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.
	JavaScript is dynamically typed
	let x = 5;
	const name = “jake”;
	var hasName = true;

Data Types *List all of the data types (and ranges) supported by this language.*	**Strings-** any sequence of characters consisting of letter, numbers or symbols. **Numbers**- Positive: 2^{-1074} and 2^{1024} Negative: -2^{-1074} and -2^{1024}, any integer outside the safe range for integers $–(2^{53}-1)$ to $2^{53}-1$ gets converted to a double-precision floating point approximation. **booleans**- true or false **BigInt**- -9223372036854775808 to +9223372036854775807 **null**- null **undefined**- undefined **symbol**- unique, immutable, key of an Object **object-** collection of properties equivalent to key-value pairs.

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.***
	if: if (grade >= 70) {
	print(“You Passed!”);
	}
	
	if-else: if (grade >= 70){
	print(“You Passed!”);
	}
	else {
	print(“Sorry. You did not pass.”);
	}
	
	if-else if: if (grade >= 90) {
	letterGrade = “A”;
	}
	else if (grade >= 80) {
	letterGrade = “B”;
	}
	else if (grade >= 70) {
	letterGrade = “C”;
	}
	else if (grade >= 60) {
	letterGrade = “D”;

	}
	else if (grade >= 0) {
	letterGrade = “F”
	}
	print(“ You earned a ${letterGrade} in this class.”);
	
	conditional operator: (grade >= 70) ? print(“You passed!”) : print(“Sorry. You did not pass.”):
	
	Switch: switch (grade) {
	case “A” : print(“Good Job!”);
	break;
	
	case “B” : print(“Pretty Good!”);
	break;
	
	case “C” : print(“You Passed!”);
	break;
	
	default: print(“You did not pass”);

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.***
	While loop: let number = 0;
	while (number < 10) {
	print(“The number is ${number}.”);
	++number;
	}
	
	For loop: for (var numb =1; numb < 11; numb++){
	Print(“The number is ${numb}.”)
	}
	Do..while: let i = 0;
	do {
	i += 1;
	console.log(i);
	}while (i < 5);
	For in loop: const person = {fname:”John”, lname: “Doe”, age: 25};
	let text = “”;
	for (let x in person) {
	text += person[x];
	}

	For of loop: const cars = [“BMW”, “Volvo”, “Mini”];
	let text = “”;
	for (let x of cars) {
	text += x;
	}

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 cars = [“BMW”, “Volvo”, “Saab”]; var numbers = new Array (1,2,3,4,5);
Data Structures *If this language provides a standard set of data structures, provide a list of the data structures and their Big-Oh complexity.*	Big O worst case Arrays- Insertion O(n) Removal O(n) Searching O(n) Stacks- Insertion O(1), Removal O(1), Searching O(n) Queues- Insertion O(1), Removal O(1), Searching O(n) Linked lists- Insertion O(1), Removal O(1), Searching O(n) Set(using hashmap)- Insertion O(1), Removal O(1), Searching O(1); Heap- Insertion O(log n), Removal O(log n) Searching O(n); Hash Tables- Search O(n), Insertion O(n), Deletion O(n) Binary Search Tree- Search O(n), Insertion O(n), Deletion 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.
	JavaScript supports Object-oriented, imperative, and functional programming.
	function Car(){
	make = “Volkswagon”;
	model =”GTI”;
	year = 2016;
	}
	const myCar = new Car();

Runtime Environment *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?*	Javascript code is executed in the browser you are using. It can also use the Node runtime environment without a browser allowing the language to create full-stack applications.
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..*	jQuery is a free, open-source software built in 2006. It offers fast, light-weight, feature rich software that shares similar syntax to CSS. This software is good at creating effects, events and animations. React.js is another open-source software built in 2013. This is used to create efficient user interfaces and developing web applications and boasts easier debugging and testing capabilities. Algolia Places is a fast library built to make address auto-completion on your site. It uses the open-source OpenStreetMap database to cover the globe. It simplifies checkouts with multiple inputs filing simultaneously and allows you to incorporate a map to display a specific location.
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.***	A lot of companies use javascript with 97% of all websites incorporating it. Microsoft uses it to build their Edge web browser. Facebook incorporates it in all aspects of their social media page and won't let you log in without it enabled. Google uses javascript to show results as you are typing in real time. Their gmail web client is also powered by it.