

Programming in HTML5 with JavaScript and CSS3

This course provides an introduction to HTML5, CSS3, and JavaScript. This course helps students gain basic HTML5/CSS3/JavaScript programming skills. This course is an entry point into both the Web application and Windows Store apps training paths. The course focuses on using HTML5/CSS3/JavaScript to implement programming logic, define and use variables, perform looping and branching, develop user interfaces, capture and validate user input, store data, and create well-structured application. The lab scenarios in this course are selected to support and demonstrate the structure of various application scenarios. They are intended to focus on the principles and coding components/structures that are used to establish an HTML5 software application. This course uses Visual Studio 2017, running on Windows 10.

Duration: 5 days

Prerequisites

- 1-3 months experience creating Web applications, including writing simple JavaScript code
- 1 month experience creating Windows client applications
- 1 month of experience using Visual Studio 2017

Audience

This course is intended for professional developers who have 6-12 months of programming experience and who are interested in developing applications using HTML5 with JavaScript and CSS3 (either Windows Store apps for Windows 10 or web applications).

Objectives

1. Explain how to use Visual Studio 2017 to create and run a Web application.
2. Describe the new features of HTML5, and create and style HTML5 pages.
3. Add interactivity to an HTML5 page by using JavaScript.
4. Create HTML5 forms by using different input types, and validate user input by using HTML5 attributes and JavaScript code.
5. Send and receive data to and from a remote data source by using XMLHttpRequest objects and Fetch API.
6. Style HTML5 pages by using CSS3.
7. Create well-structured and easily-maintainable JavaScript code.
8. Write modern JavaScript code and use babel to make it compatible to all browsers.
9. Use common HTML5 APIs in interactive Web applications.
10. Create Web applications that support offline operations.
11. Create HTML5 Web pages that can adapt to different devices and form factors.
12. Add advanced graphics to an HTML5 page by using Canvas elements, and by using and Scalable Vector Graphics.
13. Enhance the user experience by adding animations to an HTML5 page.
14. Use Web Sockets to send and receive data between a Web application and a server.
15. Improve the responsiveness of a Web application that performs long-running operations by using Web Worker processes.
16. Use WebPack to package web applications for production.

Topics

Module 1: Overview of HTML and CSS

- Overview of HTML
- Overview of CSS
- Creating a Web Application by Using Visual Studio 2017

Module 2: Creating and Styling HTML Pages

- Creating an HTML5 Page
- Styling an HTML5 Page

Module 3: Introduction to JavaScript

- Overview of JavaScript
- Introduction to the Document Object Model

Module 4: Creating Forms to Collect and Validate User Input

- Creating HTML5 Forms
- Validating User Input by Using HTML5 Attributes
- Validating User Input by Using JavaScript

Module 5: Communicating with a Remote Server

- Async programming in JavaScript
- Sending and Receiving Data by Using the XMLHttpRequest Object
- Sending and Receiving Data by Using the Fetch API

Module 6: Styling HTML5 by Using CSS3

- Styling Text by Using CSS3
- Styling Block Elements
- Pseudo-Classes and Pseudo-Elements
- Enhancing Graphical Effects by Using CSS3

Module 7: Creating Objects and Methods by Using JavaScript

- Writing Well-Structured JavaScript Code
- Creating Custom Objects
- Extending Objects

Module 8: Creating Interactive Pages by Using HTML5 APIs

- Interacting with Files
- Incorporating Multimedia
- Reacting to Browser Location and Context
- Debugging and Profiling a Web Application

Module 9: Adding Offline Support to Web Applications

- Reading and Writing Data Locally
- Adding Offline Support by Using the Application Cache

Module 10: Implementing an Adaptive User Interface

- Supporting Multiple Form Factors
- Creating an Adaptive User Interface

Module 11: Creating Advanced Graphics

- Creating Interactive Graphics by Using SVG
- Drawing Graphics by Using the Canvas API

Module 12: Animating the User Interface

- Applying CSS Transitions
- Transforming Elements
- Applying CSS Keyframe Animations

Module 13: Implementing Real-time Communication by Using Web Sockets

- Introduction to Web Sockets
- Using the WebSocket API

Module 14: Performing Background Processing by Using Web Workers

- Understanding Web Workers
- Performing Asynchronous Processing by Using Web Workers

Module 15: Packaging JavaScript for Production Deployment

- Understanding Transpilers And Module bundling
- Creating Separate Packages for Cross Browser Support