From Zero to JavaScript and jQuery

The JavaScript language is everywhere these days. Everything from websites, to mobile apps, to game development use JavaScript. You can hone JavaScript and jQuery skills by taking this course. If you are new to JavaScript and jQuery, this course is for you. You are introduced to both JavaScript and the jQuery library.

Learning Objectives

Interact with, and manipulate elements on web pages

Learn the object-oriented principles of JavaScript

Simplify your coding using closures and templates

The basics of jQuery

Prerequisites

It is recommended that students are already familiar with a programming language, HTML and CSS. You also need access to an editor such as Visual Studio Code.

Course Length

3 days

JavaScript Modules

Module 1: Language Basics

Using alert(), console() and document.write()

Module 2: Using Variables

Declaring variables

Naming variables

Scope of variables

Arrays

Literal objects

Constructor functions

Conversion of data types

typeof operator

instanceof operator

Module 3: Logical, Math and Comparison Operators

Logical operators

Math operators

Comparison operators

Module 4: Decision Structures

If statements

Switch statement

For loops

While loops

For-in and for-of loops

Break

Continue

Labeled statements

Module 5: Functions, this and Arrow Functions

Creating functions

Passing parameters

Using 'this' keyword

Object literals

Call() and apply() functions

Constructor functions

Arrow functions

Module 6: Exception Handling

Try…catch keywords

Finally samples

Throwing errors

Checking for error types

Module 7: Working with Global Objects

Document object

Location object

Navigator object

Screen object

History object

Prompt() and confirm() functions

window.setTimeout() method

window.print() method

window.open() method

document.getElementById()

Modifying DOM elements

setAttribute() method

Module 8: String, Number, Date and Array Methods

String methods such as indexOf, slice, substring, etc.

Number methods such as toFixed, toPrecision, parseInt, parseFloat, etc.

Date methods such as now, parse, UTC, toLocalDateString, etc.

Array methods such as slice, shift, unshift, splice, concatenate, etc.

Arrow functions such as map, reduce, filter, etc.

The spread operator

Module 9: Event Handling

Inline event handling

Setting up event listeners

Using the window.onload function

Triggering events

Module 10: DOM Manipulation

Adding and removing classes

Using querySelector(), querySelectorAll(), etc.

Adding elements to the DOM

Module 11: Using Closures

Simple closure sample

Using an IIFE

Creating your service closures

Module 12: Templating

Downloading and install mustache.js

Using mustache to perform simple templating

Add custom properties for display formatting

Module 13: Object-oriented programming with JavaScript

Using Object() and why not to use this

Using literal objects

Using constructor functions

The class keyword

Using get and set properties

Constructor inheritance

Class inheritance

Module 14: Callbacks

Simple callbacks

Pass data back

Multiple call backs to the same function

Module 15: Using Ajax

Reading a local JSON file

Using the XMLHttpRequest object

Simple Ajax sample

Create a wrapper around Ajax calls

Module 16: Using Promises

Demo of a successful promise

Demo of a failed promise

Using a promise with a catch

Using a finally block with a promise

Apply a promise to an Ajax call

Module 17: Working with Await and Async

Simplifying promise code with await and async

Using await and async with Ajax calls

Module 18: Working with HTML 5 APIs

Geolocation - Getting data

Geolocation - Handling errors

Geolocation - Passing in options

Geolocation - Display on a map

Drag and drop

Local storage

Session storage

Working with video files

Turning on your computer's camera

jQuery Modules

Module 1: Selectors

Using jQuery selectors to get elements

Setting values and attributes

Adding and removing classes

DOM traversal methods

Module 2: Events

Document ready event

Inline events

Event listeners

Triggering events

Module 3: Closures

Simple closure sample

Using an IIFE

Creating a service closure

Module 4: Templating

Downloading and install mustache.js

Using mustache to perform simple templating

Add custom properties for display formatting

Module 5: Ajax calls

Reading a local JSON file

Using the XMLHttpRequest object

Simple Ajax sample

Create a wrapper around Ajax calls

Module 6: Datatables.NET Library

Download and install Datatables.net library

Hard-coded HTML table of data converted to 'datatable'

Large amount of hard-coded HTML table of data converted to 'datatable'

Populate from array of data, where each row of the array is another array. Each element in the sub-array is for each colum in the table.

Populate from array of objects. Use the columns[] array.

Module 7: Working with Google Maps

Display lat/long on a Map

Geocode, search for address

Reverse Geocode lat/long to an Address

Create boundary around address (geofence)

Module 8: Apply Angular Techniques to jQuery Applications

Loading HTML fragments dynamically

Adding JavaScript and CSS to individual pages

Creating a CRUD page

Node.js and Express

Module 1: Node.js and Express Basics

What is Node.js and Express

Installation

Module 2: Create REST API for Retrieving Data

Getting a list of data

Get a single pie of data

Searching for data

Module 3: Create REST API for Modifying Data

POST

PUT

PATCH

DELETE

Module 4: Handling Exceptions

Catching exceptions using middleware

Logging exceptions

Return exceptions to calling program

Module 5: Calling REST API's using the XMLHttpRequest Object

Using the XMLHttpRequest object from JavaScript

Module 6: Building a Web Site

Creating a new web site

Using Handlebars.js

Geolocation

Module 1: Capture a User's Location Using the Geolocation Object

Overview of the Geolocation Course

Demo of Final Application

Using the Geolocation Object

Displaying Geolocation Positioning Info

Handling Errors with Geolocation

Geolocation Options for Better Accuracy

Wrap Geolocation into a Closure

Watching your Position

Module 2: Display Locations on a Map

Linking and Embedding Maps

Linking to Open Street Maps

Linking to Google Maps

Link to Google Maps Using Geolocation

How to Embed Maps Using Mapping APIs

Embed Map Using OpenLayers API

Module 3: Embed Maps Using the Google Maps API

Overview of Google Maps

How to Embed a Google Map

Demo of Embedding a Google Map

Load Google Maps Dynamically

Add a Marker and a Title

Add an Informational Window

Use a Picture for a Marker

Two Markers and Two Windows

Create an Array of Map Objects

Module 4: Getting Directions with Google Maps

Overview of the Directions Service

Render Directions from Address to Pie Shop

Render Directions Using Latitude and Longitude

Add Text Directions to Page

Map Routing Options

Module 5: Geocoding with Google Maps

Overview of Geofencing and Geocoding

Draw a Geofence

Lookup Address and Add Marker

Is Address Within Delivery Geofence

PouchDB

Module 1: Getting Started

Downloading and installing PouchDB

Opening and creating a database

Adding data

Getting data

Updating and deleting data

Compacting and destroying a database

Module 2: Bulk Operations

Bulk creating data

Getting all documents

Counting data

Getting a range of data

Module 3: Using Mango Queries

Creating indexes

Finding data by name

Sorting data

Searching on multiple fields

Searching with an array of objects

Module 4: Use Map Queries

Using temporary queries

Searching on multiple value fields

Creating design documents

Querying using design documents

Module 5: Use Reduce Queries to Gather Statistics

Counting documents

Get the sum of values

Getting minimum and maximum values

Getting average values