

## Language Map for JavaScript

<p><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></p>	<p>Java Script is a dynamically type language, the interpreter assigns variables a type at runtime based on the variable's value at the time.  <code>var x = 7;</code>  <code>let x = 7;</code>  <code>const value1 = 7;</code></p>
<p><b>Data Types</b>  <i>List all of the data types (and ranges) supported by this language.</i></p>	<p>Null = indicates absence of object          Undefined = indicates absence of value          Boolean = true or false          Number = <math>2^{-1074}</math> to <math>2^{1074}</math>, integer or floating point          BigInt = an integer with arbitrary precision          String = text          Symbol "A Symbol is a unique and immutable primitive value and may be used as the key of an Object property"          Object = collection of data          Array = multiple value</p>
<p><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></p>	<p>If              If (condition){                  Code is executed if condition is true}          If else              if (condition) {                  Code is executed if condition is true}              else {                  Code is executed if condition is false }          Else if              if (condition1) {                  Code is executed if condition is true }              else if (condition2) {                  code is executed if the condition1 is false and condition2 is true}              else {                  code is executed if the condition1 is false and condition2 is false}          switch              switch (expression) {                  case 1:                  break;</p>

	<pre> case   break; case 3:   break; case 4:   break; case 5:   break; case 6:   break; case 7:   break; } </pre>
<p><b>Repetition Structures</b></p> <p><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></p>	<pre> for   for (int i = 0; i &lt; 20; i++)   {   }  for/in   const num = [45, 4, 9, 16, 25];    let txt = "";   for (let x in num) {     txt += num[x];   }  for/of   let lang = "JavaScript";    let text = "";   for (let x of lang) {     text += x;   }  While   while (condition) {     code is executed   }  do/while   do {     code is executed   }   while (condition); </pre>

<p><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></p>	<pre>Const teams = ["Chiefs", "Chargers", "Broncos", "Raiders"];  Const teams = [ ]; Teams[1] = "Chiefs" Teams[2] = "Chargers" Teams[3] = "Broncos" Teams[4] = "Raiders"</pre>
<p><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></p>	<pre>Stack     Insertion - O(1)     Removal - O(1)     Searching - O(n)     Access - O(n)  Queues     Insertion - O(1)     Removal - O(1)     Searching - O(n)     Access - O(n)  Linked list     Insertion - O(1)     Removal - O(n)     Search - O(n)     Access - O(n)  Doubly linked list     Insertion - O(1)     Removal - O(1)     Search - O(n)     Access - O(n)  Trees     Operations – O(log(n))  Heaps  Graphs</pre>
<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>let team = "Chiefs";  Const player = {firstName: "Travis", lastName: "Kelce", position: "TE", jerseyNum: 87, team: "chiefs"}; player.team;</pre>

<p><b>Runtime Environment</b></p> <p><i>What runtime environment does this language compile to? For example, Java compiles to the Java Virtual Machine.</i></p> <p><i>Do other languages also compile to this runtime?</i></p>	<p>Node.js</p> <p>As far as I can tell no other languages compile to Node.js</p>
<p><b>Libraries/Frameworks</b></p> <p><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>Next.js Enables react-based web applications with server side rendering and generating static websites</p> <p>Babylon.js 3D engine used to display 3D graphics in a web browser</p> <p>jQuery Mobile Specific javaScript touch-optimised web framework used to create applications compatible with touch based devices</p>
<p><b>Domains</b></p> <p><i>What industries or domains use this programming language? Provide specific examples of companies that use this language and what they use it for. <b>E.g. Company X uses C# for its line of business applications.</b></i></p>	<p>eBay Front end development, backend development</p> <p>Netflix Front end development, backend development, web application development</p> <p>Walmart Front end development, backend development, web application development, mobile application development</p>