

Intro to Web Design and Computer Principles

CSCI-UA 4 005

3:30 PM - 4:45 PM


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Introduction to Javascript



JS



You can think of a web page as consisting of three layers: structure, presentation, and behavior

- HTML is the structure layer
- CSS is the presentation layer
- JavaScript is the behavior layer JavaScript is a programming language for creating interactivity and functionality in web browsers



Javascript History

JavaScript was was invented by Brendan Eich and introduced by Netscape in 1995

At that time, the Java language was ascendant, and the name “JavaScript” was an attempt to ride this popularity

****Java is NOT Javascript**

Eventually, browsers other than Netscape began to support JavaScript functionality, calling it “ECMAScript”

Today, JavaScript is not only a common language on Web but a basis for many other computational media projects



Javascript as a Front-End Language

Like HTML and CSS, JavaScript is usually rendered in the web browser

Because it's rendered in the browser rather than on a server, JavaScript is considered a "front-end language"

A browser's "JavaScript engine" interprets and executes JavaScript code in the browser

Note: Javascript also has a system called node.js that allows for back-end, server-side code to be written in the language. We will be focusing on the front end.



Javascript Capability

Computationally speaking, there isn't much JavaScript can't do; it's a robust programming language

Core functionality includes modifying HTML and CSS, communicating with the server, and storing data

We will use JavaScript to modify page content and style, and for interactivity

As with any technology, it's good to consider when to—and not to—use it



Applying Javascript

As with CSS, JavaScript targets HTML elements to do something with them

There are three ways you can apply JavaScript to HTML

- Inline JavaScript
- Embedded JavaScript
- External JavaScript

External is preferable because of separation of content and behavior
+ accelerated load times for page behavior

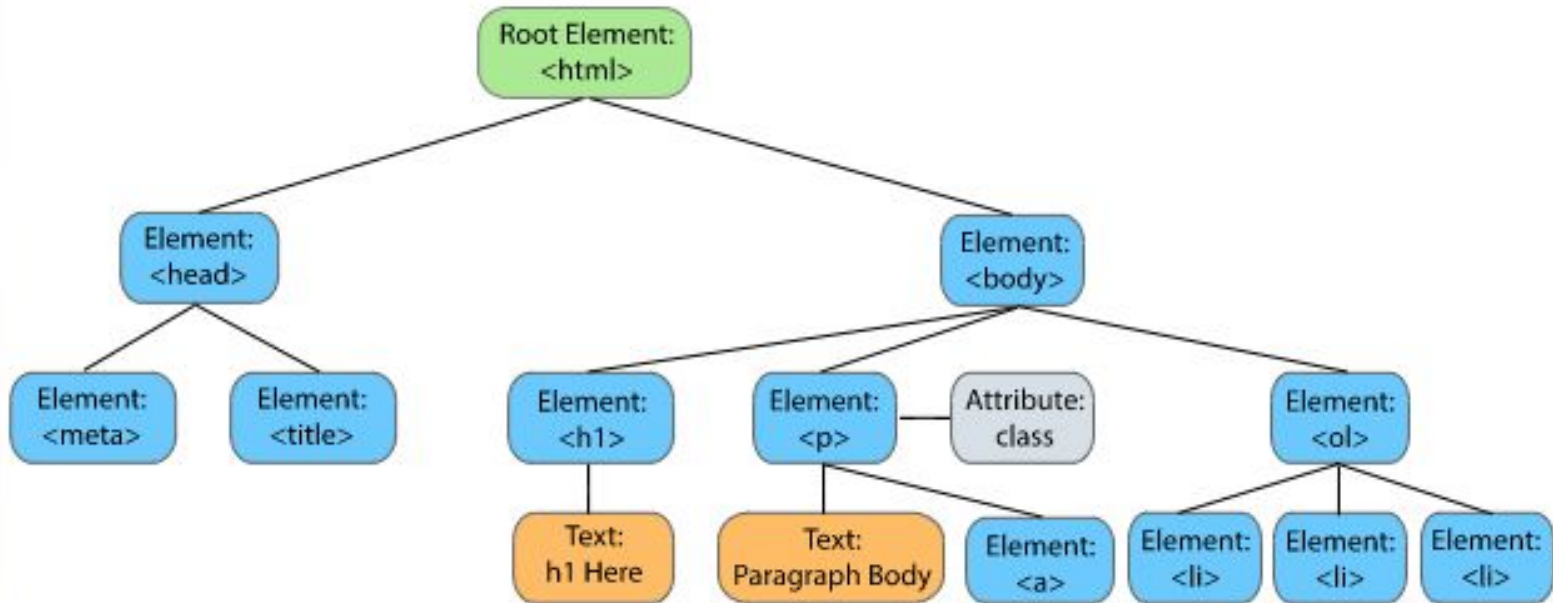


Document Object Model (DOM)

When a browser loads a web page, it creates a model of that page

This is called a “DOM tree” and it is stored in the browser’s memory

Every element, attribute, and piece of text in the HTML is represented by its own “DOM node”





Types of DOM nodes

There are four main types of nodes.

- The Document node, which represents the entire page
- Element nodes, which represent individual HTML tags
- Attribute nodes, which represent attributes of HTML tags, such as class
- Text nodes, which represents the text within an element, such as the content of a p tag

We talk about the relationship between element nodes as “parents,” “children,” and “siblings.”



DOM Queries

JavaScript methods that find elements in the DOM tree are called “DOM queries”

DOM queries may return one element, or they may return a “node list”

Which DOM query you use depends on what you want to do and the scope of browser support required

For Example: JavaScript methods that return a single element node:

- `getElementById()`
- `querySelector()`