Drawing on the Web
CSCI-UA 380

JavaScript
Programming on the Web
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

Background

JavaScript was introduced by Netscape in 1995

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

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

Today, JavaScript is not only a lingua franca of the Web but a basis for many other computational media projects
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JavaScript
Programming on the Web
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 and embedded JavaScript are preferable for their separation of content and behavior.
Like HTML and CSS, JavaScript is 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 “rendering engine” does the work of what you see on screen.

There are different rendering engines for different browsers—this is why we sometimes use CSS vendor prefixes.
# Rendering Engines

<table>
<thead>
<tr>
<th>Browser</th>
<th>Engine</th>
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<tbody>
<tr>
<td>Chrome</td>
<td>Blink</td>
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<td>Firefox</td>
<td>Gecko</td>
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<tr>
<td>Internet Explorer</td>
<td>Trident</td>
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<tr>
<td>Opera</td>
<td>Blink</td>
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<tr>
<td>Safari</td>
<td>Webkit</td>
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# JavaScript Engines

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<td>Firefox</td>
<td>Spidermonkey</td>
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<td>IE and Edge</td>
<td>Chakra</td>
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<tr>
<td>Safari</td>
<td>Nitro</td>
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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 and associated libraries for interactivity, drawing on the HTML5 canvas, and rendering in 3D.

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