< 6.1040 R5>

HTML + CSS

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Roadmap

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

Prep Solutions

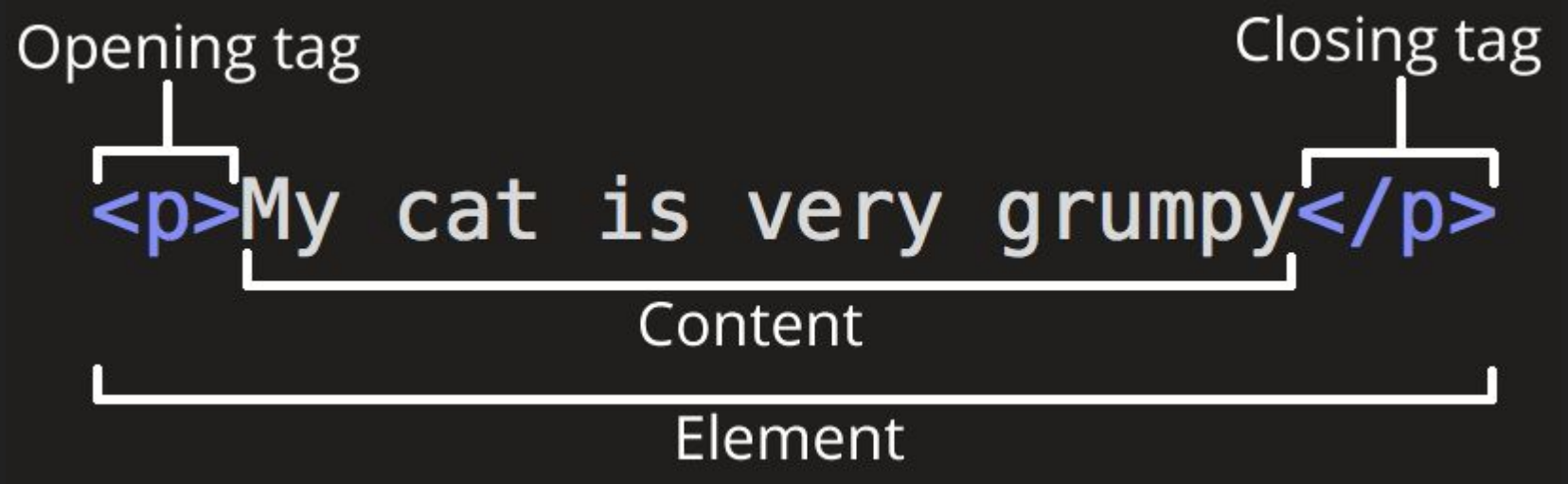
What is HTML?

- **H**yper**T**ext **M**arkup **L**anguage
- 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!

A Single HTML Element



Common *Semantic* HTML Elements

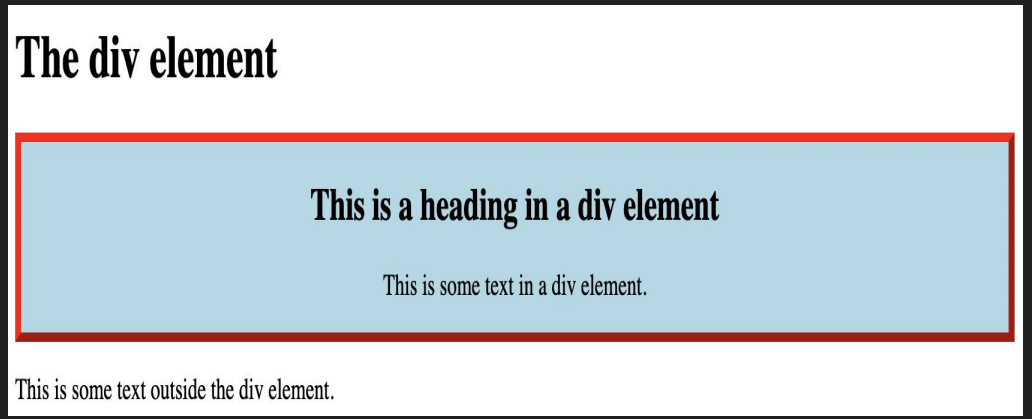
Element Tag	Description	Example
`<h1>`	Heading	`<h1>Hello World!</h1>` **Hello World!**
`<h2>`	Subheading	`<h2>Hello World!</h2>` **Hello World!**
` `	Line Break	`<p>Hello World!</p> <Hello World!</p>` Hello World! Hello World!
`<a href=https://{}>`	Link	`<a href='https://mit.edu'>MIT Home Page</a>` MIT Home Page

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>
```



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

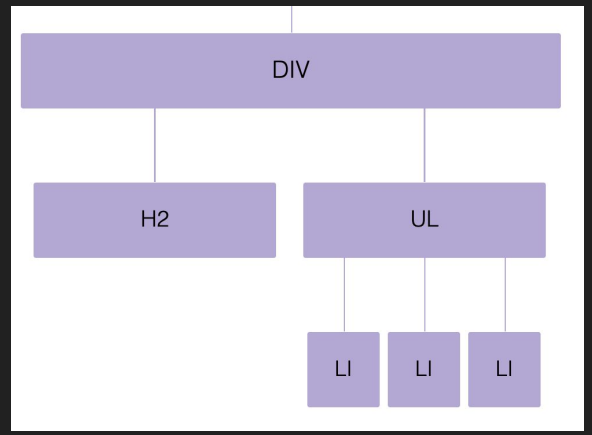
- 3 main components: <html>, <head>, <body>
- <html> tag is the root of our document, container for all other elements
- <head> contains information about our document
  - Title of the page (shown in page's tab)
  - Version of HTML
  - Metadata
- <body> contains all of the elements you want to display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

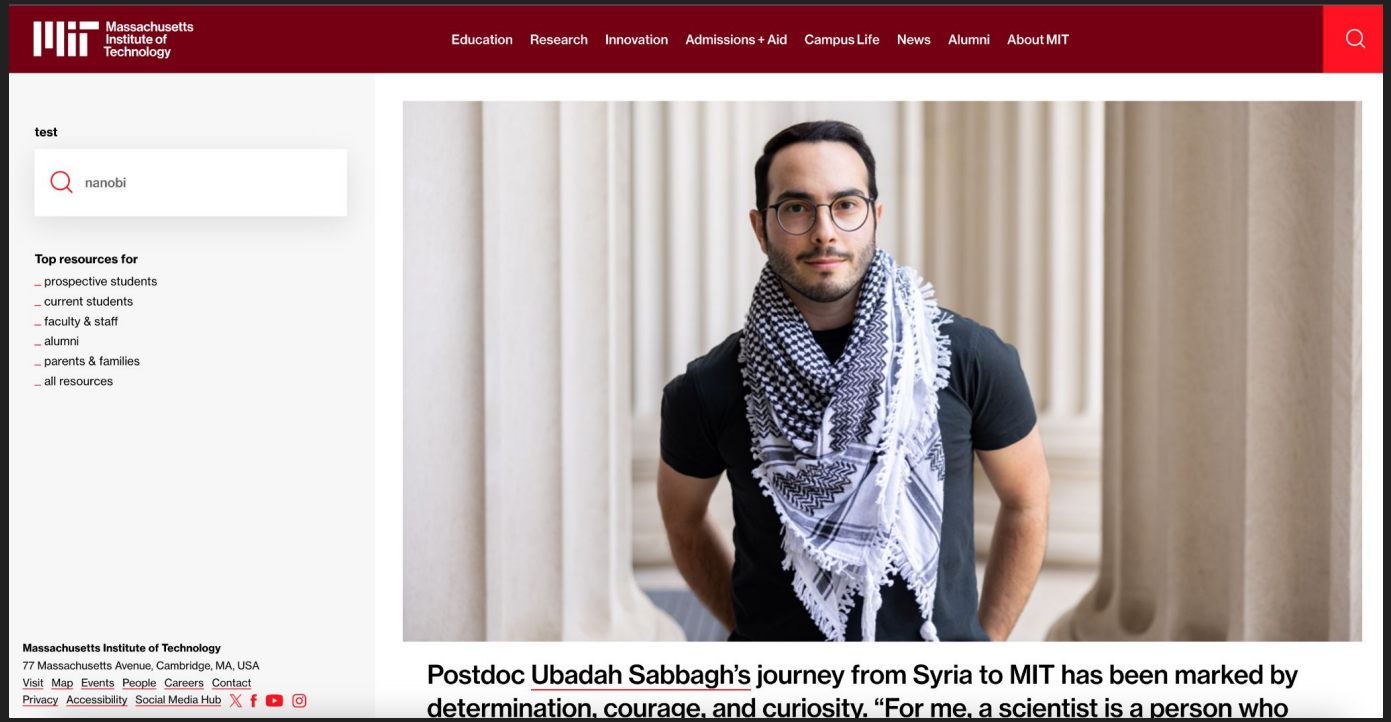
What is the DOM?

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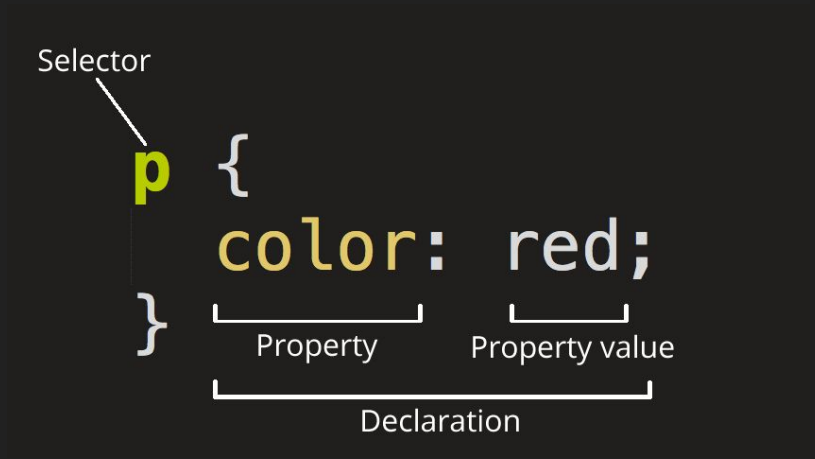
Postdoc Ubadah Sabbagh's journey from Syria to MIT has been marked by determination, courage, and curiosity. "For me, a scientist is a person who

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



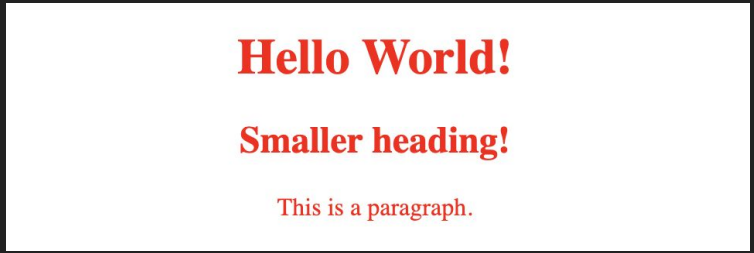
What can CSS rules apply to?

- 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>
```



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>
```

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!!!***

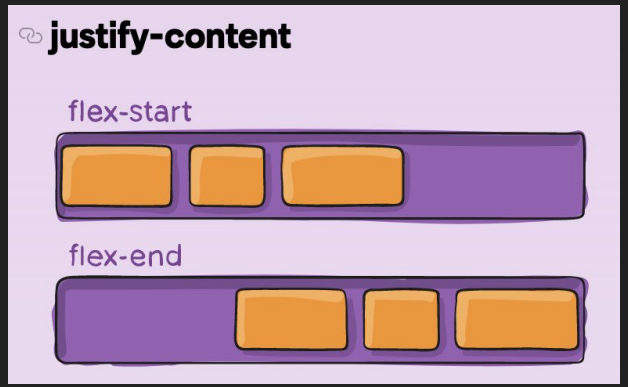
```
<!DOCTYPE html>
<html lang="en-US">
  <head>
    <link rel="stylesheet" href="main.css">
```

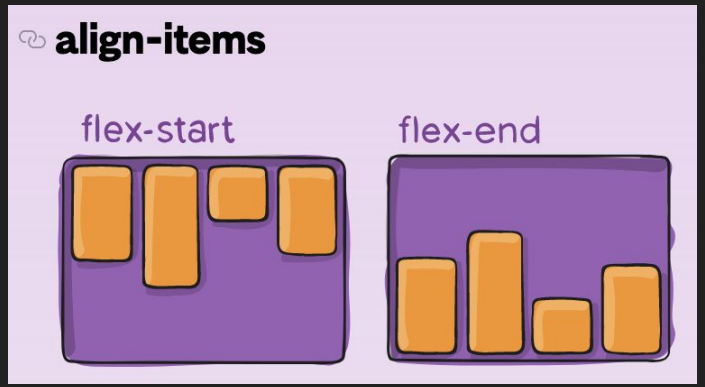
Layout

- 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.

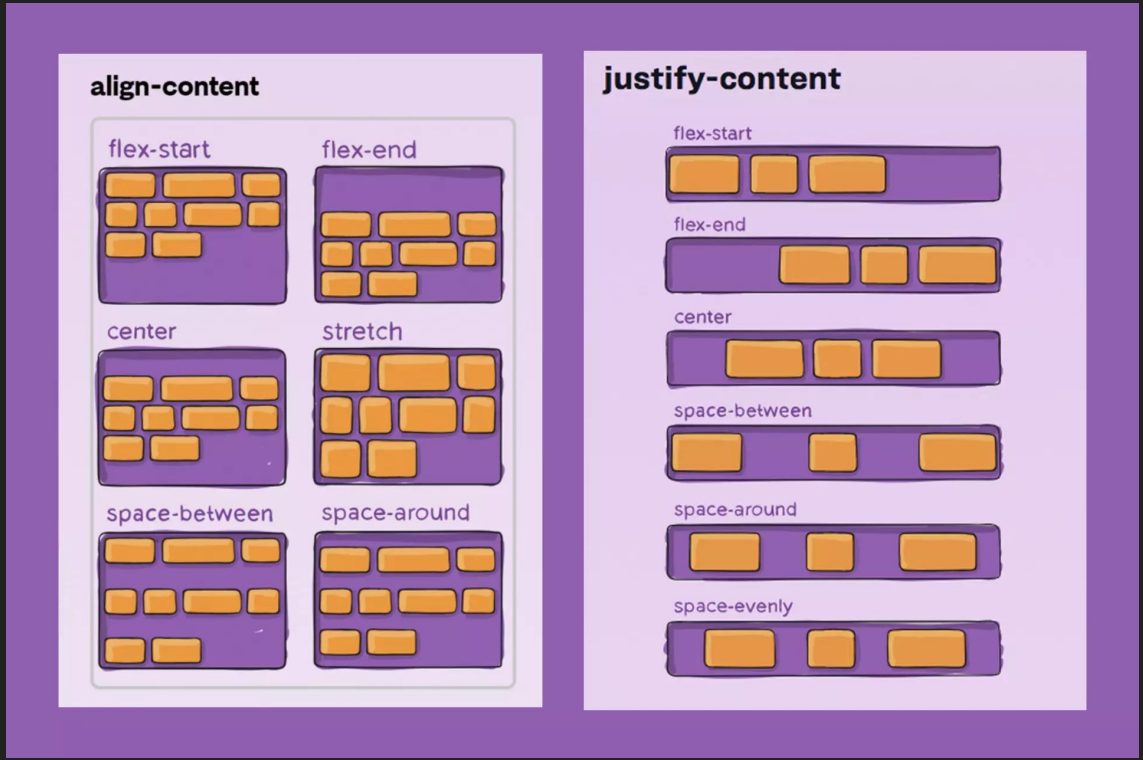




Flexbox

- 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!

Flexbox


align-content
flex-start
flex-end
center
stretch
space-between
space-around
justify-content
flex-start
flex-end
center
space-between
space-around
space-evenly

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.

FAQ

Question 1

Answer

Question 2

Answer

Questions? Contact me at zjohnson@mit.edu

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/

```
<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>
```