

## Language Map for JavaScript

<b>Variable Declaration</b> <i>Is this language strongly typed or dynamically typed? Provide at least three examples (with different data types or keywords) of how variables are declared in this language.</i>	JavaScript is a dynamically typed language. <u>Examples</u> var age = 26; const name = "Matthew"; var string = "Hello World!";
<b>Data Types</b> <i>List all of the data types (and ranges) supported by this language.</i>	<ol style="list-style-type: none"><li>1. String- any textual data</li><li>2. Number- all numeric values including integers and floating-point numbers</li><li>3. Boolean- true or false</li><li>4. Undefined- uninitialized variable</li><li>5. Null- absence of value</li><li>6. Symbol- immutable primitive value</li><li>7. Object- a collection of key-value</li></ol>
<b>Selection Structures</b> <i>Provide examples of all selection structures supported by this language (if, if else, etc.) <b>Don't just list them, show code samples of how each would look in a real program.</b></i>	If statement let temp = 25 if (temp > 30) { console.log("It's hot outside."); }  If-else statement let temp = 25; if (temp > 30) { console.log("It's hot outside."); else console.log("It's cold outside."); }  Switch statement let day = "Monday"; let message;

	<pre> switch (day) {   case "Monday":     Message = "It's the first day of the work week.";     break;   case "Saturday":     Message = "It is the weekend";     break;   default:     Message = "It is a normal day"; } </pre>
<b>Repetition Structures</b> <i>Provide examples of all repetition structures supported by this language (loops, etc.) <b>Don't just list them, show code samples of how each would look in a real program.</b></i>	<pre> For loop for (let i = 0; i &lt; 5; i++) {   console.log("Iteration " + (i + 1)); }  While loop let count = 0; while (count &lt; 5) {   console.log("Iteration " + (count + 1));   count++; }  Do-while let num = 0; do {   console.log("Iteration " + (num + 1));   num++; } while (num &lt; 5); </pre>
<b>Arrays</b> <i>If this language supports arrays, provide at least two examples of creating an array with a primitive or String data types (e.g. float, int, String, etc.)</i>	<pre> Let numArray = [1, 2, 3, 4, 5];  Let stringArray = ["James", "Bill", "Sally"]; </pre>
<b>Data Structures</b> <i>If this language provides a standard set of data structures, provide a list of the data structures and their Big-Oh complexity.</i>	<pre> Arrays: Access, Search,: O(1) Insertion, Deletion: O(n)  Objects: Access, Search, Insertion, Deletion: O(1) </pre>

	<p>Sets and Maps: Access, Search, Insertion, Deletion: <math>O(1)</math></p> <p>Linked Lists: Access, Search, Insertion, Deletion: <math>O(1)</math></p> <p>Stacks and Queues: Push, Pop, Peek: <math>O(1)</math></p>
<p><b>Objects</b> <i>If this language support object-orientation, provide an example of how you would write a simple object with a default constructor and then how you would instantiate it.</i></p>	<pre>class Human {     constructor(name, age) {         this.name = name;         this.age = age;     } }</pre> <p>const human1 = new Human ("James Smith", 30);</p>
<p><b>Runtime Environment</b> <i>What runtime environment does this language compile to? For example, Java compiles to the Java Virtual Machine. Do other languages also compile to this runtime?</i></p>	<p>JavaScript is an interpreted language that is run on the JavaScript runtime environment. Other languages cant compile to the JavaScript runtime environment but they can be translated to JavaScript and then run.</p> <p>Examples of a JavaScript runtime environment are Chrome V8 engine, Node.js, and Firefox Spidemokey</p>
<p><b>Libraries/Frameworks</b> <i>What are the popular libraries or frameworks used by programmers for this language? List at least three (3) and describe what they are used for..</i></p>	<p>React.js is run by facebook and it allows developers to create reusable UI components that update efficiently in response to data changes. React is commonly used for building single-page applications where user interfaces need to be dynamic and responsive.</p> <p>Vue.js is designed to be incrementally adoptable, meaning that developers can use as much or as little of Vue.js as needed. Vue.js is known for its simplicity and ease of integration.</p> <p>Angular is developed by google and provides a full set of tools and libraries for building large-scale, single-page applications. Angular follows the Model-View-Controller architecture and emphasizes modularity, testability, and maintainability.</p>
<p><b>Domains</b> <i>What industries or domains use this programming language? Provide specific examples of companies that use this language and what they use it for. E.g. Company X uses C# for its line of business applications.</i></p>	<p>Google uses JS for its apps such as google maps and gmail</p> <p>Amazon uses JS for its internet shopping site.</p> <p>Paypal uses JS to create its secure payment interface and running its online transactions.</p>