**Introduction**

### Console.log()

The console.log() method is used to log or print messages to the console. It can also be used to print objects and other info.

console.log('Hi there!'); // Prints: Hi there!

### JavaScript

JavaScript is a programming language that powers the dynamic behavior on most websites. Alongside HTML and CSS, it is a core technology that makes the web run.

### Methods

Methods return information about an object, and are called by appending an instance with a period ., the method name, and parentheses.

// Returns a number between 0 and 1 Math.random();

### Libraries

Libraries contain methods that can be called by appending the library name with a period ., the method name, and a set of parentheses.

Math.random(); // ☝️ Math is the library

### Numbers

Numbers are a primitive data type. They include the set of all integers and floating point numbers.

let amount = 6; let price = 4.99;

### String.length

The .length property of a string returns the number of characters that make up the string.

let message = 'good nite'; console.log(message.length); // Prints: 9 console.log('howdy'.length); // Prints: 5

### Data Instances

When a new piece of data is introduced into a JavaScript program, the program keeps track of it in an instance of that data type. An instance is an individual case of a data type.

### Booleans

Booleans are a primitive data type. They can be either true or false.

let lateToWork = true;

### Math.random()

The Math.random() function returns a floating-point, random number in the range from 0 (inclusive) up to but not including 1.

console.log(Math.random()); // Prints: 0 - 0.9

### Math.floor()

The Math.floor() function returns the largest integer less than or equal to the given number.

console.log(Math.floor(5.95)); // Prints: 5

### Single Line Comments

In JavaScript, single-line comments are created with two consecutive forward slashes //.

// This line will denote a comment

### Null

Null is a primitive data type. It represents the intentional absence of value. In code, it is represented as null.

let x = null;

### Strings

Strings are a primitive data type. They are any grouping of characters (letters, spaces, numbers, or symbols) surrounded by single quotes ' or double quotes ".

let single = 'Wheres my bandit hat?'; let double = "Wheres my bandit hat?";

### Arithmetic Operators

JavaScript supports arithmetic operators for:

* + addition
* - subtraction
* \* multiplication
* / division
* % modulo

// Addition 5 + 5 // Subtraction 10 - 5 // Multiplication 5 \* 10 // Division 10 / 5 // Modulo 10 % 5

### Multi-line Comments

In JavaScript, multi-line comments are created by surrounding the lines with /\* at the beginning and \*/ at the end. Comments are good ways for a variety of reasons like explaining a code block or indicating some hints, etc.

/\* The below configuration must be changed before deployment. \*/ let baseUrl = 'localhost/taxwebapp/country';

### Assignment Operators

An assignment operator assigns a value to its left operand based on the value of its right operand. Here are some of them:

* += addition assignment
* -= subtraction assignment
* \*= multiplication assignment
* /= division assignment

let number = 100; // Both statements will add 10 number = number + 10; number += 10; console.log(number); // Prints: 120

### String Interpolation

String interpolation is the process of evaluating string literals containing one or more placeholders (expressions, variables, etc).

It can be performed using template literals: text ${expression} text.

let age = 7; // String concatenation 'Tommy is ' + age + ' years old.'; // String interpolation `Tommy is ${age} years old.`;

### Variables

Variables are used whenever there’s a need to store a piece of data. A variable contains data that can be used in the program elsewhere. Using variables also ensures code re-usability since it can be used to replace the same value in multiple places.

const currency = '$'; let userIncome = 85000; console.log(currency + userIncome + ' is more than the average income.'); // Prints: $85000 is more than the average income.

### Undefined

undefined is a primitive JavaScript value that represents lack of defined value. Variables that are declared but not initialized to a value will have the value undefined.

var a; console.log(a); // Prints: undefined

### Declaring Variables

To declare a variable in JavaScript, any of these three keywords can be used along with a variable name:

* var is used in pre-ES6 versions of JavaScript.
* let is the preferred way to declare a variable when it can be reassigned.
* const is the preferred way to declare a variable with a constant value.

var age; let weight; const numberOfFingers = 20;

### Template Literals

Template literals are strings that allow embedded expressions, ${expression}. While regular strings use single ' or double " quotes, template literals use backticks instead.

let name = "Codecademy"; console.log(`Hello, ${name}`); // Prints: Hello, Codecademy console.log(`Billy is ${6+8} years old.`) // Prints: Billy is 14 years old.

### let Keyword

let creates a local variable in JavaScript & can be re-assigned. Initialization during the declaration of a let variable is optional. A let variable will contain undefined if nothing is assigned to it.

let count; console.log(count); // Prints: undefined count = 10; console.log(count); // Prints: 10

### const Keyword

A constant variable can be declared using the keyword const. It must have an assignment. Any attempt of re-assigning a const variable will result in JavaScript runtime error.

const numberOfColumns = 4; numberOfColumns = 8; // TypeError: Assignment to constant variable.

### String Concatenation

In JavaScript, multiple strings can be concatenated together using the + operator. In the example, multiple strings and variables containing string values have been concatenated. After execution of the code block, the displayText variable will contain the concatenated string.

let service = 'credit card'; let month = 'May 30th'; let displayText = 'Your ' + service + ' bill is due on ' + month + '.'; console.log(displayText); // Prints: Your credit card bill is due on May 30th.