

The Modern JavaScript Tutorial

How it's done now. From the basics to advanced topics with simple, but detailed explanations.

Search

Last updated on December 23, 2022

 Buy EPUB/PDFShare:  19649 ★  github Discord Chat

Table of contents

Main course contains 2 parts which cover JavaScript as a programming language and working with a browser. There are also additional series of thematic articles.

PART 1
The JavaScript language

PART 2
Browser: Document, Events, Interfaces

PART 3
Additional articles

The JavaScript language

Here we learn JavaScript, starting from scratch and go on to advanced concepts like OOP.

We concentrate on the language itself here, with the minimum of environment-specific notes.

An introduction

- 1.1 [An Introduction to JavaScript](#)
- 1.2 [Manuals and specifications](#)

- 1.3 [Code editors](#)
- 1.4 [Developer console](#)

JavaScript Fundamentals

- 2.1 [Hello, world!](#)
- 2.2 [Code structure](#)
- 2.3 [The modern mode, "use strict"](#)
- 2.4 [Variables](#)

- 2.5 [Data types](#)
- 2.6 [Interaction: alert, prompt, confirm](#)
- 2.7 [Type Conversions](#)
- 2.8 [Basic operators, maths](#)

- 2.9 Comparisons
- 2.10 Conditional branching: if, '?'
- 2.11 Logical operators
- 2.12 Nullish coalescing operator '??'
- 2.13 Loops: while and for
- 2.14 The "switch" statement
- 2.15 Functions
- 2.16 Function expressions
- 2.17 Arrow functions, the basics
- 2.18 JavaScript specials

Code quality

- 3.1 Debugging in the browser
- 3.2 Coding Style
- 3.3 Comments
- 3.4 Ninja code
- 3.5 Automated testing with Mocha
- 3.6 Polyfills and transpilers

Objects: the basics

- 4.1 Objects
- 4.2 Object references and copying
- 4.3 Garbage collection
- 4.4 Object methods, "this"
- 4.5 Constructor, operator "new"
- 4.6 Optional chaining '?.'
- 4.7 Symbol type
- 4.8 Object to primitive conversion

Data types

- 5.1 Methods of primitives
- 5.2 Numbers
- 5.3 Strings
- 5.4 Arrays
- 5.5 Array methods
- 5.6 Iterables
- 5.7 Map and Set
- 5.8 WeakMap and WeakSet
- 5.9 Object.keys, values, entries
- 5.10 Destructuring assignment
- 5.11 Date and time
- 5.12 JSON methods, toJSON

Advanced working with functions

- 6.1 Recursion and stack
- 6.2 Rest parameters and spread syntax
- 6.3 Variable scope, closure
- 6.4 The old "var"
- 6.5 Global object
- 6.6 Function object, NFE
- 6.7 The "new Function" syntax
- 6.8 Scheduling: setTimeout and setInterval
- 6.9 Decorators and forwarding, call/apply
- 6.10 Function binding
- 6.11 Arrow functions revisited

Object properties configuration

- 7.1 Property flags and descriptors
- 7.2 Property getters and setters

Prototypes, inheritance

- 8.1 Prototypal inheritance
- 8.2 F.prototype
- 8.3 Native prototypes
- 8.4 Prototype methods, objects without __proto__

Classes

- 9.1 Class basic syntax
- 9.2 Class inheritance
- 9.3 Static properties and methods
- 9.4 Private and protected properties and methods
- 9.5 Extending built-in classes
- 9.6 Class checking: "instanceof"
- 9.7 Mixins

Error handling

- 10.1 Error handling, "try...catch"
- 10.2 Custom errors, extending Error

Promises, async/await

- 11.1 Introduction: callbacks
- 11.2 Promise
- 11.3 Promises chaining
- 11.4 Error handling with promises
- 11.5 Promise API
- 11.6 Promisification
- 11.7 Microtasks
- 11.8 Async/await

Generators, advanced iteration

- 12.1 Generators
- 12.2 Async iteration and generators

Modules

- 13.1 Modules, introduction
- 13.2 Export and Import
- 13.3 Dynamic imports

Miscellaneous

- 14.1 Proxy and Reflect
- 14.2 Eval: run a code string
- 14.3 Currying
- 14.4 Reference Type
- 14.5 BigInt
- 14.6 Unicode, String internals

Browser: Document, Events, Interfaces

Learning how to manage the browser page: add elements, manipulate their size and position, dynamically create interfaces and interact with the visitor.

Document

- 1.1 Browser environment, specs
- 1.2 DOM tree
- 1.3 Walking the DOM
- 1.4 Searching: getElement*, querySelector*
- 1.5 Node properties: type, tag and contents
- 1.6 Attributes and properties
- 1.7 Modifying the document
- 1.8 Styles and classes

- 1.9 [Element size and scrolling](#)
- 1.10 [Window sizes and scrolling](#)
- 1.11 [Coordinates](#)

Introduction to Events

- 2.1 [Introduction to browser events](#)
- 2.2 [Bubbling and capturing](#)
- 2.3 [Event delegation](#)
- 2.4 [Browser default actions](#)
- 2.5 [Dispatching custom events](#)

UI Events

- 3.1 [Mouse events](#)
- 3.2 [Moving the mouse: mouseover/out, mouseenter/leave](#)
- 3.3 [Drag'n'Drop with mouse events](#)
- 3.4 [Pointer events](#)
- 3.5 [Keyboard: keydown and keyup](#)
- 3.6 [Scrolling](#)

Forms, controls

- 4.1 [Form properties and methods](#)
- 4.2 [Focusing: focus/blur](#)
- 4.3 [Events: change, input, cut, copy, paste](#)
- 4.4 [Forms: event and method submit](#)

Document and resource loading

- 5.1 [Page: DOMContentLoaded, load, beforeunload, unload](#)
- 5.2 [Scripts: async, defer](#)
- 5.3 [Resource loading: onload and onerror](#)

Miscellaneous

- 6.1 [Mutation observer](#)
- 6.2 [Selection and Range](#)
- 6.3 [Event loop: microtasks and macrotasks](#)

Additional articles

List of extra topics that assume you've covered the first two parts of tutorial. There is no clear hierarchy here, you can read articles in the order you want.

Frames and windows

- 1.1 [Popups and window methods](#)
- 1.2 [Cross-window communication](#)
- 1.3 [The clickjacking attack](#)

Binary data, files

- 2.1 [ArrayBuffer, binary arrays](#)
- 2.2 [TextDecoder and TextEncoder](#)
- 2.3 [Blob](#)
- 2.4 [File and FileReader](#)

Network requests

- 3.1 Fetch
- 3.2 FormData
- 3.3 Fetch: Download progress
- 3.4 Fetch: Abort
- 3.5 Fetch: Cross-Origin Requests
- 3.6 Fetch API
- 3.7 URL objects
- 3.8 XMLHttpRequest
- 3.9 Resumable file upload
- 3.10 Long polling
- 3.11 WebSocket
- 3.12 Server Sent Events

Storing data in the browser

- 4.1 Cookies, document.cookie
- 4.2 LocalStorage, sessionStorage
- 4.3 IndexedDB

Animation

- 5.1 Bezier curve
- 5.2 CSS-animations
- 5.3 JavaScript animations

Web components

- 6.1 From the orbital height
- 6.2 Custom elements
- 6.3 Shadow DOM
- 6.4 Template element
- 6.5 Shadow DOM slots, composition
- 6.6 Shadow DOM styling
- 6.7 Shadow DOM and events

Regular expressions

- 7.1 Patterns and flags
- 7.2 Character classes
- 7.3 Unicode: flag "u" and class \p{...}
- 7.4 Anchors: string start ^ and end \$
- 7.5 Multiline mode of anchors ^ \$, flag "m"
- 7.6 Word boundary: \b
- 7.7 Escaping, special characters
- 7.8 Sets and ranges [...]
- 7.9 Quantifiers +, *, ? and {n}
- 7.10 Greedy and lazy quantifiers
- 7.11 Capturing groups
- 7.12 Backreferences in pattern: \N and \k<name>
- 7.13 Alternation (OR) |
- 7.14 Lookahead and lookbehind
- 7.15 Catastrophic backtracking
- 7.16 Sticky flag "y", searching at position
- 7.17 Methods of RegExp and String

Share  

 Tutorial map

Comments

- If you have suggestions what to improve - please [submit a GitHub issue](#) or a pull request instead of commenting.
- If you can't understand something in the article – please elaborate.

- To insert few words of code, use the `<code>` tag, for several lines – wrap them in `<pre>` tag, for more than 10 lines – use a sandbox ([plnkr](#), [jsbin](#), [codepen...](#))