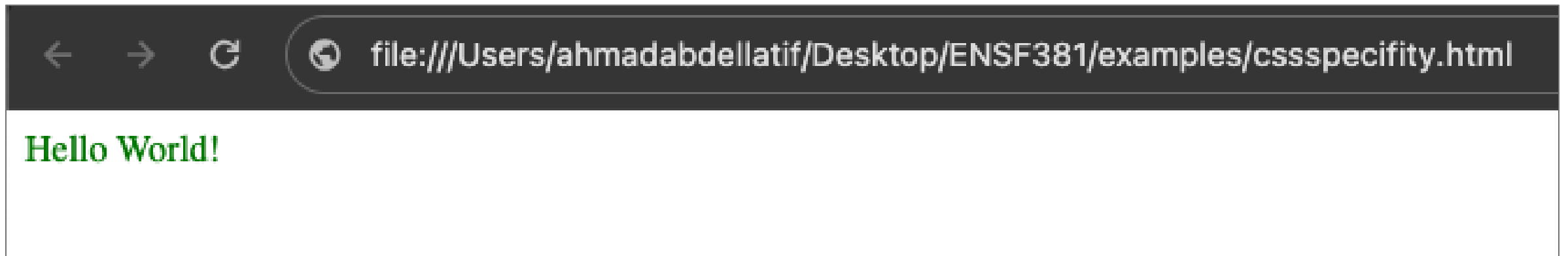
CSS Specificity - example

```
<html>
<head>
  <style>
    .test {color: green;} ←
    p {color: red;}
  </style>
</head>
<body>

<p class="test">Hello World!</p>

</body>
</html>
```

CSS Specificity - example



CSS Specificity - example

```
<html>
<head>
  <style>
    #demo {color: blue;} ←
    .test {color: green;}
    p {color: red;}
  </style>
</head>
<body>

<p id="demo" class="test">Hello World!</p>

</body>
</html>
```

CSS Specificity - example



CSS Specificity - example

```
<html>
<head>
  <style>
#demo {color: blue;}
.test {color: green;}
p {color: red;}
  </style>
</head>
<body>

<p id="demo" class="test" style="color: pink;">Hello World!</p>

</body>
</html>
```


CSS Specificity - example



Methods to link CSS with HTML

There are various ways to link CSS to HTML page:

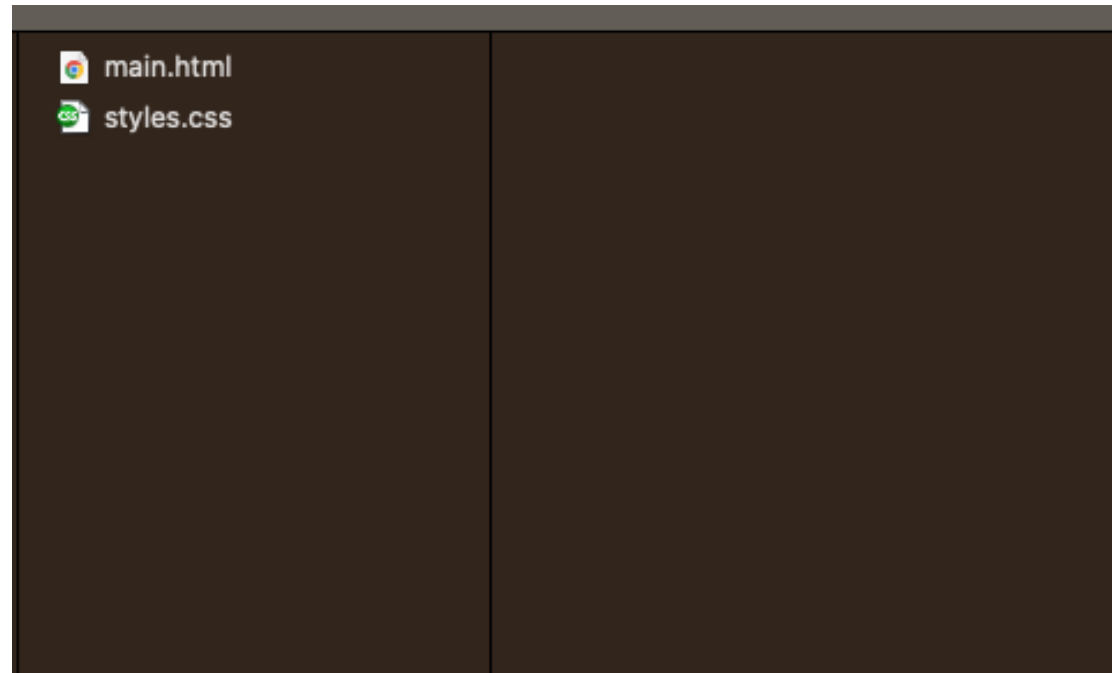
- Internal:

```
<style>
  h1 {
    color: blue;
    border-bottom: 2px solid red;
  }
</style>
```

- Inline: `<p style="color: pink;">Hello World!</p>`

- External: `<link rel="stylesheet" href="styles.css">`

Example of linking external CSS with HTML



styles.css

```
.content {  
  font-size: 18px;  
  color: green;  
}
```

main.html

```
<!DOCTYPE html>
<html lang="en">
<head>
  <title>ENSF381</title>
  <!-- Link to the external CSS file -->
  <link rel="stylesheet" href="styles.css">
</head>
<body>

  <!-- Your HTML content goes here -->
  <p class="content">This is a simple example with separate HTML and
CSS files.</p>

</body>
</html>
```

Output

← → ↻ 🔍 file:///Users/ahmadabdellatif/Desktop/ENSF381/examples/main.html

This is a simple example with separate HTML and CSS files.

References

- <https://www.w3schools.com/cssref/index.php>
- <https://developer.mozilla.org/en-US/docs/Learn/CSS>
- <https://www.rapidtables.com/web/css/css-color.html>

Questions

