JavaScript

Donald Stolz dstolz@student.42.us.org

Summary: *Learn basic JavaScript, the language of choice for modern web and app development.*

Contents

Chapter I

Foreword

IN THE END, ALL WE ARE IS TINY THROWING STARS IN THE MONKEY HANDS OF FATE.

Chapter II

Introduction

"Not to be confused with Java, JavaScript allows you to build interactive websites. JavaScript has become an essential web technology along with HTML and CSS, as most browsers implement JavaScript. Thus, You must learn JavaScript if you want to get into web development, and you must learn it well if you're planning on being a front-end developer or on using JavaScript for backend development.

Furthermore, JavaScript usage has now extended to mobile app development, desktop app development, and game development. All in all, it has exploded in popularity and is now a very useful skill to learn."

- [Why Learn JavaScript](#)

Here are some helpful links for exploring JavaScript:

- [Mozilla Developer Network](#)
- [W3Schools](#)

Chapter III

Goals

By completing these exercises you will gain a basic knowledge of how to use JavaScript. You will then be able to continue to learn front-end and/or back-end development with JavaScript

Chapter IV

General instructions

In order to complete these exercises you must first create an account at
https://www.freecodecamp.org/

You must complete `ALL` of the problems in order to receive credit for each exercise. You must also be able to explain your solution.

> If there is an extra new line between exercises, it means you will have to go back to the curriculm page to find the next exercise. As opposed to simply being able to continue

> You should use `cmd + f` to search for exercises

Chapter V

Exercise 00 : The Basics

It's the fundamentals. Complete the following exercises to gain an understanding of the basic syntax you will use regularly in your code.

The Basics

- Introduction to JavaScript
- Comment Your JavaScript Code
- Declare JavaScript Variables
- Storing Values with the Assignment Operator
- Initializing Variables with the Assignment Operator
- Understanding Uninitialized Variables
- Understanding Case Sensitivity in Variables
- Add Two Numbers with JavaScript
- Subtract One Number from Another with JavaScript
- Multiply Two Numbers with JavaScript
- Divide One Number by Another with JavaScript
- Increment a Number with JavaScript
- Decrement a Number with JavaScript
- Create Decimal Numbers with JavaScript
- Multiply Two Decimals with JavaScript
- Divide One Decimal by Another with JavaScript
- Finding a Remainder in JavaScript
- Compound Assignment With Augmented Addition
- Compound Assignment With Augmented Subtraction
- Compound Assignment With Augmented Multiplication
- Compound Assignment With Augmented Division
- Declare String Variables

- Escaping Literal Quotes in Strings
- Quoting Strings with Single Quotes
- Escape Sequences in Strings
- Find the Length of a String
- Use Bracket Notation to Find the First Character in a String
- Understand String Immutability

- Use Conditional Logic with If Statements
- Comparison with the Equality Operator
- Comparison with the Strict Equality Operator
- Practice comparing different values

- Introducing Else If Statements
- Chaining If Else Statements
- Golf Code

> ℹ️ It is very important to note the differences between '==' and '==='.
> In most use cases you will want to use '==='.

ES6

- Explore Differences Between the var and let Keywords
- Compare Scopes of the var and let Keywords
- Declare a Read-Only Variable with the const Keyword

> ℹ️ ES6 is the 6th version of ECMA Script. ECMA Script is the
> standardized name for JavaScript. JavaScript was originally named
> JavaScript in hopes of capitalizing on the success of Java.

Chapter VI

Exercise 01 : Data Structures

Now that we've got the basics down, let's learn some more useful structures. We will start learning about using arrays and JS objects.

Basic JavaScript

- Store Multiple Values in one Variable using JavaScript Arrays
- Nest one Array within Another Array
- Access Array Data with Indexes
- Modify Array Data With Indexes
- Access Multi-Dimensional Arrays With Indexes
- Manipulate Arrays With push()
- Manipulate Arrays With pop()
- Manipulate Arrays With shift()
- Manipulate Arrays With unshift()
- Shopping List

- Build JavaScript Objects
- Accessing Object Properties with Dot Notation
- Accessing Object Properties with Bracket Notation
- Accessing Object Properties with Variables
- Updating Object Properties
- Add New Properties to a JavaScript Object
- Delete Properties from a JavaScript Object
- Using Objects for Lookups
- Testing Objects for Properties
- Manipulating Complex Objects
- Accessing Nested Objects

- Accessing Nested Arrays
- Record Collection

Basic Data Structures

- Remove Items Using splice()
- Add Items Using splice()
- Copy Array Items Using slice()

ES6

- Use Destructuring Assignment to Assign Variables from Objects
- Use Destructuring Assignment to Assign Variables from Nested Objects
- Use Destructuring Assignment to Assign Variables from Arrays

- Create Strings using Template Literals

Chapter VII

Exercise 02 : Loops

Same concept as in any other programming language. Loops are critical for iteration and navigation

Basic JavaScript

- Iterate with JavaScript While Loops
- Iterate with JavaScript For Loops
- Iterate Odd Numbers With a For Loop
- Count Backwards With a For Loop
- Iterate Through an Array with a For Loop
- Nesting For Loops
- Iterate with JavaScript Do...While Loops
- Profile Lookup

Chapter VIII

Exercise 03 : Functions

Here we will learn to make our code reusable by learning to use functions.

Basic JavaScript

- Write Reusable JavaScript with Functions
- Passing Values to Functions with Arguments
- Understanding Undefined Value returned from a Function
- Assignment with a Returned Value
- Stand in Line

ES6

- Use Arrow Functions to Write Concise Anonymous Functions
- Write Arrow Functions with Parameters

Chapter IX

Exercise 04 : Algorithms

Let's get into some real challenges. Complete the following exercise to demonstrate you're a pro.

Basic Algorithm Scripting

- Find the longest word in a string
- Slice & splice
- Chunky Monkey

Chapter X

Exercise 05 : Debugging

This one of the most important skills to learn as a developer.

Debugging

- Introduction to the Debugging Challenges
- Use the JavaScript Console to Check the Value of a Variable
- Understanding the Differences between the freeCodeCamp and Browser Console
- Use typeof to Check the Type of a Variable
- Catch Misspelled Variable and Function Names
- Catch Unclosed Parentheses, Brackets, Braces and Quotes
- Catch Mixed Usage of Single and Double Quotes
- Catch Use of Assignment Operator Instead of Equality Operator
- Catch Missing Open and Closing Parenthesis After a Function Call
- Catch Arguments Passed in the Wrong Order When Calling a Function
- Catch Off By One Errors When Using Indexing
- Use Caution When Reinitializing Variables Inside a Loop
- Prevent Infinite Loops with a Valid Terminal Condition

> To access the developer tools in chrome, right-click on any page
> element and select Inspect. The JavaScript console is the second tab
> in the menu bar.

Chapter XI

Bonus part

Finish the rest of `Basic JavaScript` and `ES6`

Chapter XII

Turn-in and peer-evaluation

Free Code Camp will track your progress. You must complete all of the specified exercises and be prepared to explain your solutions.