



developer

// Step by step

JavaScript

Third Edition

Intermediate



Steve Suehring

// Step by step

Your hands-on guide to JavaScript fundamentals

Expand your expertise—and teach yourself the fundamentals of JavaScript. If you have previous programming experience but are new to JavaScript, this tutorial delivers the step-by-step guidance and coding exercises you need to master core topics and techniques.

Discover how to:

- Work with JavaScript syntax, variables, and data types
- Master techniques for building cross-browser programs
- Speed up and simplify app development with jQuery
- Quickly retrieve data from a server using AJAX requests
- Adapt your app for mobile devices with jQuery Mobile
- Build Windows 8 apps using HTML, CSS, and JavaScript

About the Author

Steve Suehring is a technology architect who's written about programming, security, network and system administration, operating systems, and other topics for several industry publications. He is also the author of *Start Here! Learn JavaScript*, a book designed for people with no previous programming experience.

Practice Files + Code

Available at:

<http://aka.ms/JavaScriptSbS/files>

Companion eBook

See the instruction page at the back of the book

microsoft.com/mspress

ISBN: 978-0-7356-6593-4



9 0 0 0 0

U.S.A. \$39.99

Canada \$41.99

[Recommended]

Programming/JavaScript



Microsoft

JavaScript Step by Step

Table of Contents

Introduction

Part I: Javawhat? The where, why, and how of JavaScript

Chapter 1: JavaScript is more than you might think

A brief history of JavaScript

Enter Internet Explorer 3.0

And then came ECMAScript

So many standards...

The DOM

Whats in a JavaScript program?

JavaScript placement on your webpage

What JavaScript can do

What JavaScript cant do

JavaScript cant be forced on a client

JavaScript cant guarantee data security

JavaScript cant cross domains

JavaScript doesnt do servers

Tips for using JavaScript

Where JavaScript fits

Which browsers should the site support?

And then came Windows 8

Exercises

Chapter 2: Developing in JavaScript

JavaScript development options

Configuring your environment

Writing JavaScript with Visual Studio 2012

Table of Contents

Your first web (and JavaScript) project with Visual Studio 2012

Using external JavaScript files with Visual Studio 2012

Debugging JavaScript

Exercises

Chapter 3: JavaScript syntax and statements

A bit of housekeeping

Case sensitivity

White space

Comments

Semicolons

Line breaks

Placing JavaScript correctly

JavaScript statements

Whats in a statement?

The two types of JavaScript statements

Reserved words in JavaScript

A quick look at functions

JavaScripts strict mode

Exercises

Chapter 4: Working with variables and data types

Data types in JavaScript

Working with numbers

Working with strings

Booleans

Null

Undefined

Objects

Arrays

Defining and using variables

Declaring variables

Variable types

Table of Contents

Variable scope

The Date object

Using the RegExp object

The syntax of regular expressions

References and garbage collection

Learning about type conversions

Number conversions

String conversions

Boolean conversions

Exercises

Chapter 5: Using operators and expressions

Meet the operators

Additive operators

Multiplicative operators

Bitwise operators

Equality operators

Relational operators

The in operator

The instanceof operator

Unary operators

Incrementing and decrementing

Converting to a number with the plus sign

Creating a negative number with the minus sign

Negating with bitwise not and logical not

Using the delete operator

Returning variable types with the typeof operator

Assignment operators

The comma operator

Exercises

Chapter 6: Controlling flow with conditionals and loops

Table of Contents

If (and how)

- Syntax for if statements

- The prompt() function in Internet Explorer

- Compound conditions

Using else if and else statements

Working with ternary conditionals

Testing with switch

Looping with while

- The while statement

- The do...while statement

Using for loops

- The for loop

- The for...in loop

- The for each...in loop

Validating forms with conditionals

Exercises

Chapter 7: Working with functions

Whats in a function?

- Function parameters

- Variable scoping revisited

- Return values

- More on calling functions

- Anonymous/unnamed functions (function literals)

- Closures

Methods

A look at dialog functions

Exercises

Chapter 8: Objects in JavaScript

Object-oriented development

- Objects

- Properties

Table of Contents

Methods

Classes

Creating objects

Adding properties to objects

Adding methods to objects

Finding out more about arrays

The length property

Array methods

Taking advantage of built-in objects

Making URLs safe

Using the eval() method

Exercises

Chapter 9: The Browser Object Model

Introducing the browser

The browser hierarchy

Events

A sense of self

Getting information about the screen

Using the navigator object

The location object

The history object

Exercises

Chapter 10: An introduction to JavaScript libraries and frameworks

Understanding programming libraries

Defining your own JavaScript library

Looking at popular JavaScript libraries and frameworks

jQuery

Modernizr

Yahoo! User Interface

MooTools

Other libraries

Table of Contents

Exercises

Chapter 11: An introduction to jQuery

jQuery primer

Using jQuery

The two jQuery downloads

Including jQuery

Basic jQuery syntax

Connecting jQuery to the load event

Using selectors

Selecting elements by ID

Selecting elements by class

Selecting elements by type

Selecting elements by hierarchy

Selecting elements by position

Selecting elements by attribute

Selecting form elements

More selectors

Functions

Traversing the DOM

Working with attributes

Changing text and HTML

Inserting elements

Callback functions

More jQuery

Exercises

Part II: Integrating JavaScript into Design

Chapter 12: The Document Object Model

The Document Object Model defined

DOM Level 0: The legacy DOM

DOM Levels 1 through 3

The DOM as a tree

Table of Contents

Working with nodes

Retrieving elements

Retrieving elements by ID

Retrieving by tag name

HTML collections

Working with siblings

Working with attributes

Viewing attributes

Setting attributes

Creating elements

Adding text

Adding an element and setting an ID

Deleting elements

Exercises

Chapter 13: JavaScript events and the browser

Understanding window events

The event models

A generic event handler

jQuery event handling

Binding and unbinding

Detecting visitor information

A brief look at the userAgent property

Feature testing

Keeping JavaScript away from older browsers

Other navigator properties and methods

Opening, closing, and resizing windows

Window opening best practices

Opening tabs: no JavaScript necessary

Resizing and moving windows

Timers

Events

Table of Contents

Mouse events and hover

Many more event handlers

Exercises

Chapter 14: Working with images in JavaScript

Working with image hovers

A simple hover

Modern hovers with jQuery

A closer look at the exercise

Preloading images

Working with slide shows

Creating a slide show

Moving backward

A jQuery slide show

Working with image maps

Exercises

Chapter 15: Using JavaScript with web forms

JavaScript and web forms

Validation with JavaScript

Validation with jQuery

Working with form information

Working with select boxes

Working with check boxes

Working with radio buttons

Pre-validating form data

Hacking JavaScript validation

Validating a text field

Exercises

Chapter 16: JavaScript and CSS

What is CSS?

Using properties and selectors

Applying CSS

Table of Contents

The relationship between JavaScript and CSS

- Setting element styles by ID
- Setting element styles by type
- Setting CSS classes with JavaScript
- Retrieving element styles with JavaScript

Exercises

Chapter 17: jQuery effects and plug-ins

Installing jQuery UI

- Obtaining jQuery UI
- Installing jQuery UI
- Building a jQuery UI demonstration page

Creating a jQuery UI calendar

- Customizing the calendar

Adding a dialog box

- Creating a modal dialog
- Adding buttons

More JQuery UI

Exercises

Chapter 18: Mobile development with jQuery Mobile

A walkthrough of jQuery Mobile

Getting jQuery Mobile

- Downloading jQuery Mobile
- Testing jQuery Mobile

Linking with jQuery Mobile

- Creating a link
- Changing the page transition
- Linking without AJAX

Enhancing the page with toolbars

- Adding a navigation bar
- Adding a footer navigation bar
- Adding buttons to toolbars

Table of Contents

Other toolbar enhancements

Even more jQuery Mobile

Exercises

Chapter 19: Getting data into JavaScript

JavaScript application architecture

The big three: display, behavior, data

JavaScript and web interfaces

Introduction to AJAX

AJAX with jQuery

AJAX without the X

Whats Next?

Part III: AJAX and Server-Side Integration

Chapter 20: Using AJAX

The XMLHttpRequest object

Instantiating the XMLHttpRequest object

Sending an AJAX request

Processing an AJAX response

Processing XML responses

Working with JSON

Processing headers

Using the POST method

AJAX and jQuery

AJAX errors and time-outs

Sending data to the server

Other important options

Exercise

Chapter 21: Developing for Windows 8

Windows 8 apps

Developing Windows 8 apps

Development guidelines

Table of Contents

The development process

Distributing Windows apps

Distributing in the Windows Store

Distributing in an enterprise

Summary

Part IV: JavaScript and Windows 8

Chapter 22: Using Visual Studio for Windows 8 development

Installing Visual Studio 2012

Installing Visual Studio 2012 Express for Windows 8

Windows 8 app templates

Blank App template

Grid App template

Split App template

Setting app details in the App Manifest

Packaging apps for the Windows Store

Certification requirements

The technical process

Exercises

Chapter 23: Creating a Windows app

The app development process

Starting the app design and programming

Customizing the app

Customize the JavaScript

Customize the main HTML

Customize the detail HTML

Customize the CSS

Finalizing the app

Customizing the Package Manifest

Adding a splash screen, logo, and tile image

Defining capabilities

Table of Contents

Testing the app

Summary

Appendix A: Answer key to exercises

Appendix B: Writing JavaScript with other tools

Index