

# Javascript Mastery Class

**JS**



**codeDynasty**

coding academy

# COURSE OUTLINE

## SECTION 1



## Javascript Fundamentals

- ▶ Introduction to Javascript
- ▶ Linking Javascript file
- ▶ Values and Variables
- ▶ Data types
- ▶ Let, const and var
- ▶ Basic Operators
- ▶ Operator Precedence
- ▶ String and Template literals
- ▶ Taking decisions: if/else statements
- ▶ Type conversion and coercion
- ▶ Truthy and Falsy values
- ▶ Equality Operators == vs ===
- ▶ Boolean Logic
- ▶ Logical Operators
- ▶ The switch statement
- ▶ Statement and Expressions

- ▶ The conditional (Ternary) Operator
- ▶ Javascript releases ES5, ES6+,

## SECTION 2



### Javascript Fundamentals Part-2

- ▶ Activating Strict Mode
- ▶ Functions
- ▶ Function Declaration vs Expressions
- ▶ Arrow Functions
- ▶ Functions calling other Functions
- ▶ Reviewing Functions
- ▶ Introduction to Arrays
- ▶ Basic Array Operations
- ▶ Introduction to Objects
- ▶ Dot vs Bracket Notation
- ▶ Object Methods
- ▶ Iteration, The For Loop
- ▶ Looping Arrays, Breaking and Continuing
- ▶ Looping backwards and loops in loops
- ▶ The While loop

## **SECTION 3**



### **Developer Skills and Editors setup**

- ▶ Setting up Prettier and VS Code
- ▶ Installing Node.js and setting up Dev Environment
- ▶ Learning how to code
- ▶ How to think like a developer
- ▶ Using google, StackOverflow and MDN
- ▶ Debugging with the console and Breakpoints

## **SECTION 4**



### **HTML and CSS Crash Course**

#### **(Quick Revision)**

- ▶ Basic HTML Structure and Elements
- ▶ Attributes, classes and Ids
- ▶ Basic styling with CSS
- ▶ Introduction to CSS Box Model

## **SECTION 5**



### **Javascript in the Browser:** **DOM and Events**

- ▶ #Project 1: Guess my number
- ▶ What is the DOM and DOM Manipulation
- ▶ Selecting and Manipulating Elements
- ▶ Handling Click Events
- ▶ Implementing a game logic
- ▶ Manipulating CSS styles
- ▶ Implementing Highscores
- ▶ Refactoring our code: The DRY principle
- ▶ #Project 2 Modal Window
- ▶ #Project 3: The Dice Game
- ▶ #Project 4: Preloader

## **SECTION 6**



### **How Javascript works behind the scene**

- ▶ An High level overview of Javascript
- ▶ The Javascript Engine and runtime
- ▶ Execution Context and Call Stack

- ▶ Scope and Scope Chain
- ▶ Scoping in Practice
- ▶ Variable Environment:
- ▶ Hoisting and the TDZ in practice
- ▶ The This Keyword
- ▶ The this keyword in practice
- ▶ Regular functions vs Arrow functions
- ▶ Primitives vs Objects
- ▶ Primitives vs Objects in Practice

## **SECTION 7**



### **Data structures, Modern Operators and Strings**

- ▶ Destructuring Arrays
- ▶ Destructuring objects
- ▶ The Spread Operator
- ▶ The Rest Pattern and Parameters
- ▶ Short Circuiting(&& and ||)
- ▶ The nullish coalescing operator
- ▶ Logical Assignment Operators

- ▶ Looping arrays: The for loop
- ▶ Enhanced Object Literals
- ▶ Optional Chaining
- ▶ Looping Objects: Object Keys, Values and Entries
- ▶ Sets
- ▶ Maps: Fundamentals
- ▶ Map: Iteration
- ▶ Summary: Which Data structure to Use
- ▶ Working with Strings
- ▶ String Methods in practice

## **SECTION 8**



### **A closer look at functions**

- ▶ Default Parameters
- ▶ How Parsing Arguments Works : Value vs Reference
- ▶ First class and Higher Order Functions
- ▶ Functions Accepting Callback Functions
- ▶ Functions Returning Functions
- ▶ The Call and Apply Method
- ▶ The bind method
- ▶ Immediately Invoked Function Expressions
- ▶ Closures

## SECTION 9



### Working With Arrays

- ▶ Simple array methods
- ▶ the new at method
- ▶ Looping Arrays:foreach
- ▶ Project: The Mobile Banking App
- ▶ Creating DOM Elements
- ▶ Data Transformation, map, filter, reduce
- ▶ The map method
- ▶ Computing usernames
- ▶ The filter method
- ▶ The reduce Method
- ▶ The Art of chaining methods
- ▶ The Find method
- ▶ Implementing Login
- ▶ Implementing Transfers
- ▶ The FindIndex Method
- ▶ some and every
- ▶ flat and flatMap
- ▶ Sorting arrays
- ▶ Array method Practice



## **SECTION 10**



### **Numbers, Dates, Intl and Timers**

- ▶ Converting and checking Numbers
- ▶ Math and Rounding
- ▶ The remainder Operator
- ▶ Numeric Separators
- ▶ Working with BigInt
- ▶ Creating Dates
- ▶ Adding Dates to the Mobile Banking App
- ▶ Operation with dates
- ▶ Internationalizing Dates
- ▶ Timers:SetTimeout and setInterval
- ▶ Implementing a countdown

## **SECTION 11**



### **Advanced DOM and events**

- ▶ The Mobile Bank Website
- ▶ How The DOM really works
- ▶ Selecting, creating and Deleting Elements
- ▶ Styles, Attributes and Classes

- ▶ Implementing smooth scrolling
- ▶ Types of Events and Event Handlers
- ▶ Event Propagation
- ▶ Event Delegation
- ▶ DOM Traversing
- ▶ Building Tabbed Component
- ▶ Passing Arguments to Event Handlers
- ▶ Implementing a sticky Navigation
- ▶ The intersection Observer API
- ▶ Revealing Elements in scroll
- ▶ Lazy Loading Images
- ▶ Building a slider component
- ▶ Lifecycle DOM Events
- ▶ Efficient script loading

## **SECTION 12**



### **Object Oriented Programming**

- ▶ What Is Object Oriented Programming
- ▶ OOP in Javascript
- ▶ Constructor Functions and the new Operator

- ▶ Prototypes
- ▶ Prototypal Inheritance and Prototype chain
- ▶ Prototypal Inheritance on Built-in Objects
- ▶ ES6 classes
- ▶ Setters and Getters
- ▶ Static Methods
- ▶ Object.create
- ▶ Inheritance Between “Classes”:Constructor Functions
- ▶ Inheritance Between “Classes”:ES6 Classes
- ▶ Inheritance Between “Classes”:Object.create
- ▶ Encapsulation:Protected Properties and Methods
- ▶ Encapsulation:Private class fields and methods
- ▶ Chaining Methods
- ▶ Classes Summary

## **SECTION 13**



### **Mapty App:OOP, Geolocation External Libraries**

- ▶ Mapty App:OOP, Geolocation, External Libraries
- ▶ How to plan a web project

- ▶ Using the Geolocation API
- ▶ Displaying a Map Using Map Leaflet Library
- ▶ Displaying a map Marker
- ▶ Working with local storage
- ▶ Building a workout project

## **SECTION 14**



### **Asynchronous Javascript, Promises, async/await and AJAX**

- ▶ Asynchronous Javascript, AJAX and APIs
- ▶ AJAX Call
- ▶ How Web works :Request and responses
- ▶ Callback Hell
- ▶ Promises and Fetch API
- ▶ Consuming Promises
- ▶ chaining promises
- ▶ Handling Rejected Promises
- ▶ Throwing Errors Manually
- ▶ The Event Loop
- ▶ Building a simple promise
- ▶ Promisifying the Geolocation API

- ▶ Error Handling with try..catch
- ▶ returning values from Async functions
- ▶ Running Promises in parallel
- ▶ Other promise combinators

## **SECTION 15**



### **Modern Javascript Development: Modules, Tooling and Functional**

- ▶ Overview of Modern Javascript Development
- ▶ Overview of Modules in javascript
- ▶ Exporting and Importing in ES6 modules
- ▶ Top-Level await
- ▶ The Module Pattern
- ▶ Common JS Modules
- ▶ A brief Introduction to command line
- ▶ Introduction to NPM
- ▶ Bundling with Parcel and NPM scripts
- ▶ Configuring Babel and Polyfilling
- ▶ Writing clean and Modern javascript
- ▶ Declarative and Functional javascript

## SECTION 15



# **Building Modern a Application**

- ▶ MVC Architecture
- ▶ Implementing Search results
- ▶ Pagination

Continuation with JQuery...