Introduction to the DOM

Download Demo Code <../js-dom-intro-selecting-demo.zip>

Goals

- Understand what the DOM is
- Select HTML elements using document methods
- Compare and contrast elements and nodes

What Is The Dom?

- Document Object Model
- It is the programming interface for HTML
- A representation of our HTML that can be accessed using JavaScript

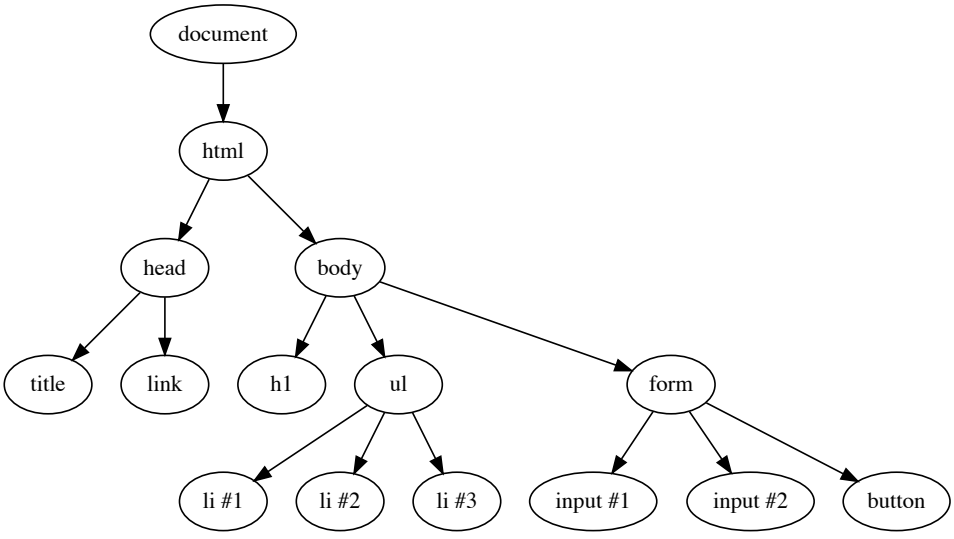
How does it get created?

- When a web page is loaded, the browser creates the DOM for that specific page
- This allows for the creation of dynamic web pages where users can interact with the page

What does it look like?

The DOM under the hood

The structure of the DOM uses something called a tree, where the topmost node is the ***document*** object.



Using the *document* object

- the ***document*** object represents the web page that has been loaded
- it acts as the "starting point" for access to the DOM.

The things we can do with the *document* object

- Finding elements
- Making new elements
- Updating elements
- Changing properties on elements
- Listening for events like clicks

Selecting Elements in the DOM

How To Select Elements In The Dom

To access the DOM, we make use of the document object.

This object has properties and functions that we use to access our HTML elements which we can manipulate with JavaScript.

Different Methods

JavaScript has quite a few different methods for selecting elements in the DOM

We're going to be starting with one method called ***getElementById***.

getElementById

getElementById accepts a string which is the name of an ***id*** in the DOM.

It finds the first matching id

```
document.getElementById("main");
```

What do we get back?

We get back a special object called an HTMLElement.

The exact kind of object we get back will depend on what we select (HTMLDivElement vs HTMLParagraphElement)

This special object contains quite a few helpful methods that we will see later!

getElementsByTagName

getElementsByTagName accepts a string which is the name of an element in the DOM.

It returns a list of all of the elements that match the string passed to the function

```
document.getElementsByTagName("li");
```

What do we get back?

This function returns an HTMLCollection to us!

It looks a lot like an array, and you can access it at a specific index or use a for loop

However, you can not use common methods like ***push***, ***pop***, ***indexOf*** or ***includes***

getElementsByClassName

getElementsByClassName accepts a string which is the name of an element in the DOM.

It returns a list of all of the elements that have a class attribute, which matches the string passed to the function

```
document.getElementsByClassName("heading");
```

What do we get back?

Just like ***getElementsByTagName***, we get back a special kind of array called an HTMLCollection.

Don't get too caught up in the difference between an array and an HTMLCollection, just know that you can not use almost all array methods on these special collections.

querySelector

querySelector accepts a string which is a valid CSS selector

It returns the first element that matches the CSS selector passed to the function.

```
document.querySelector("#main");

document.querySelector("h2.section-heading");
```

Just like ***getElementById***, this function returns a special HTMLElement object to us.

querySelectorAll

querySelectorAll accepts a string which is a valid CSS selector

It returns all the elements that matches the CSS selector passed to the function.

```
document.querySelectorAll("li");

document.querySelectorAll("ul .nav-links");
```

What do we get back

This function returns a NodeList to us!

It looks a lot like an array, and you can access it at a specific index or use a for loop

However, you can not use common methods like ***push***, ***pop***, ***indexOf*** or ***includes***

It's almost identical to an HTMLCollection except it can include special kinds of nodes. You will not need to worry about this for now!

Dom Manipulation

Now that we know how to select elements - let's change them!

Don't worry it's not permanent

Modifying Properties with innerText

```
let h1 = document.querySelector("h1");

h1.innerText = "Something new!"
```

Recap

- The DOM allows us to use JavaScript to manipulate HTML
- We can use methods like querySelector to access elements on the page
- Using the DOM we can modify elements and attributes