Language Map for JavaScript

Variable Declaration
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.
	C# is strongly typed.
	let a = 10;
	let name = “Alyssa”;
	var x;//(for older browsers)
	x = 15;
	const pi = 3.14;

Data Types *List all of the data types (and ranges) supported by this language.*	Data Types: String Number (all double - 64 bit floating) Bigint (store int value too big for normal JS number) Boolean (true/false) Undefined (variable without value, type undefined) Null Symbol Object {}

Selection Structures
Provide examples of all selection structures supported by this language (if, if else, etc.) ***Don’t just list them, show code samples of how each would look in a real program.***
	1. if
	if (Number > 2) {
	document.write(“This is greater than 2.”}
	2. if ….. else
	if(Number>2) {
	document.write(“This is greater than 2.”}
	else {
	document.write(“This is not greater than 2.”)}
	3. switch
	switch(Number) {
	default: document.write(“number”);
	break;
	case 1:
	document.write(“Number 1”);
	break;
	case 2:
	document.write(“Number 2”);
	break;
	case 3:
	document.write(“Number 3”);
	break;
	case 4:

	document.write(“Number 4”); break; }

Repetition Structures
Provide examples of all repetition structures supported by this language (loops, etc.) ***Don’t just list them, show code samples of how each would look in a real program.***
	1. while
	while(a>10) {
	document.write(“This is greater than 10.”);
	a++;
	}
	2. for
	for (let i =1; i<a; i++) {
	console.log(“Count “ + i); }
	3. do-while
	do {
	document.write(“Hello.”);
	a++;
	} while (a<10);

Arrays
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.)
	const integers = [1,3,5,7];
	
	const names = [];
	names[1] = “Alyssa”;
	names[2] = “John”;
	names[3] = “Ron”;

Data Structures *If this language provides a standard set of data structures, provide a list of the data structures and their Big-Oh complexity.*	Objects(hash-tables) Insertion - O(1) Removal - O(1) Search - O(1) Stacks: 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 Lists

	Insertion - O(1) Removal - O(n) Search - O(n) Access - O(n) Doubly Linked Lists Insertion - O(1) Removal - O(1) Search - O(n) Access - O(n) Trees Insertion - O(log(n)) Removal - O(log(n)) Search - O(log(n)) Access - O(log(n)) Heaps Insertion - O(log n) Removal - O(log n) Search - O(n) Sort - O(n log n) Heapify - O(n) Graphs Insertion - O(1) Removal - O(n) Search - O(n)

Objects
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.
	const human = {name: “Alyssa”, age: 86, eyeColor: “purple”};
	
	bool = new Boolean(); //bool is a Boolean object
	
	function Person(name, age, eyeColor) {
	this.name = name;
	this.age = age;
	this.eyeColor = eyeColor;
	}

Runtime Environment	-There are two runtime environments for JavaScript 1. browsers runtime environment front end application

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?*	window object Chrome : V8 JS engine, Firefox : SpiderMonkey, 2. the Node runtime enviornment allows JS code to be run on server instead of browser back end application file system, databases, networks attached to server
Libraries/Frameworks *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..*	React - base for mobile or single page applications - user interfaces while developing web app/ interactive sites handle high traffic - Facebook, Instagram, Whatsapp Ember.js - support two way binding - complicated user inter faces - LinkedIn, Netflix, Nordstrom Node.js - backend framework but can go full stack - good for real time apps with communication - infrastructure and web server work - IBM, Microsoft, Netflix, Walmart
Domains *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.***	Web development, web applications presentations, server app, web servers, games(with HTML5), art, smartwatch app, mobile apps Netflix: Uses Javascript both as their front and back end. Switched from JS front end and Java backend to get rid of need for two languages, better performance, easier debugging. Facebook: Facebook interface is actually collection of different JavaScript apps Facebook create React, very popular JS framework All companies listed in libraries/frameworks section obviously use JAvaScript in their chosen framework