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2026

Applicazioni Web I Web Applications I

Introduction to the course

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Politecnico
di Torino



Goal

- Understanding web architectures
- Understanding and mastering web application design and development
- Gaining in-depth knowledge of the JavaScript language and ecosystem
- Becoming familiar with one of the most popular JavaScript frameworks (React)
- ...with special focus on the front-end

The Bigger Picture

- Web architecture
- JavaScript
- Browsers
- **Front-End** programming
- **Back-end** programming
- Scalability
- Large-scale

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2026

Applicazioni Web I
Web Applications I

fully aligned

Web Applications II

HCI Fundamentals

Distributed systems
programming

Mobile application
development

- Usability
- Interface design
- Human centered processes
- Distributed Architectures
- Protocols
- Foundations
- Mobile Front-End
- Mobile device programming

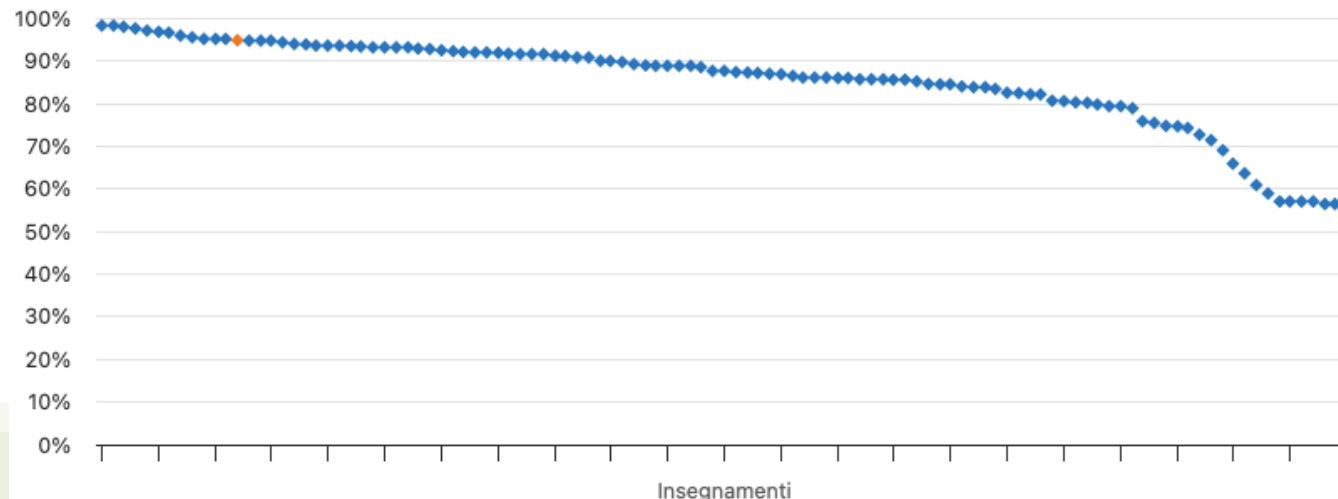


You are here

2025 End-of-course Questionnaire

Elaborazione dati			
Indice docente (indice medio delle risposte per Efficacia del/della docente)	3.57	Percentuale di soddisfazione docente (% delle risposte positive per Efficacia del/della docente)	96.90 %
Indice insegnamento (indice medio delle risposte Pt.2)	3.53	Percentuale di soddisfazione insegnamento (% risposte positive questionario Pt.2)	95.03 %
Tasso di compilazione (questionari compilati/studenti frequentanti)	0.74	Tasso di risposta (questionari compilati e schede bianche/studenti frequentanti)	0.81
Percentuale di compilazione (questionari compilati/studenti abilitati * 100)	74.09 %	Percentuale di risposta (questionari compilati e schede bianche/studenti abilitati * 100)	80.57 %

DAUIN - Soddisfazione Insegnamenti



- Relevant critiques*:
 - Labs, in group and not mandatory, don't work
 - Not enough time to reason about each topic
 - Exam discussion is challenging

** considered in planning this year's course*

Exam statistics (2024/25)



https://didattica.polito.it/pls/static/esami/statistiche/?p_cod_ins=01TXYOV&p_a_acc=2025

What We Will Learn

JavaScript as a language

- ECMAScript ES6
- Language constructs
- In-depth semantics
- Functional, Asynchronous, Modular, ...

The JavaScript logo, consisting of the letters "JS" in black on a yellow square background.

The browser ecosystem

- HTML, CSS, page structure
- DOM
- Events, Properties, Handlers, APIs



Single Page Applications

- Server-side (bare minimum) with node
- API development
- Backend storage
- Sessions and Authentication



React framework

- Components, Properties, State
- JSX
- Hooks
- Router



Weeks and Calendar... At a Glance!

1. Intro to JS: basics, objects, functions
2. Intro to JS: async programming, callbacks, DB interaction + Intro to Web
3. Server-side with Express
4. HTML, CSS, Bootstrap
5. Intro to React + DOM
6. React: props and state
7. React: context, life cycle, forms
8. React router
9. Fetch and client-server interaction (in React)

Course Organization

- Classes
 - 3 h/week
 - Lectures + Exercises (*mixed*)
- Laboratories
 - 1.5 h/week
 - 2 Lab groups
 - From the 2nd week
- **Exception:** first week
 - Class instead of Lab

	MO	TU	WE	TH	FR
08:30					R2
10:00		2P			R2
11:30		2P			
13:00					
14:30					
16:00					
17:30					

Classes

- **In person**, in rooms with power outlets at the desks
 - bring your own computer, if possible, to follow the examples/exercises
- **Video-recorded** and made available soon after each class
 - *not* streamed live
- Once during the course, we will give you some materials to read/watch instead of a lecture (i.e., **readings**)
 - published well *in advance*

Laboratories

- From the 2nd week
- In rooms with power outlets at the desks
- Text online, some days in advance
- Exercises to be done during Lab hours
- Solution will be posted on GitHub
 - around 1 week after the end of each lab

Laboratories

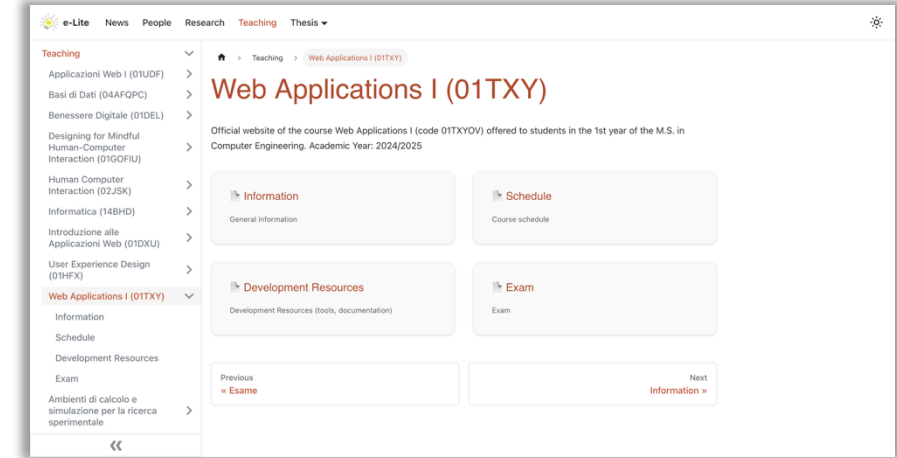
- You will build a simple project during the labs
 - Step by step, following the course topics
- 2 slots:
 - 08:30-10:00: Last name A-L
 - 10:00-11:30: Last name M-Z

Exam project simulation

- Last two weeks of the course
 - All classes (all together), all lab hours (in the two slots)
- We will design and *start* implementing an exam-like project
 - Interactively, reasoning and discussing together

Learning Material

- Course website – <https://elite.polito.it/wa1>
 - Slides (in English)
 - Full schedule
 - Links and supplementary material
- Video lectures (screencasts)
 - YouTube - <<https://www.youtube.com/playlist?list=PLqRTLlwsxDL8pBPQOIq0ObMJU6rvYiT1r>>
 - Portale della Didattica / Polito Students App
- GitHub - <https://github.com/polito-webapp1>
 - Examples, exercises, labs, exams, ...





Communications

- We will use **Telegram** for the main communications
 - among students, with teachers, etc.
- Announcements, official information, and Q&A
- Feel free to contact the teachers for feedback and questions
 - questions of general interest must be posted in the group, so that everybody can see the answer
- Link to the Telegram group (**mandatory**):
<https://t.me/politowebapp2026>

Exam: Two Parts

1. **Project development** (up to 26 points)

- Individual, using GitHub
- Starting from shared requirements
- 20 days of time

2. **Oral discussion** (up to 4 points)

- individual and mandatory
- “live” correction and discussion of the submitted project
- when: the official exam day (or starting from that day)

Exam: Score and Process

- Project development + oral discussion: up to 30 points
- Evaluate the functionality, code quality and organization of the submitted project, as well as the student's understanding of their design choices and motivations
- Up to 2 extra points for students whose projects demonstrate a high quality and for the richness and precision of the answers during the discussion

Note: If it emerges that the student does not have mastery of the written code, the exam will be immediately canceled, without a numerical evaluation.

Full exam rules in the course website (under “Exams”)

Project Development

What

- Develop a web application using
 - React + JavaScript
 - Node + Express
 - SQLite
- According to a functional specification
 - published 20 days before each official exam date

How

- Individually (i.e., not in group)
- Using GitHub Classroom
 - commit + push your project
 - GitHub commits and usage are checked
- Teacher's Evaluation
 - running the application on the teacher's laptop
 - examining the code

Oral Discussion

Goals

- To ensure that each student developed the web application by **themselves**
- To evaluate how much the student can explain the **exact** behaviour of the code

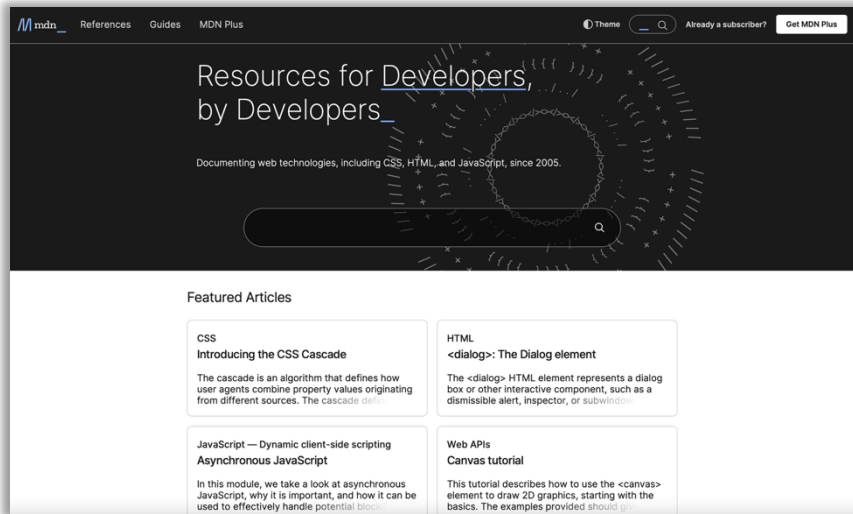
Evaluation Criteria

- Theoretical and practical knowledge of the project design
- Theoretical and practical knowledge of the project code base
- Readiness and clarity in the replies

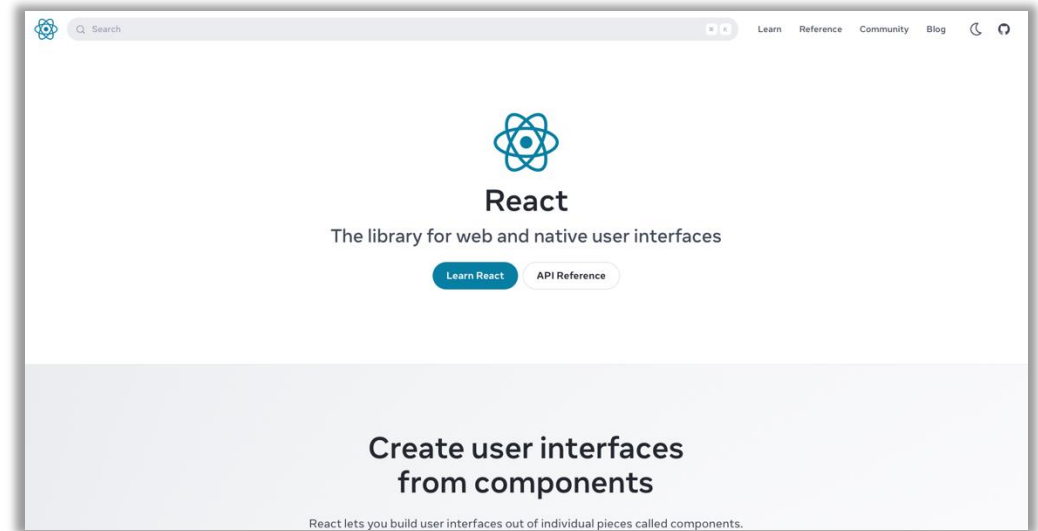
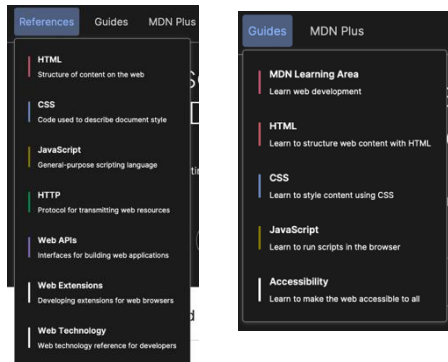
Using External Resources and AI

- Getting help during the course and the exam project is normal: from documentation, Stack Overflow, peers, or AI tools.
- In the course, as in *professional practice*, what matters is your mastery of what you design and implement.
- **You are fully responsible for everything you create and submit**, and you must be able to:
 - Explain all parts of your implementation.
 - Justify your design choices.
 - Acknowledge and own its limitations.
- Submitting code you don't fully understand is unacceptable, regardless of its source.

Resources (fundamentals)

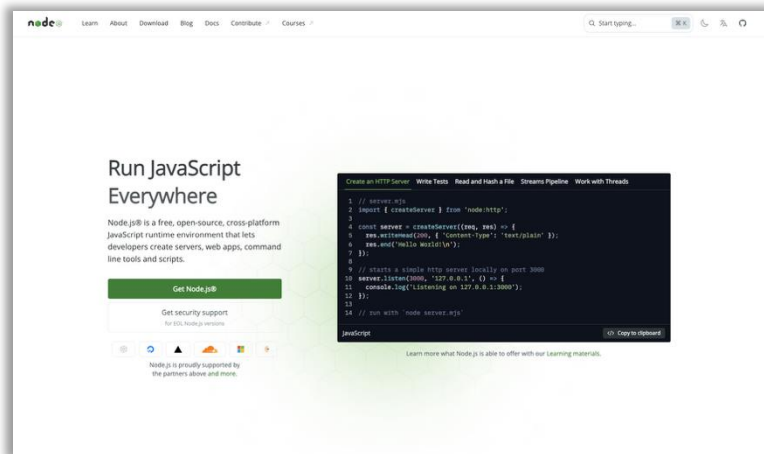


Mozilla Developer Network
(MDN)
<https://developer.mozilla.org/>

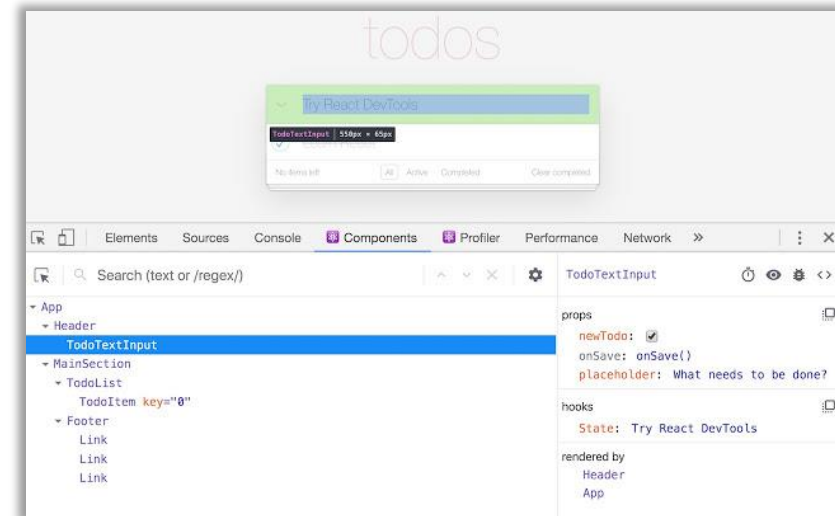


React
<https://react.dev>

Tools

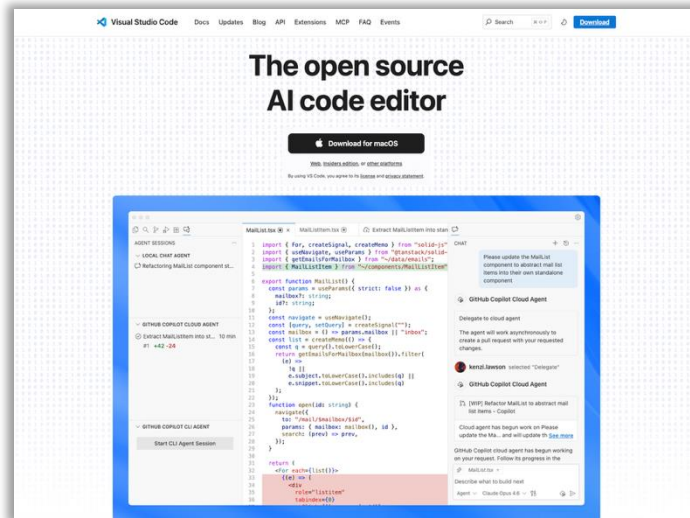


Node.js runtime
Version 24.x LTS
<https://nodejs.org/en/>



React Developer Tools
Extension for [Chrome](#) and [Firefox](#)

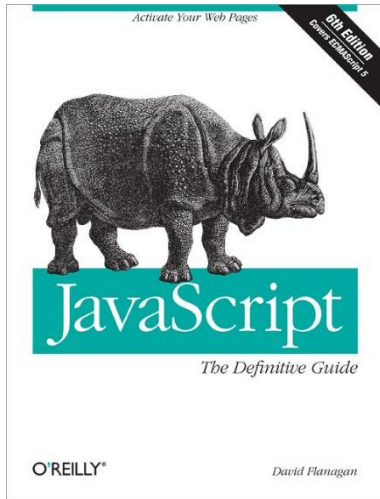
Programming Environment



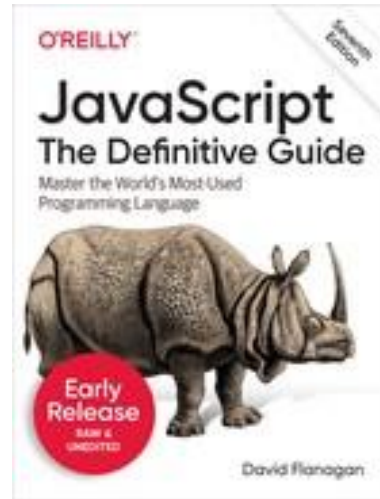
Visual Studio Code

<https://code.visualstudio.com/>

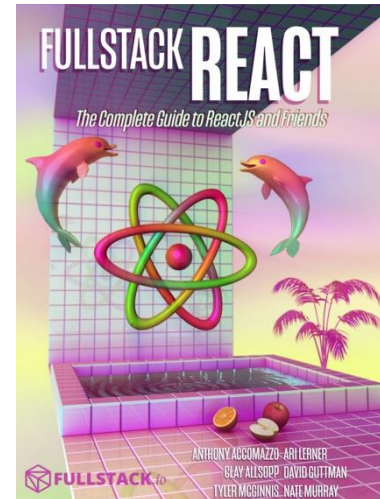
Resources (books)



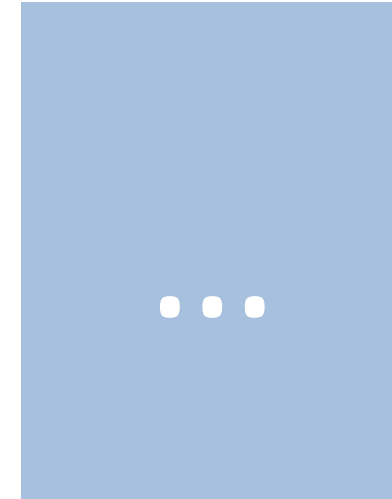
JavaScript: The Definitive Guide,
6th Edition
By David Flanagan
ISBN 978-0596805524
Release Date: May 2011
(not very updated...)



JavaScript: The Definitive Guide,
7th Edition
By David Flanagan
ISBN 978-1491952023
Release Date: July 2020

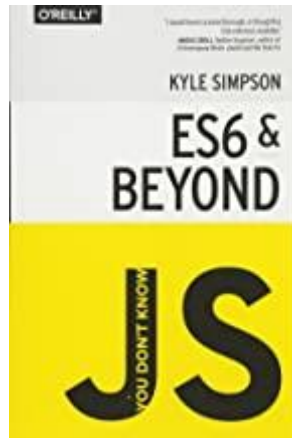
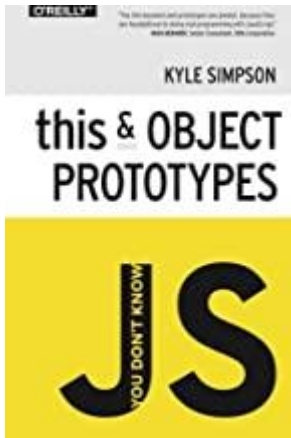
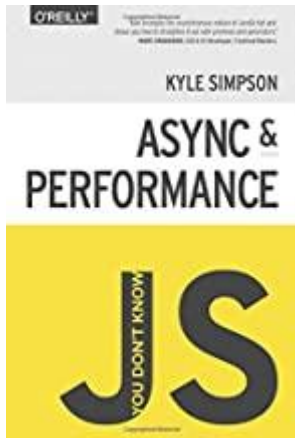
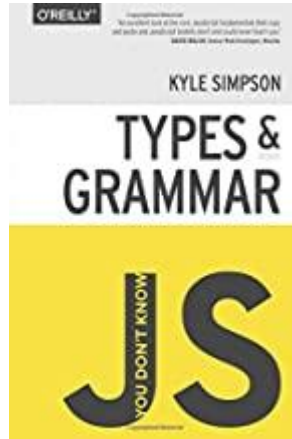
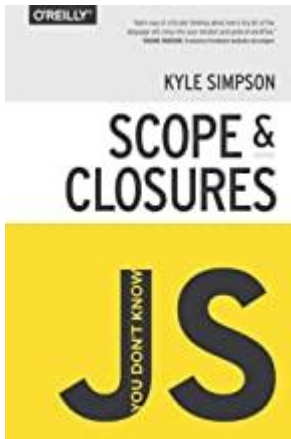


Fullstack React
By Anthony Accomazzo, Nate
Murray, Ari Lerner, Clay
Allsopp, David Guttman, and
Tyler McGinnis
<https://www.newline.co/fullstack-react>
Release: r40 (January 2020)

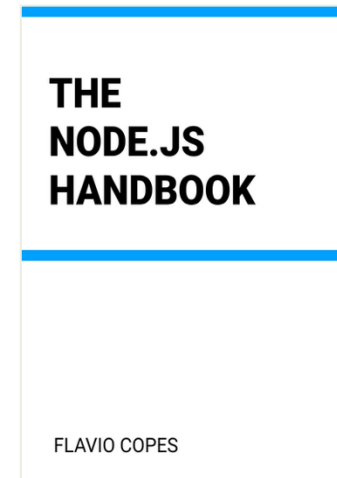


... and many others

Resources (on-line books)

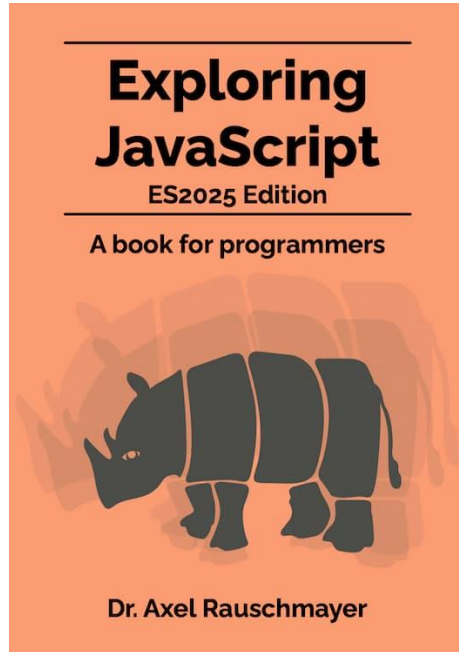


You Don't Know JS Yet (book series) - 2nd Edition
By Kyle Simpson (@getify)
<https://github.com/getify/You-Dont-Know-JS>



Flaviro Copes Handbooks
<https://flaviocopes.com/>

Resources (on-line books)

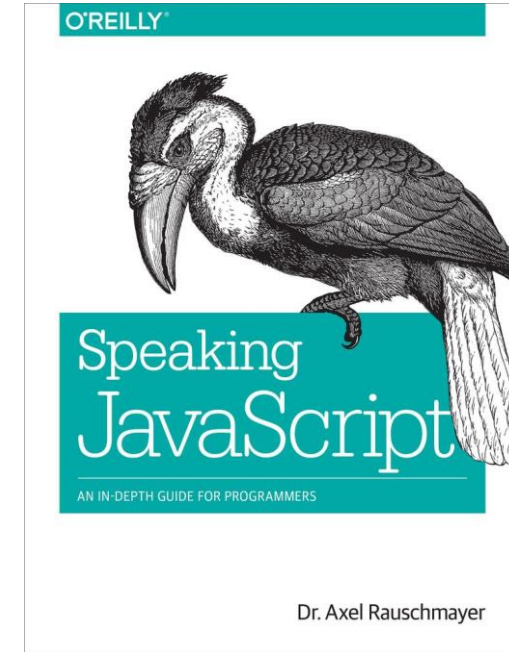


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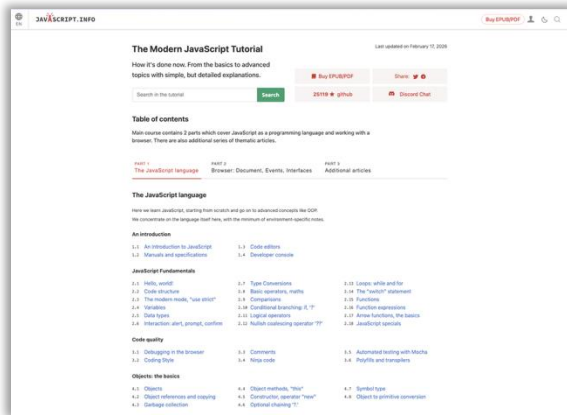
<https://exploringjs.com/impatient-js/index.html>

<https://exploringjs.com/deep-js/index.html>

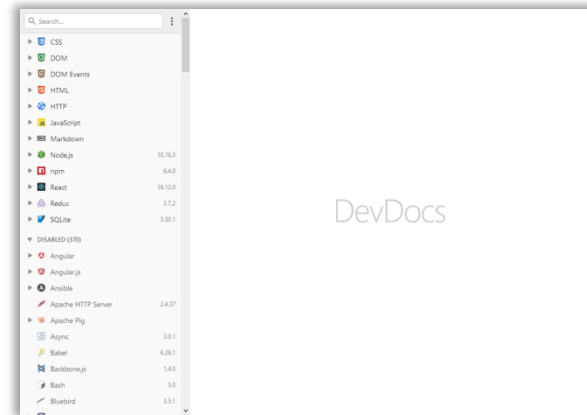


<https://www.oreilly.com/library/view/speaking-javascript/9781449365028/>

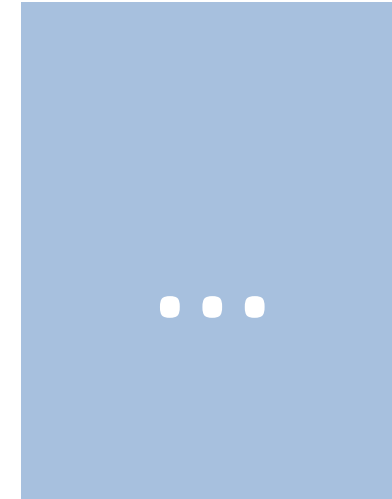
More Resources...



The Modern JavaScript Tutorial
<https://javascript.info/>



DevDocs: API Documentation
Browser
<https://devdocs.io/>



... and many others

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