JavaScript Programming

Duration: 28 hours

Prerequisites: Knowledge of HTML and CSS

Course Description: This hands on JavaScript training course provides the fundamental knowledge necessary to design and develop dynamic Web pages using JavaScript. It introduces students to client-side JavaScript and how the language can be used to turn static HTML pages into dynamic, interactive Web pages. Students will learn the syntax of the JavaScript language and how client-side scripts interact with server-side programs.

JavaScript topics include adding JavaScript to a Webpage, use of dialogs to interact with the user and JavaScript intrinsic objects such as Date, Array and Math. Students will also be introduced to the Document Object Model (DOM), creation of functions, event handling, form validation, JSON and Ajax. Comprehensive hands on exercises are integrated throughout to reinforce learning and develop real competency.

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Students Will Learn

- Including JavaScript in a Web page
- Using the Document Object Model (DOM) to access the HTML elements on the page dynamically
- Using JavaScript objects effectively, including the `window` object and the `navigator` object
- Creating and using variables
- Using event handlers to handle user-triggered events
- Using regular expressions with string methods to perform basic validation

- Working with primitive data types
- Passing arguments to a function
- Using conditional constructs and loops
- Debugging JavaScript code
- Using Geolocation and Web Storage JavaScript APIs
- Working with JSON objects
- Using Ajax to make asynchronous calls to a Web server

Overview

Overview of Client-Side JavaScript
- Including JavaScript in a Page
  - Using the `<script>` Tag
  - Referencing an External Script File
  - Using an Event Handler
  - Using a URL
- Evolution of the JavaScript Language

JavaScript Fundamentals
- Using Strict Mode
- Adding Comments
- Debugging JavaScript Code
- Declaring Variables
  - `var`, `let` and `const` Keywords
  - Local vs. Global Variables

Common Misconceptions About JavaScript
- ES5 vs ES6
  - New ES6 Data Types
    - `Map` and `Set` Collections
  - ES6 Arrow Functions
  - ES6 String Template Literals
- Using the JavaScript Console
  - Logging Messages in the Console
  - Debugging with Console

Controlling Flow
- Conditional Constructs
  - `if else`
  - `switch`
- Looping Contructs
  - `do while`
  - `while`
  - `for`
  - `for in`
- Branching Statements
  - `break`
  - `continue`
- Equality and Identity Operators
- Logical and Comparison Operators
- Error Handling
  - `try`
  - `catch`
  - `throw`
  - `finally`

Implementing Functions
- Declaring Functions
- Invoking Functions
- Named and Anonymous Functions
- Passing Arguments
- Local vs. Global Variables
- Returning Values from a Function
- The `this` Keyword
- Default Parameters
- Explaining Closures

Declaring Block-scoped Variables
- Using JavaScript Primitive Types
  - String, Number and Boolean
  - undefined
  - null
- Performing Data Conversions
- Interacting with the User
  - `alert`
  - `prompt`
  - `confirm`
- Working with JavaScript Operators
  - Arithmetic Operators
  - Assignment Operators
- Using the Math and Date Objects

Working with Strings, Numbers and Arrays
- Creating String Objects
- Using String Methods
  - Searching within a String
  - Returning a Substring
  - Converting Character Case
- Creating Number Objects
- Formatting Numbers
- Creating Arrays
  - Using the Array Constructor
  - Using Literal Notation
- Accessing Array Elements
- Common Array Methods
- Defining and Using Associative Arrays
- Predefined Object Arrays

Browser Object Model
- Overview of the Browser Object Model
- Using the `window` Object
  - Opening and Closing Windows
  - Using Timers
  - Passing Data Between Windows
- Using the `document` Object
  - Writing to the Webpage
  - Accessing Properties of the Document
- `navigator` Object
- `location` Object
- `screen` Object

Introduction to the Document Object Model (DOM)

- Selecting DOM Elements
  - `getElementById`
  - `getElementsByTagName`
  - `getElementsByName`
  - `getElementsByClassName`
  - `querySelector`
  - `querySelectorAll`
- Modifying Page Content with the DOM
- Manipulating CSS using JavaScript

Working with Forms

- Accessing Forms from JavaScript
- Working with Form Elements
- Validating Form Fields
  - Checking Required Fields
  - Checking Length of Input
- Canceling Form Submission

Working with JavaScript Objects and JSON

- Understanding Objects
- Defining Custom Objects
  - Object Literal Notation
  - Defining Properties and Methods
  - Creating a Constructor
  - ES6 Enhanced Object Literals
- Extending an Existing Object with `prototype`
- Using the `in` and `instanceof` Operators
- Overview of JSON
- Using `JSON.stringify` and `JSON.parse`

HTML5 JavaScript APIs

- Web Storage API
  - Local Storage
  - Session Storage
- Geolocation API

Event Handling in JavaScript

- Overview of JavaScript Events
  - Identifying Differences Between Browsers
  - The `event` Object
  - Event Capturing and Bubbling
- Adding Event Handlers
  - Traditional (Inline) Model
  - Registering Events in JavaScript
  - Adding Multiple Handlers
    - `addEventListener`
    - `attachEvent`
- Mouse and Keyboard Events
- Preventing Default Behavior
- Canceling Events

Using Regular Expressions

- Overview of Regular Expressions
- Using Regular Expressions in JavaScript
  - Creating a `RegExp` Object
  - Using `i` and `g` Flags
- Validating Strings with Regular Expressions
- Using Backreferences

Using Ajax

- Overview of Ajax
- The `XMLHttpRequest` Object
- Configuring an Ajax Request
- Handling Errors on `readystatechange`
- Using JSON with Ajax

Related Bootcamp

Track	Duration	Price
Web Developer	5-course track 6-course track 7-course track	$6,000 $7,200 $8,400

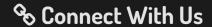|		
	8-course track	$9,600
	9-course track	$10,800

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