



< 6.1040 R5 >

HTML + CSS

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Roadmap

- Intro to HTML
- DOM
- Intro to CSS + Layouts
- Exercise

What is HTML?

- HyperText Markup Language
- Standard markup language for web pages
- Tells browser how to display content
- Made up of nested elements (DOM)





Motivation

- Structural glue that holds web pages together
- Dictates which elements and functionalities will appear on your webpage
- In practice, HTML needs to be paired with CSS for aesthetics/layout and JavaScript for functionality/reactivity
 - Example: Log In button
 - But HTML is the central component that makes frontends work!

index.html X # style.css Website Title X

index.html > html > body > main > div.row > div.post-text-box

```
4 <title> Website Title </title>
5 <link rel="stylesheet" href="style.css">
6 </head>
7 <body>
8 <header>
9 <h1> Your Personal Blog</h1>
10 <nav>
11 <a href="#">Home</a>
12 <a href="#">Blog</a>
13 <a href="#">About</a>
14 </nav>
15 </header>
16 <main>
17 <div class="row">
18 <div class="post-text-box">
19 <h2>Newest Post</h2>
20 <section>
21 <h3>First Post</h3>
22 <p>Lorem ipsum dolor sit amet</p>
23 </section>
24 </div>
25 <div class="profile">
26 <h2>About Me</h2>
27 
28 <p> Lorem ipsum dolor sit amet</p>
29 </div>
30 </div>
31 </main>
32 <footer>
33 <a href="#">Twitter</a>
34 <a href="#">Facebook</a>
35 <a href="#">Instagram</a>
36 </footer>
37 </body>
```

http://127.0.0.1:3000/index.html

Your Personal Blog


Home Blog About

Newest Post

First Post

Lorem ipsum dolor sit amet

About Me



Lorem ipsum dolor sit amet

[Twitter](#) [Facebook](#) [Instagram](#)

Ln 18, Col 42 Spaces: 4 UTF-8 CRLF HTML Port: 3000

A Single HTML Element

Opening tag

Closing tag

`<p>My cat is very grumpy</p>`

Content

Element

Common *Semantic* HTML Elements

Element Tag	Description	Example
<code><h1></code>	Heading	<pre><h1>Hello World!</h1></pre> <p>Hello World!</p>
<code><h2></code>	Subheading	<pre><h2>Hello World!</h2></pre> <p>Hello World!</p>
<code>
</code>	Line Break	<pre><p>Hello World!</p>
<p>Hello World!</p></pre> <p>Hello World!</p> <p>Hello World!</p>
<code></code>	Link	<pre>MIT Home Page</pre> <p>MIT Home Page</p>



Demo



Div

- Container that holds other elements
- Keeps elements organized in a nested format
- Allows CSS to be applied to all nested elements in Div
- Not semantic – div in itself doesn't say anything about the content

```
<h1>The div element</h1>
```

```
<div class="myDiv">
```

```
  <h2>This is a heading in a div element</h2>
```

```
  <p>This is some text in a div element.</p>
```

```
</div>
```

```
<p>This is some text outside the div element.</p>
```

The div element



This is a heading in a div element

This is some text in a div element.

This is some text outside the div element.



You Can Nest Other HTML Elements Too!

```
<ul>  
  <li>I like design</li>  
  <li>I like coding</li>  
  <li>I like 6.1040!</li>  
</ul>
```



- I like design
- I like coding
- I like 6.1040!



Structure of an HTML Document

- 3 main components: `<html>`, `<head>`, `<body>`
- `<html>` tag is the root of our document, container for all other elements
- `<head>` contains information about our document
 - Title of the page (shown in page's tab)
 - Version of HTML
 - Metadata
- `<body>` contains all of the elements you want to display on your web page
 - Headers
 - Text
 - Images
 - Etc.

```
<!DOCTYPE html>
<html>

<head>
  <title>Page Title</title>
</head>

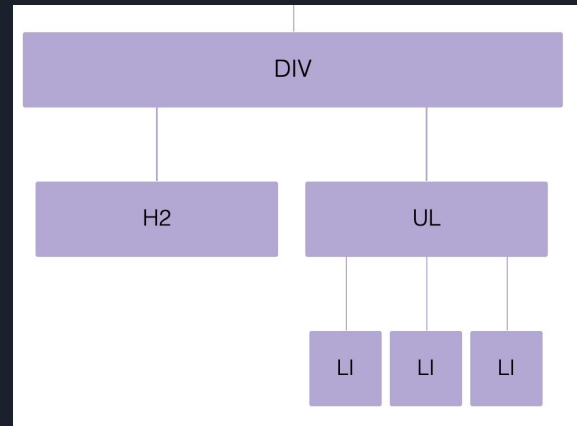
<body>
  <h2>Heading Content</h2>
  <p>Paragraph Content</p>
</body>

</html>
```

What is the DOM?

- Document Object Model
- Structure for the documents in a web page
- Think of DOM HTML file as a tree with (potentially lots of) child nodes rather than a stack of elements

```
<div>
  <h2>Things I Like</h2>
  <ul>
    <li>I like design</li>
    <li>I like coding</li>
    <li>I like 6.1040!</li>
  </ul>
</div>
```



Demo

test

 nanobi





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Postdoc Ubadah Sabbagh's journey from Syria to MIT has been marked by determination, courage, and curiosity. "For me, a scientist is a person who



< Exercise />

- 
- 1) Create a header with the welcome message “Welcome to my Web Page!”
 - 2) Create a button that says “Click Me!” that initiates a pop up message when clicked.
 - 3) Write a line of text under the button with the message “This button initiates a pop up.”
 - 4) Make the header centered, but the button and line below it sit on the left side of the web page.

**Hint: how can we move the button and the line to the left in one command rather than moving each to the left?*

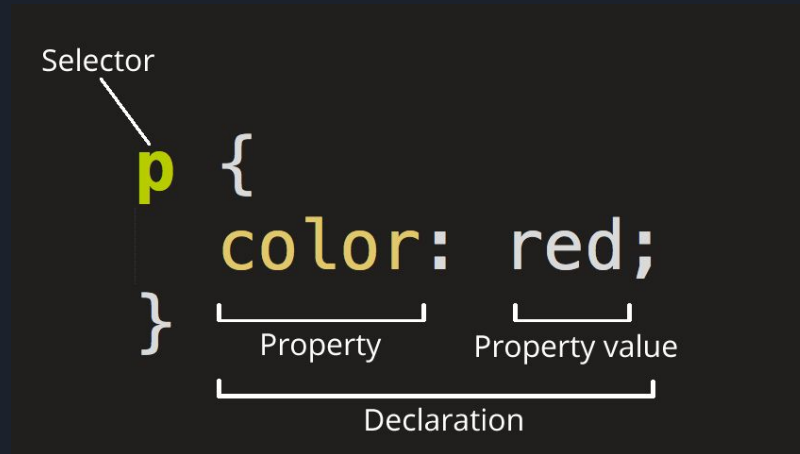
**Hint: Look up documentation for `<button onclick="alert()">`*



Intro to CSS + Layouts

Intro to CSS

- Cascading Style Sheets
- How we make HTML pretty!
- Set of rules that dictates either a particular element or set of elements





What can CSS rules apply to?

- 3 main things: tag name, class, id



Tag Name

```
<style>
h1, h2, p {
  text-align: center;
  color: red;
}
</style>
</head>
<body>

<h1>Hello World!</h1>
<h2>Smaller heading!</h2>
<p>This is a paragraph.</p>
```

Hello World!

Smaller heading!

This is a paragraph.



Class

```
<style>
.center {
  text-align: center;
  color: red;
}
</style>
</head>
<body>

<h1 class="center">Red and center-aligned heading</h1>
<p class="center">Red and center-aligned paragraph.</p>
```

Red and center-aligned heading

Red and center-aligned paragraph.



ID

```
#para1 {  
  text-align: center;  
  color: red;  
}  
</style>  
</head>  
<body>  
  
<p id="para1">Hello World!</p>  
<p>This paragraph is not affected by the style.</p>
```

Hello World!

This paragraph is not affected by the style.



Some more things about rules!

- Some basics to get you started:

```
color: red; color: #5203fc;
```

```
height/width/font-size: 20px;
```

```
border: 1px solid black;
```

- Units can be confusing! Stick to the simplest ones:
 - `px` is pixels
 - `em` is the font size (so you can define other things relative to the font)
 - `%` is the percent of the parent element's size



Keep your CSS *MODULAR!* Separation of Concerns!

- When possible, keep your CSS stylizations in a separate file, e.g. style.css or main.css (this is how we do it in starter code)
 - More modular, separation of concerns
- You can include CSS in-line with HTML elements, or include it in the file after the HTML elements. ***We do not recommend this!!!***

```
<!DOCTYPE html>
<html lang="en-US">
  <head>
    <link rel="stylesheet" href="main.css">
```



Layout

- So far you have just learned how to change element appearance!
- CSS also lets you determine how to align your elements within a web page

Flexbox

- Web layout model that is intuitive and user friendly
- Allows you to do things like center items, left justify, have space in between items, etc.

justify-content

flex-start

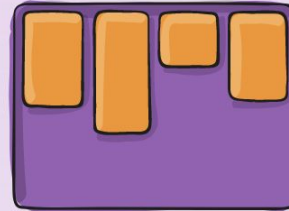


flex-end

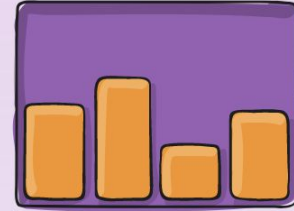


align-items

flex-start



flex-end





Flexbox

- Make sure parent element has CSS property `display: flex;`
- Align items horizontally using property `justify-content:`
`flex-start | flex-end | space-between |`
`space-around;`
- Align items vertically using property `align-items:`
`flex-start | flex-end | stretch | center;`
- And many more!



Demo



Exercise



Exercise

Add a FAQ and Contact Me link to the About Me page of your portfolio!

Requirements:

- 1) FAQ must begin with a header reading FAQ
- 2) FAQ questions must be bolded, answers must appear below it italicized.
- 3) Header and question/answers need to be centered (can we do this in one command?)
- 4) Wrap contact link in a `<footer>` element container
- 5) Contact link should have text: “Questions? E-mail me at `<your email>`”
 - a) You can use a fake address if you do not want to disclose your real email
- 6) `<p style = '{font-weight: 2, font-style: italic;}'> </p>`

Note that in-line styling for this exercise is okay.



References

HTML Elements: <https://www.w3schools.com/html/default.asp>

CSS Tutorial: <https://www.w3schools.com/css/>

Flexbox Guide: <https://css-tricks.com/snippets/css/a-guide-to-flexbox/>



FAQ

Question 1

Answer

Question 2

Answer

Questions? Contact me at zjohnson@mit.edu



```
<div style = 'text-align: center;'>
  <h1>FAQ</h1>
  <p style = 'font-style: bold;'>Question 1</p>
  <p style = 'font-style: italic;'>Answer</p>
  <p style = 'font-style: bold;'>Question 2</p>
  <p style = 'font-style: italic;'>Answer</p>
</div>
|
<footer>
Questions? Contact me at <a href="mailto:zjohnson@mit.edu">zjohnson@mit.edu</a>
</footer>
```