MODULE 4

The DOM

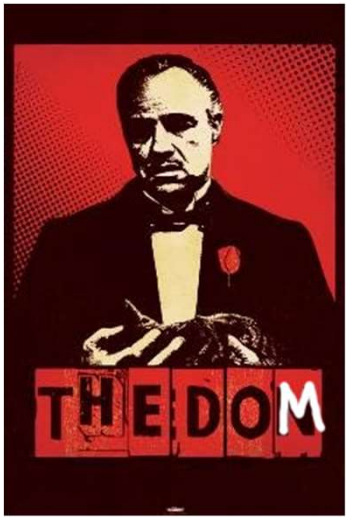
Back to HTML

```
<!DOCTYPE html>

<html lang="en" xmlns="http://www.w3.org/1999/xhtml">
<head>
   <meta charset="utf-8" />
   <title></title>
   <link rel="stylesheet" href="style.css" type="text/css" />
   <script src="jquery-3.1.0.js"></script>
</head>
<body>
   <section class="content">

      <div id="box1" class="red box">
         <p class="text">Text inside a red box</p>
      </div>

      <div id="box2" class="blue box">
         <p class="text">Text inside a blue box</p>
      </div>

   </section>

   <script src="script.js"></script>
</body>
</html>
```

Domain Object Model (the DOM)

The **Document Object Model (DOM)** is the programming interface for HTML documents that are loaded into the browser

- It is **not** the page source
- It allows developers to:
  - look for an element with JavaScript
  - find an element's parents, siblings, children
  - add/remove css classes via JavaScript
  - add/remove elements from the page
  - Manipulate pretty much anything on the page

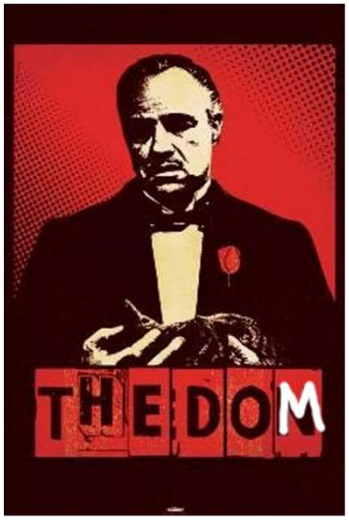


HTML is Static

- HTML is read once and turned into the DOM
- CSS and Javascript run against the DOM, not the HTML

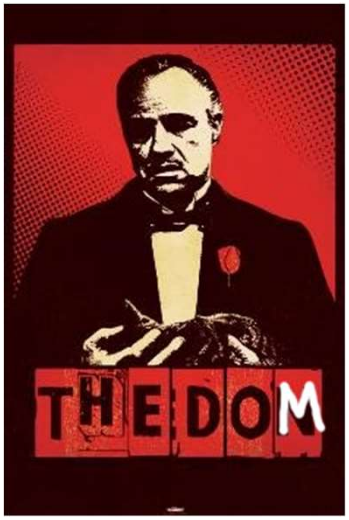
- What does this do?

```
table > tr > td {
  background-color: red;
}
```



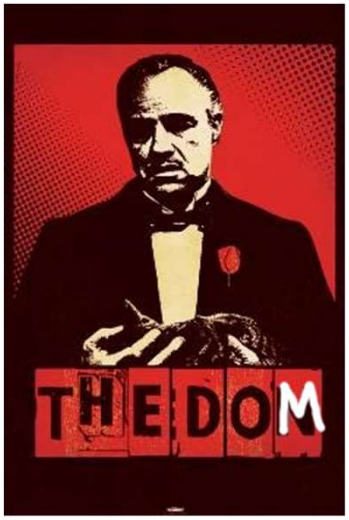
Domain Object Model (the DOM)

```
const element = document.querySelector("#main-content");
element.innerText = "Hello World!";
```



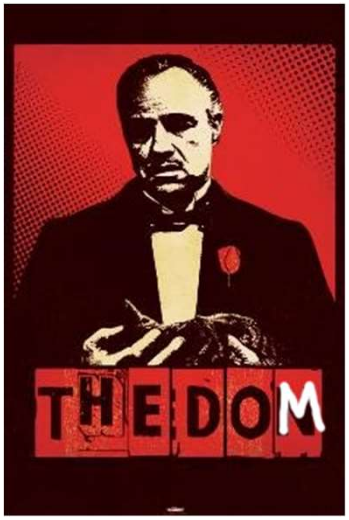
DOM Selection Functions

- getElementByID()
  - This function will get a single HTMLElement from the DOM and return a reference to it.
- querySelector()
  - Takes a standard CSS selector and returns the first element it finds that matches that selector
- querySelectorAll()
  - This will return a NodeList of all the elements, which you can use as an array



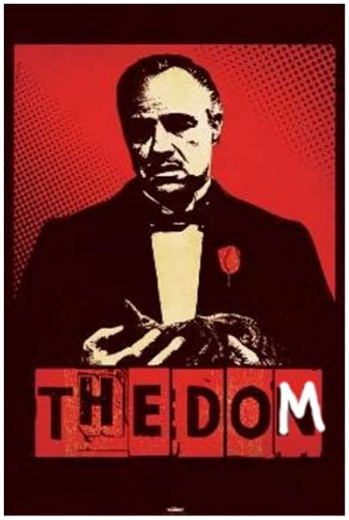
Changing Elements

- innerText
  - Updates any text information on the page
  - All text (including html tags) are replaced!
  - Insert text treated as literals: no interpreting of HTML
- innerHTML
  - Updates any text information on the page
  - All text (including html tags) are replaced!
  - Interprets of HTML for display
  - Do not use with user input! (Why)



Getting and Setting Values

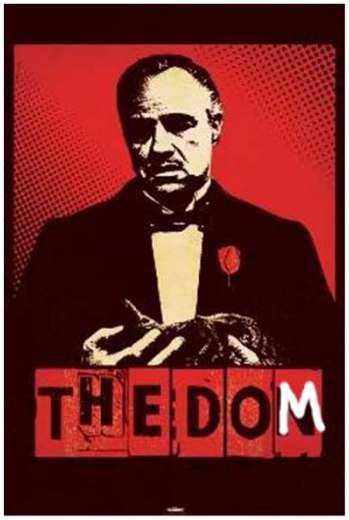
- .value will return the value of a selected element
  - let todoInput = document.querySelector('input[name=newTodo]’);
  - let newTodoText = todoInput.value;
- Also used to set a value
  - todoInput.value = ‘’;
- Radio and checkboxes use .checked
  - let finishedCheckbox = document.querySelector('input[name=isFinished]’);
  - let isFinished = finishedCheckbox.checked;



Manipulating Classes

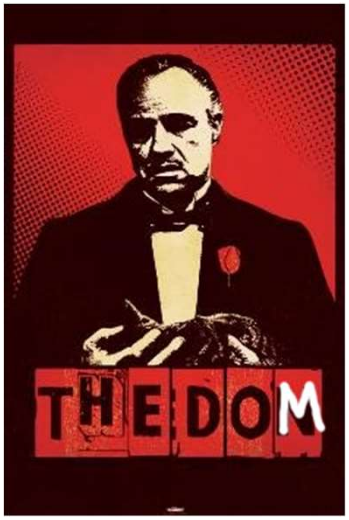
- classList accesses the classes applied to an element

```
// Get the first line item
let firstListItem = document.querySelector('#todos li');

// Add the class `done`
firstListItem.classList.add('done');

// Remove the class `priority`
firstListItem.classList.remove('priority');
```



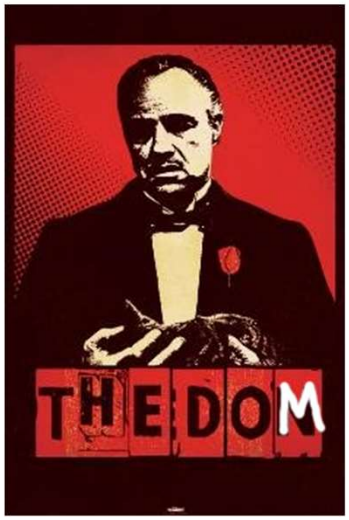
Adding to the Mob….DOM!

- createElement()
  - Creates a new DOM element and returns it
  - Element is not on the page, but you can manipulate it.
- insertAdjacentElement()
  - Adds the element as the last child of the selected element



Placing a New Element

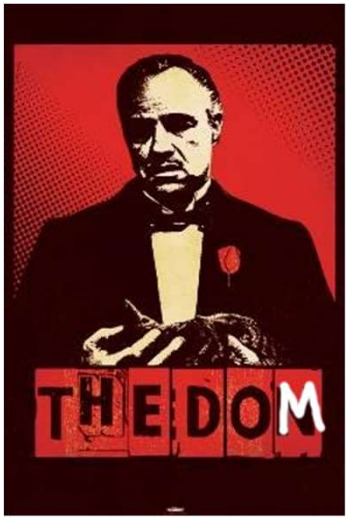
Location	Meaning
beforebegin	Put the element before this one
afterbegin	Put the element inside this one at the top
beforeend	Put the element inside this one at the bottom
afterend	Put the element after this one



Traversing the DOM

- .children will select the immediate child elements
- Convert to an array to manipulate
  - map, filter, reduce, etc.
- .childNodes will get all nodes inside an element

- children vs childNodes
  - children are elements, only contain HTML not text
  - childNodes contain HTML and text/values

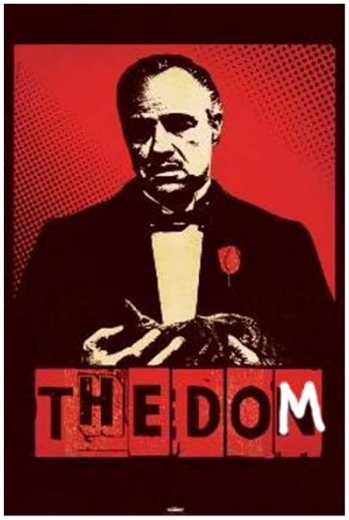


Traversing the DOM

- .parentNode
  - Gets the immediate parent node of the element

- nextElementSibling
- previousElementSibling

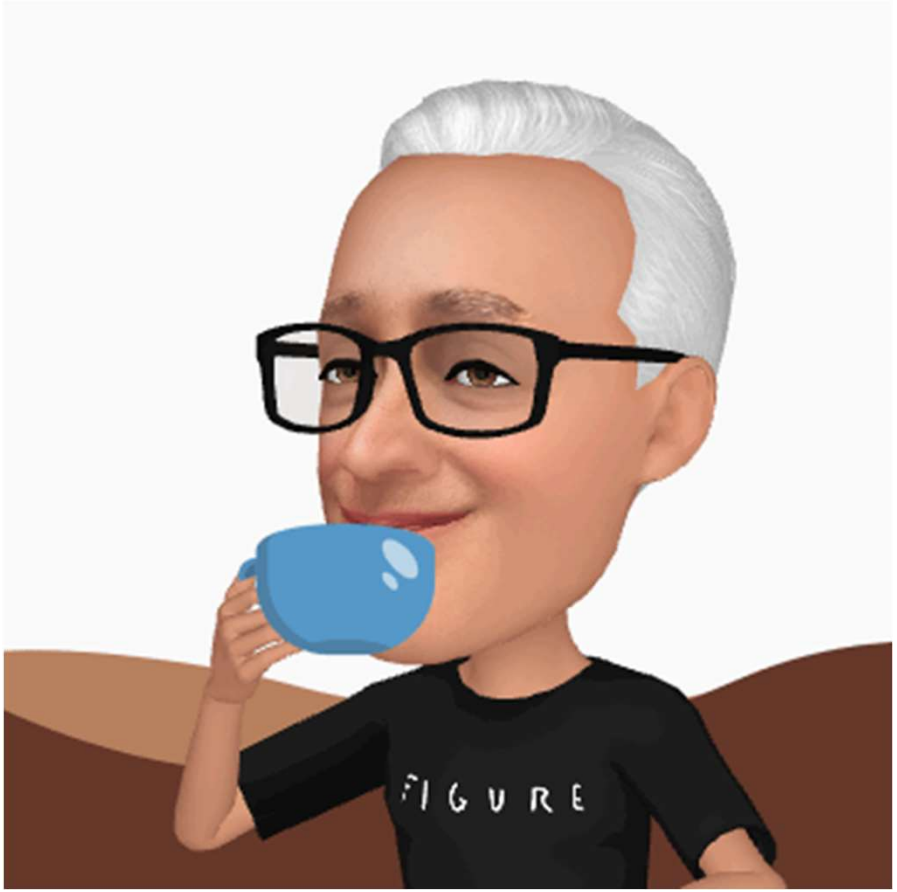
- removeChild
  - Removes the child element from the DOM



LET'S CODE!

WHAT QUESTIONS DO YOU HAVE?

A Quick Aside



JQuery

- Part of the JS Foundation (https://js.foundation)
- Can be installed via CDN (Content Delivery Network)

JQuery Syntax

- Start with bling!!
  - $()
    - Accepts any argument that is a CSS selector and returns a jQuery DOM element(s) that represents that selector

    - Javascript:
    - const element = document.querySelector("#main-content");

    - JQuery
    - const element = $("#main-content");

Manipulating the DOM with JQuery

- The element can have any HTML or CSS property set on it
  - .text()
  - .html()
  - .val()
  - .addClass('name')
  - .removeClass('name')
  - .hasClass('name')

Manipulating the DOM with JQuery

- Creating a DOM element can be done with $(" ")

- Elements can be added/removed from the DOM
  - .append() adds the element as the last child in the jQuery collection (inside)
  - .prepend() adds as the first child in the jQuery collection. (inside)
  - .before() adds before each element in the set of matched elements. (outside)
  - .after() adds after each element in the set of matched elements (outside)
  - .remove() removes matched elements from the DOM
  - .empty() removes all child nodes from the DOM
  - .detach() removes from the DOM to be attached later

Reading for tonight:

Event Handling