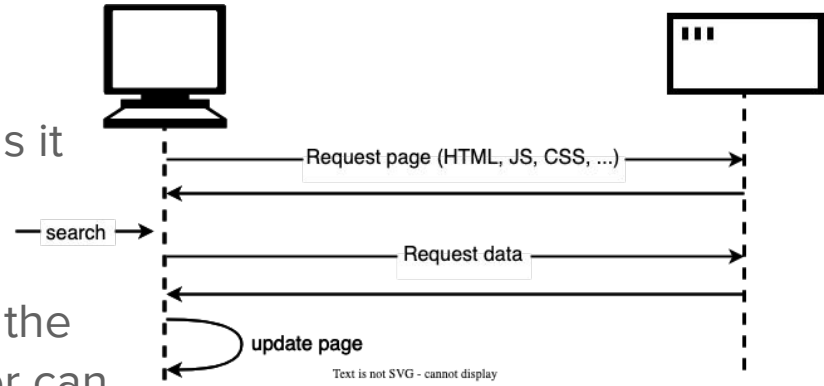
Web development basics

HTML

HTML Page rendering

1) The user enters a URL into their web browser, which sends a request to the server for the corresponding HTML page.
2) The server retrieves the HTML file and sends it back to the browser.
3) The browser begins parsing the HTML document, which is a process of converting the text into a structured format that the browser can understand.
4) As the browser parses the HTML, it also starts fetching any additional resources specified in the document, such as images and stylesheets.

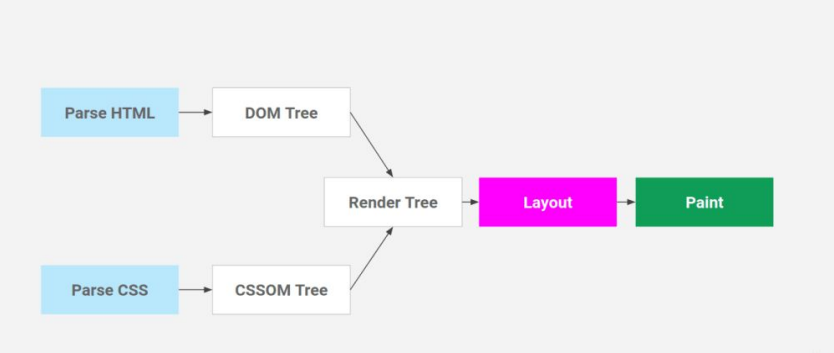


HTML Page rendering

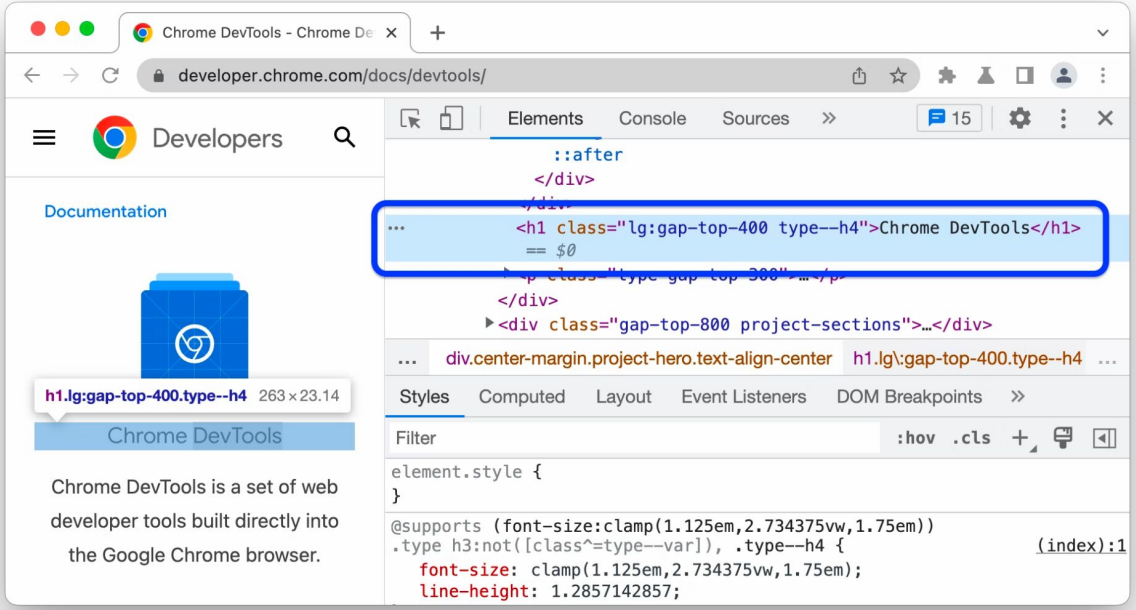
5) Once all of the resources have been fetched and the HTML has been fully parsed, the browser begins rendering the page.

6) During rendering, the browser applies the CSS styles to the HTML elements, and lays out the elements on the screen according to the rules specified in the CSS.

7) Finally, the browser paints the visible elements onto the screen, which is the process of drawing the final pixels that the user sees on the screen.



Devtools



https://developer.chrome.com/docs/devtools/

How to create HTML page

1) Open Visual Studio Code
2) Create empty index.html file
3) Start writing HTML code
4) Install Live Server extension (optional)
5) Open HTML file in browser:
    a) Open HTML with live server
    b) Or open file from file explorer

```
<!DOCTYPE html>
<html>
  <head>
    <title>Page Title</title>
  </head>
  <body>
    <h1>This is a Heading</h1>
    <p>This is a paragraph.</p>
  </body>
</html>
```

HTML tags

HTML tags are the building blocks of an HTML document. They are used to define the structure and content of a web page. There are many different types of HTML tags, but **some common** examples include:

- **<html>**: This is the root element of an HTML document, and it contains all of the other elements on the page.
- **<head>**: This element contains information about the document, such as the title of the page and any meta data.
- **<body>**: This element contains the content of the page that is visible to the user.
- ** **: This element is a container for other elements, and is often used to group elements together for styling purposes.
- **<p>**: This element is used to define a paragraph of text.

HTML tags 2

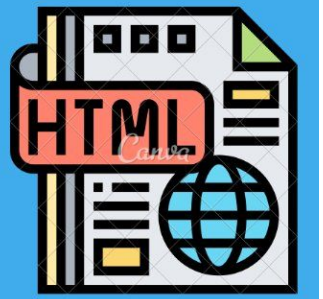
- **<a>**: This element creates a hyperlink to another web page.
- **<img>**: This element is used to embed images in a web page.
- **<h1> - <h6>**: These elements are used to define headings and subheadings on the page.
- **<ul>** and **<li>**: These elements are used to create unordered lists.
- **<ol>** and **<li>**: These elements are used to create ordered lists.
- **<form>**: This element is used to create forms that allow users to input data and submit it to a server.

HTML tags are often **paired**, with a start tag and an end tag, and the content between the start and end tags is the content of the tag. For example, an tag would be written as This is a paragraph , and the content inside the tags is "This is a paragraph"

Self Closing Tags

List of self-closing tags in HTML

- <area>
- <base>
-
- <hr>
- <input>
- <link>
- <col>
- <img>
- <meta>
- <source>
- <wbr>
- <track>



Most often tags in HTML start and end with a closing tag. E.g Paragraph
Whereas self-closing tags are those who do not need a closing tag

What and Why HTML Semantic Elements

Semantic elements are needed for several reasons:

1) **Improved accessibility**: Semantic elements provide a clear structure to the content on a web page, making it easier for screen readers and other assistive technologies to understand and navigate the content.
2) **Better SEO**: Search engines use the structure of a web page to better understand its content and relevance to search queries. By using semantic elements, you can help search engines understand the hierarchy and importance of your content, improving its visibility in search results.
3) **Better code readability and maintainability**: Semantic elements make the code more readable and easier to maintain, as they provide a clear structure to the content. This makes it easier for developers to understand the content and make changes to it, improving the overall quality and maintainability of the code.
4) **Improved user experience**: Semantic elements help to make the content on a web page more intuitive and easy to understand for users, improving their overall experience and making it more likely that they will stay on the site and engage with the content.

HTML Semantic Elements

Header element:

```
<header>
  <img src="logo.png" alt="Company Logo">
  <h1>My Website</h1>
  <nav>
    <ul>
      <li><a href="#about">About</a></li>
      <li><a href="#services">Services</a></li>
      <li><a href="#contact">Contact</a></li>
    </ul>
  </nav>
</header>
```

Nav element:

```
<nav>
  <ul>
    <li><a href="#home">Home</a></li>
    <li><a href="#services">Services</a></li>
    <li><a href="#portfolio">Portfolio</a></li>
    <li><a href="#contact">Contact</a></li>
  </ul>
</nav>
```

HTML Semantic Elements 2

Main element:

```
<main>
  <h2>Welcome to My Website</h2>
  <p>This is my personal website where I showcase my
  <article>
    <h3>My Latest Project</h3>
    <p>I recently completed a web development project
  </article>
</main>
```

Article element:

```
<article>
  <h2>How to Make the Perfect Cup of Coffee</h2>
  <p>Making a great cup of coffee is not rocket science, but
  <ul>
    <li>Use freshly roasted, high-quality coffee beans.</li>
    <li>Grind the beans just before brewing for maximum fres
    <li>Use the right water temperature and amount for your
  </ul>
  <p>Follow these steps and you'll be on your way to a delic
</article>
```

HTML Semantic Elements 3

Footer element:

```
<footer>
  <p>Copyright &copy; 2022 My Website</p>
  <nav>
    <ul>
      <li><a href="#about">About</a></li>
      <li><a href="#terms">Terms of Use</a></li>
      <li><a href="#privacy">Privacy Policy</a></li>
    </ul>
  </nav>
</footer>
```

Rest tags

https://www.w3schools.com/TAGS/default.asp

Classwork - small html project

Task: Create a simple HTML page that displays your personal information using various HTML tags.

Instructions:

1) Create an HTML file using a text editor and save it with a .html extension.
2) Add the following elements to your HTML page:
    a) A header element with your name as the text.
    b) A paragraph element that contains your brief introduction and personal details, such as your location, education, and interests.
    c) An unordered list element that lists your hobbies.
    d) An image element that displays your profile picture.
    e) A link element that leads to your social media profile (optional).

3) Add a title to your HTML page and make sure that it accurately reflects the content of the page.

4) Preview the HTML page in a web browser to see the results.

HTML attributes

Attributes are additional information that can be provided for HTML elements to modify their behavior or appearance. Attributes are added to an HTML element in the opening tag and are specified as a **name-value pair**, such as **attribute="value"**. Some common uses of attributes include:

1) Specifying the **source** of an element's content:

```
<img src="image.jpg" alt="A beautiful landscape">
```

2) Modifying the **appearance** of an element:

```
<p class="highlight">This is a highlighted paragraph.</p>
```

HTML attributes 2

3) Providing **additional information** about an element:

```
<img src="image.jpg" alt="A beautiful landscape">
```

4) Creating **links**:

```
<a href="https://www.example.com">Visit Example.com</a>
```

5) Specifying form **controls**:

```
<input type="text" name="username" value="Enter your username">
```

https://www.w3schools.com/html/html_attributes.asp

HTML forms

Forms are an essential part of many websites and web applications, allowing users to **input data** and **interact with the site**. To create a form in HTML, you can use several elements, including <**form**>, <**input**>, <**select**>, and <**textarea**>. Here is how you create sample form:

1) Use the <**form**> element to define the form. Add an **action** attribute to specify the **URL** where the form data will be sent and a **method** attribute to specify how the form data will be sent (usually "**POST**" or "**GET**").

```
<form action="/submit-form" method="post">
</form>
```

HTML forms 2

2) Use the <**input**> element to create form fields, such as **text fields**, **checkboxes**, and **radio buttons**. Add a **type** attribute to specify the type of input field, and a **name** attribute to identify the field.

```
<form action="/submit-form" method="post">
  <input type="text" name="username">
  <input type="email" name="email">
  <input type="password" name="password">
</form>
```

3) Use the <**select**> element to create a **drop-down list**. Add **options** using <**option**> elements, and use the **value** attribute to specify the value that will be sent with the form.

```
<form action="/submit-form" method="post">
  <select name="city">
    <option value="nyc">New York City</option>
    <option value="la">Los Angeles</option>
    <option value="chicago">Chicago</option>
  </select>
</form>
```

HTML forms 3

4) Use the <**textarea**> element to create a **text area** for users to enter a **larger amount of text**. Add a **name** attribute to identify the field.

5) Add a **submit** button to the form using an <**input**> element with a **type** attribute of "**submit**".

```
<form action="/submit-form" method="post">
  <textarea name="message"></textarea>
</form>
```

```
<form action="/submit-form" method="post">
  <input type="text" name="username">
  <input type="email" name="email">
  <input type="password" name="password">
  <select name="city">
    <option value="nyc">New York City</option>
    <option value="la">Los Angeles</option>
    <option value="chicago">Chicago</option>
  </select>
  <textarea name="message"></textarea>
  <input type="submit" value="Submit">
</form>
```

Classwork about HTML attributes & forms

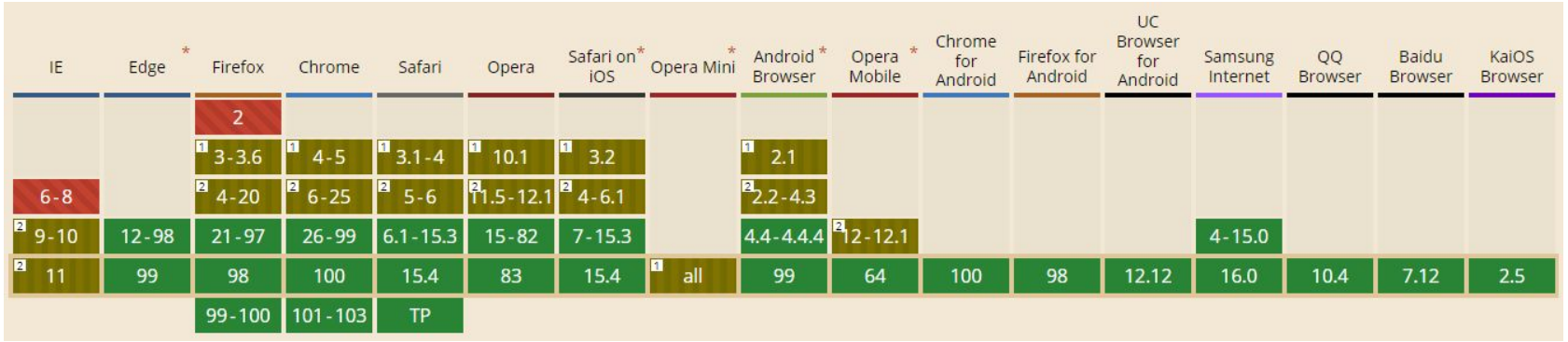
Instructions:

1) Open a text editor and create a new HTML file.
2) Start with a basic HTML structure
3) Add a form to the body using the <form> element
4) Inside the form, add a text input field using the <input> element
5) Add a name attribute to the input field to identify it
6) Add a label for the input field using the <label> element
7) Add a password input field with a label
8) Add a submit button using the <input> element
9) Save the file and open it in a web browser to see your first HTML form.

Classwork about HTML attributes & forms - solution

```
<body>
  <form action="">
    <label for="username">Username:</label>
    <input type="text" name="username" id="username">
    <br><br>
    <label for="password">Password:</label>
    <input type="password" name="password" id="password">
    <br><br>
    <input type="submit" value="Submit">
  </form>
</body>
```

Can I use?



IE	Edge *	Firefox	Chrome	Safari	Opera	Safari on iOS *	Opera Mini *	Android Browser *	Opera Mobile *	Chrome for Android	Firefox for Android	UC Browser for Android	Samsung Internet	QQ Browser	Baidu Browser	KaiOS Browser
		2														
		1 3-3.6	1 4-5	1 3.1-4	1 10.1	1 3.2		1 2.1								
6-8		2 4-20	2 6-25	2 5-6	2 11.5-12.1	2 4-6.1		2 2.2-4.3								
2 9-10	12-98	21-97	26-99	6.1-15.3	15-82	7-15.3		4.4-4.4.4	2 12-12.1				4-15.0			
2 11	99	98	100	15.4	83	15.4	1 all	99	64	100	98	12.12	16.0	10.4	7.12	2.5
		99-100	101-103	TP												

Quiz

Which tag is used to define a paragraph in HTML?

a. <p>

b.

c. <a>

d.

Which tag is used to add an image in HTML?

a. <img>

b. <picture>

c. <imgsrc>

d. <image>

What is the correct way to create a hyperlink in HTML?

a. <link href="url">link text</link>

b. link text

c. <hyperlink href="url">link text</hyperlink> d

. link text

Quiz

What is the correct way to add a background color to an HTML element?

a. <body color="red">

b.

c. <background color="red">

d. <color="red">element</color>

Which attribute is used to specify the URL of the page the link goes to?

a. href

b. url

c. link

d. src

Quiz

What is the correct way to start an HTML document?

a) <!DOCTYPE html>

b) <html>

c) <head>

d) <!DOCTYPE html><html><head>

Which of the following is an example of an ordered list in HTML?

a) Item 1 Item 2

b) Item 1 Item 2

c) Item 1 Item 2

d) <dl> <dt>Item 1</dt> <dd>Description 1</dd> <dt>Item 2</dt> <dd>Description 2</dd> </dl>

Quiz

Which tag is used to create a form in HTML?

a) <input>

b) <form>

c) <select>

d) <textarea>

Which attribute is used to specify the type of form element in HTML?

a) class

b) id

c) type

d) name

Which of the following input types will create a text box in HTML?

a) text

b) checkbox

c) radio

d) select

Which tag is used to create a dropdown list in HTML?

a) <input>

b) <select>

c) <option>

d) <textarea>

Homework

1) Create HTML mockup for your personal portfolio, and push it to github
    a) Advanced - add css styling to portfolio

Portfolio ideas - https://bashooka.com/html/free-html-css-portfolio-web-design-templates/