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2025

Applicazioni Web I Web Applications I

Introduction to the course

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Francesca Russo, **Luca Scibetta**



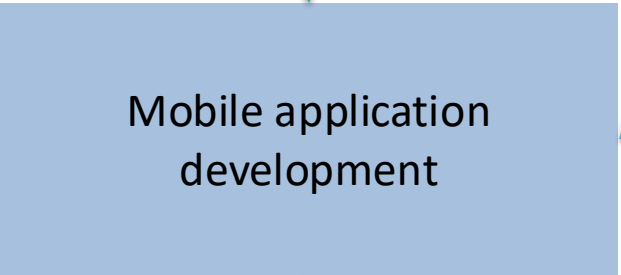
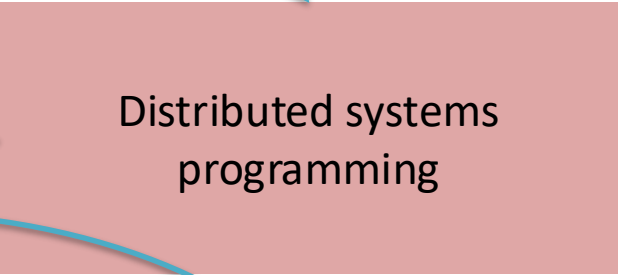
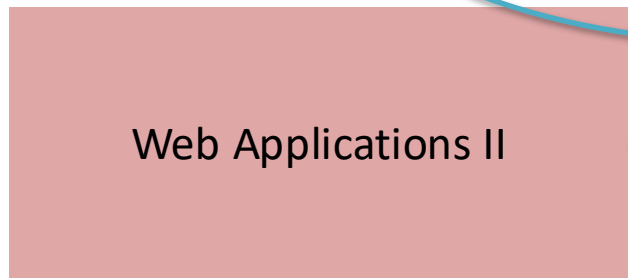
Goal

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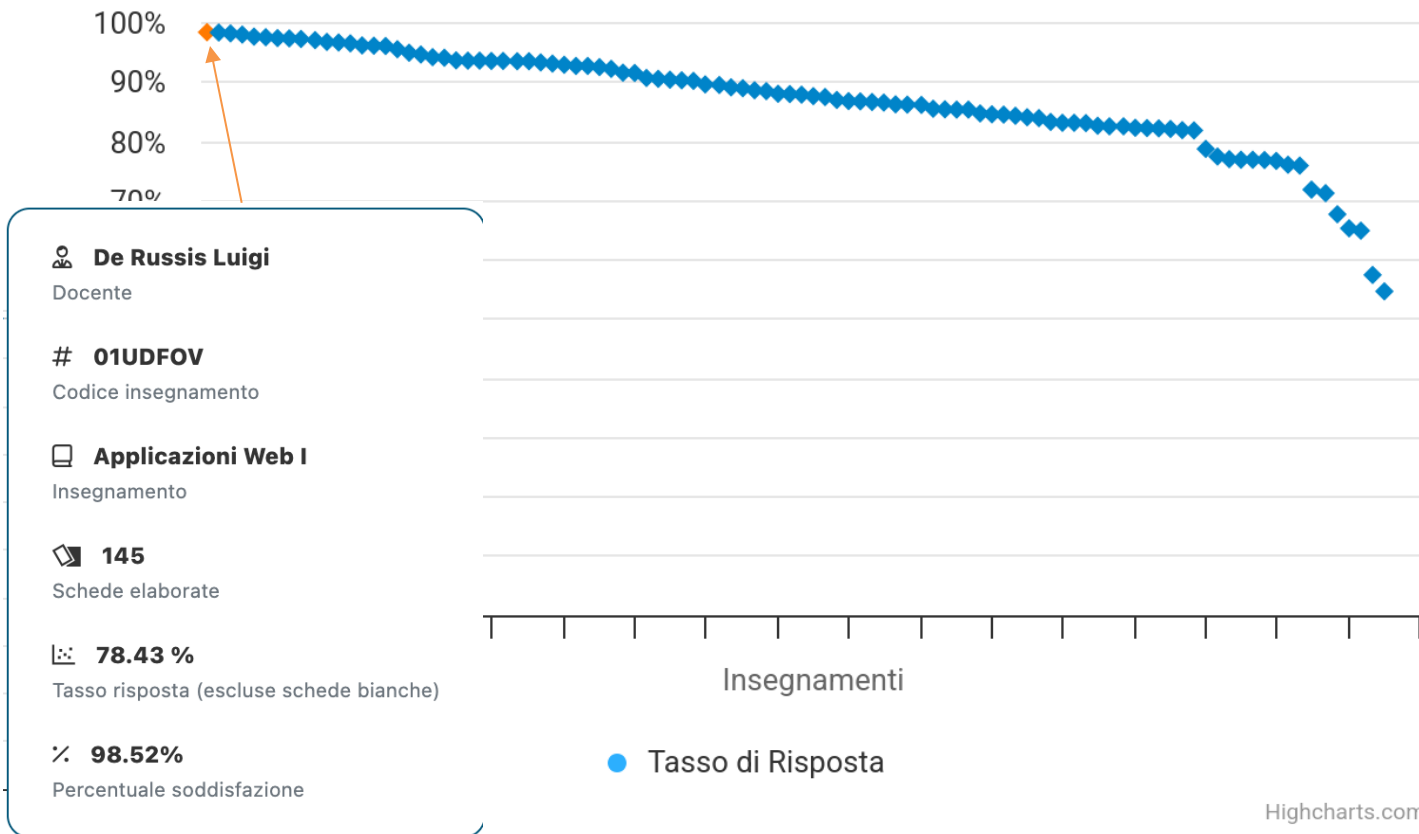
- Usability
- Interface design
- Human centered processes
- Distributed Architectures
- Protocols
- Foundations
- Mobile Front-End
- Mobile device programming



You are here

2024 End-of-course Questionnaire

DAUIN - Soddisfazione Insegnamenti



- Relevant critiques*:
 - Labs should be more structured and supportive
 - Need more time for in-class exercises
 - Not enough time to reason about each topic

* considered in planning this year's course

What We Will Learn

JavaScript as a language

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



JS

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)
10. Authentication

Course Organization

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

	MO	TU	WE	TH	FR
08:30		R4b			
10:00		R4b			
11:30					
13:00					
14:30	3P				
16:00	3P				
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
- A few times during the course, we will give you some materials to read/watch instead of a lecture (i.e., **readings**)
 - published well *in advance*

Laboratories

- Starting 2nd week
- In rooms with power outlets at the desks

- Build a simple project extracted from recent **Exam assignments**
- In groups of 2-5 students
- **Weekly step-by-step** design and implementation, following the course topics
- Text online, some days in advance

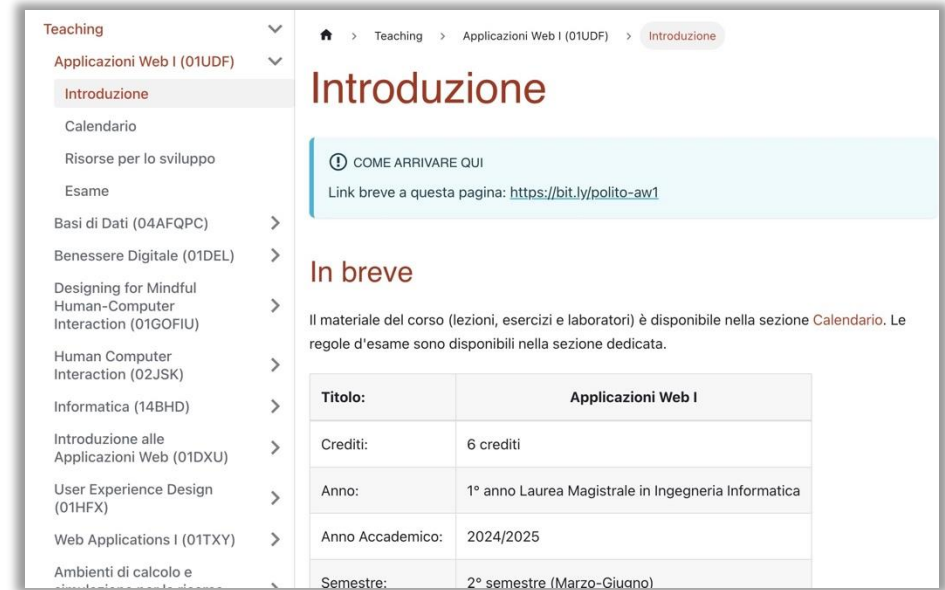
- Support, discussion, help, during the lab sessions
- Attendance to the labs is **highly recommended**

Groups and Laboratories

- 2 slots:
 - Tuesday, 08:30-10:00, room R4b, surnames: [A-L](#)
 - Tuesday, 10:00-11:30, room R4b, surnames: [M-Z](#)
- Groups to be created within the two slots above
 - People from one slot *can* join a group in another slot, if needed
- Group composition via GitHub Classroom by the end of **March 3, 2025**:
 - <https://classroom.github.com/a/BlwZinRv>

Learning Material

- Course website – <https://bit.ly/polito-aw1>
 - Slides (in English)
 - Full schedule
 - Links and supplementary material
- Video lectures (screencasts)
 - YouTube - https://youtube.com/playlist?list=PLs7DWGc_wmwQoZtq-xf4mO4sw9VuZkTd0
 - Portale della Didattica
- GitHub - <https://github.com/polito-webapp1>
 - Examples, exercises, labs, exams, ...



Teaching > Applicazioni Web I (01UDF) > Introduzione

Introduzione

COME ARRIVARE QUI
Link breve a questa pagina: <https://bit.ly/polito-aw1>

In breve

Il materiale del corso (lezioni, esercizi e laboratori) è disponibile nella sezione **Calendario**. Le regole d'esame sono disponibili nella sezione dedicata.

Titolo:	Applicazioni Web I
Crediti:	6 crediti
Anno:	1° anno Laurea Magistrale in Ingegneria Informatica
Anno Accademico:	2024/2025
Semestre:	2° semestre (Marzo-Giugno)



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:
<https://t.me/+K8wNMKS-Jww3MDM8>
- Emails can be an **alternative** for slower, more articulated, and private individual communications



Office Hours

- **Why?**

- An opportunity to discuss issues or needs
- To clarify information or ask questions on the course
- To discuss academic or career goals (e.g., thesis, what to do next year)
- To know more about certain topics
- ...

- **When?**

- **Thursday 14:00-16:00** in my office; book a 30-min slot at: <https://calendly.com/luigi-derussis/office-hours>
- Also: on request, in person or remotely

Exam: Two Parts

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

- Individual
- 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
- 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
- Teacher's Evaluation
 - running the application on the teacher's laptop
 - examining the code

Oral Discussion

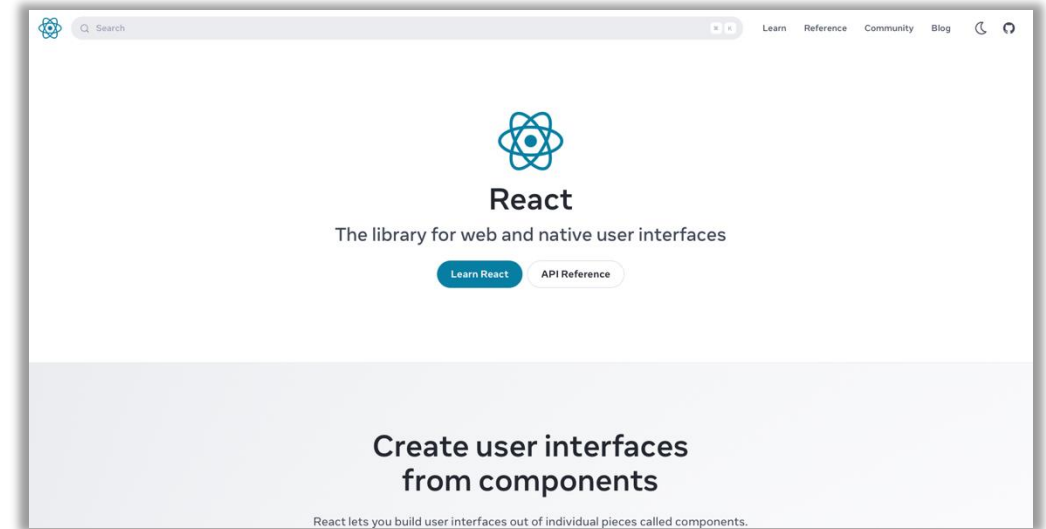
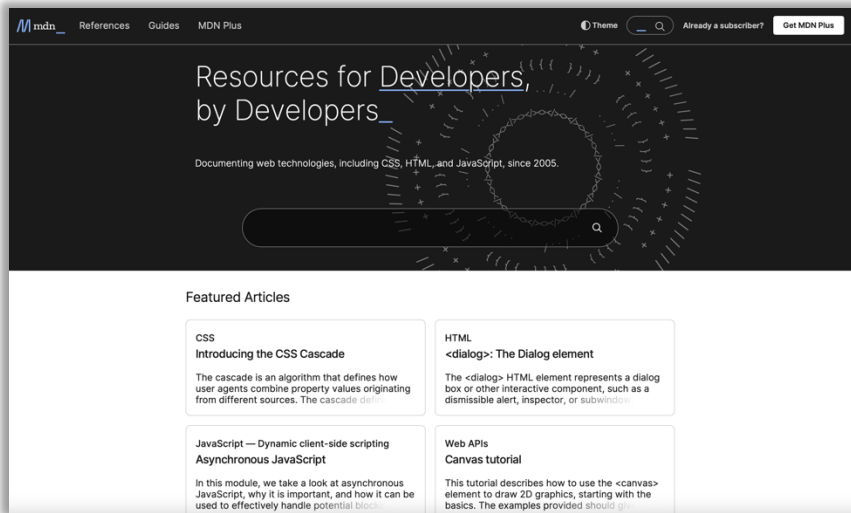
Goals

- 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

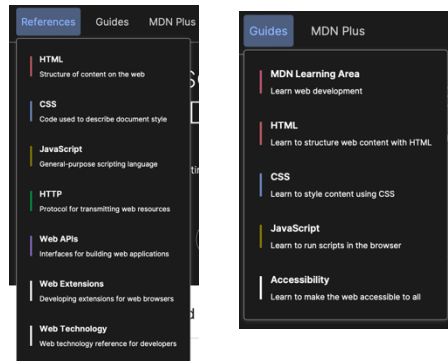
Evaluation Criteria

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

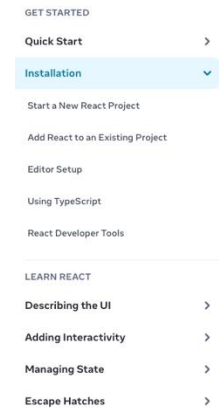
Resources (fundamentals)



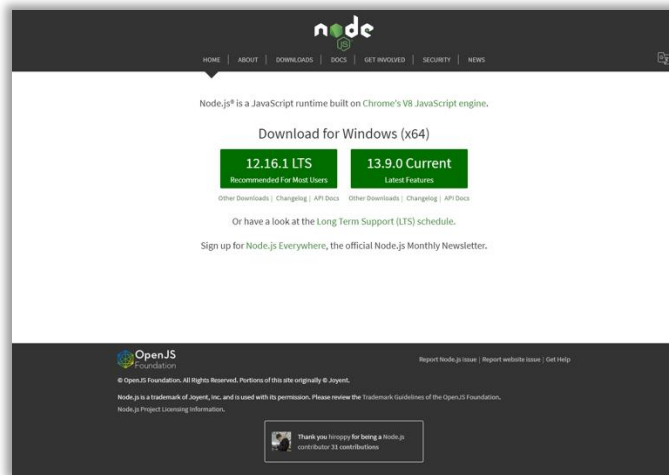
Mozilla Developer Network
(MDN)
<https://developer.mozilla.org/>



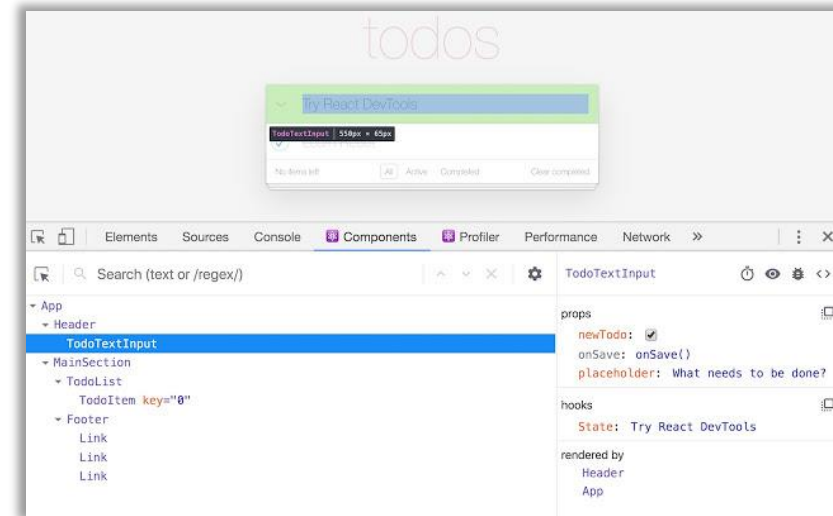
React
<https://react.dev>



Tools

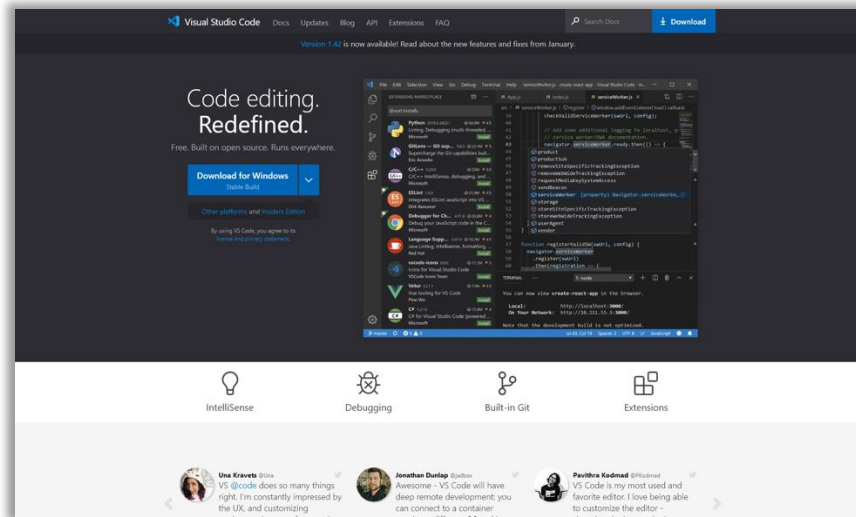


Node.js runtime
Version 22.x LTS
<https://nodejs.org/en/>



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

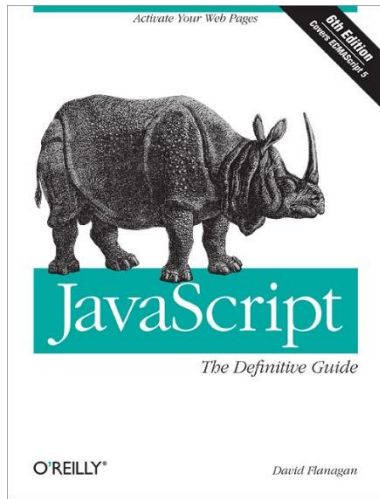
Programming Environment



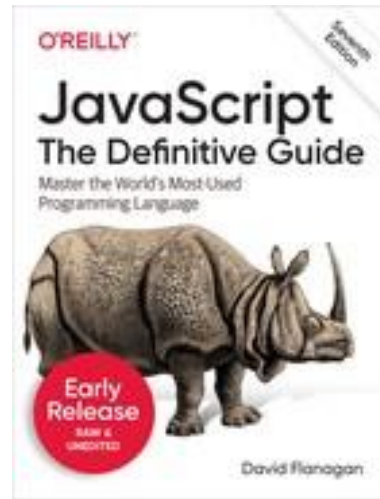
Visual Studio Code

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

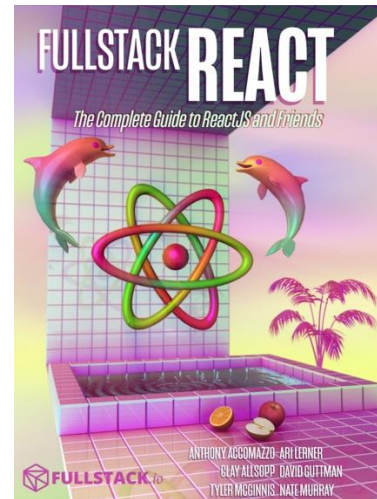
Resources (books)



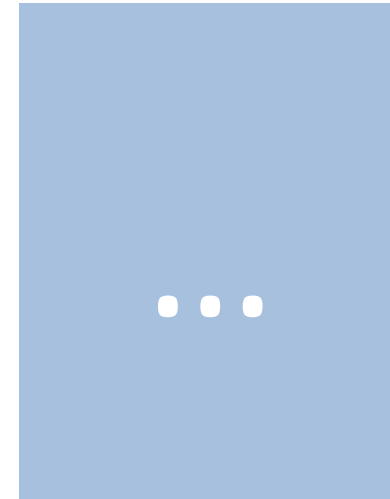
JavaScript: The Definitive Guide,
6th Edition
By David Flanagan
ISBN 978-0596805524
Release Date: May 2011
(not very updated...)



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)



GET STARTED



Kyle Simpson



SCOPE & CLOSURES

YOU DON'T KNOW JS



TYPES & GRAMMAR

YOU DON'T KNOW JS



UP & GOING

YOU DON'T KNOW JS



ASYNC & PERFORMANCE

YOU DON'T KNOW JS



this & OBJECT PROTOTYPES

YOU DON'T KNOW JS



ES6 & BEYOND

YOU DON'T KNOW JS

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



THE JAVASCRIPT HANDBOOK

FLAVIO COPES



THE CSS HANDBOOK

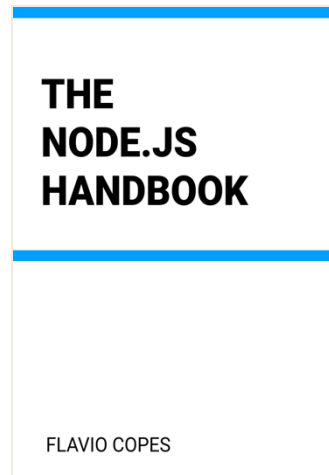


Flavo Copes



THE HTML HANDBOOK

Flavo Copes



THE NODE.JS HANDBOOK

FLAVIO COPES

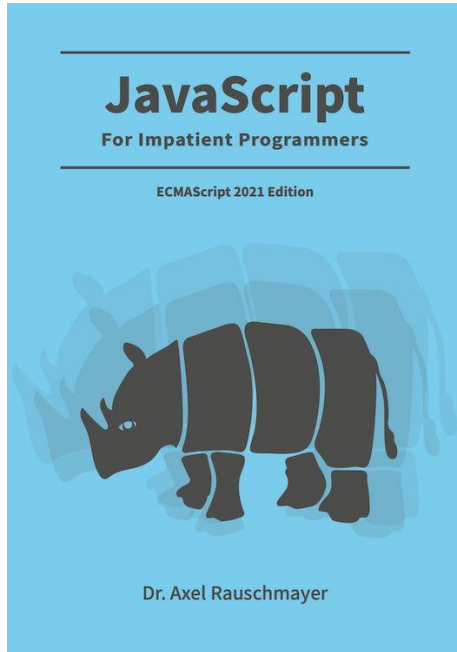


THE REACT HANDBOOK

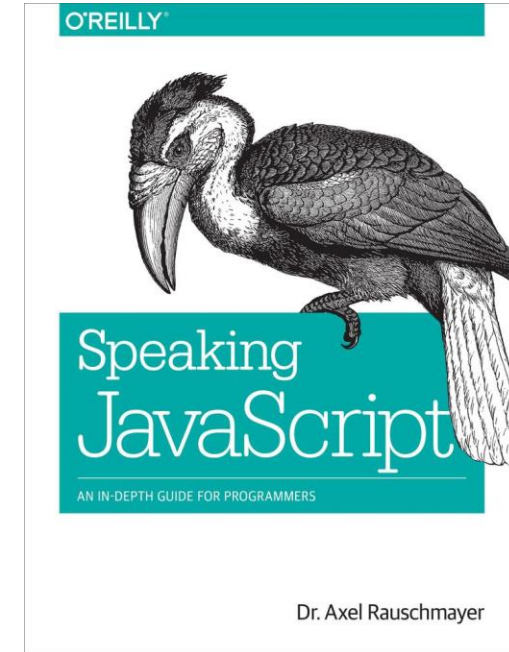
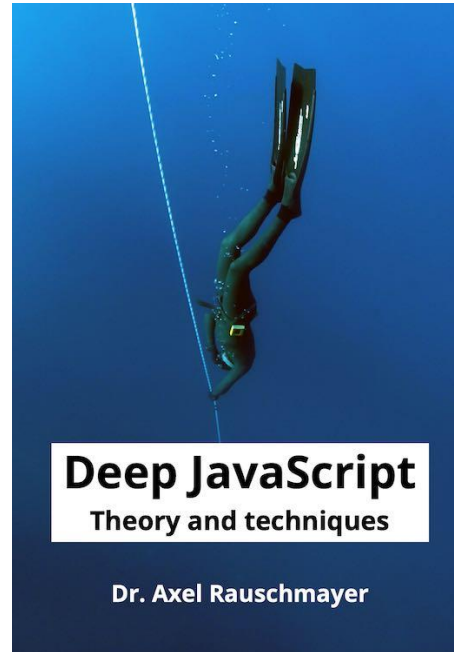
FLAVIO COPES

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

Resources (on-line books)



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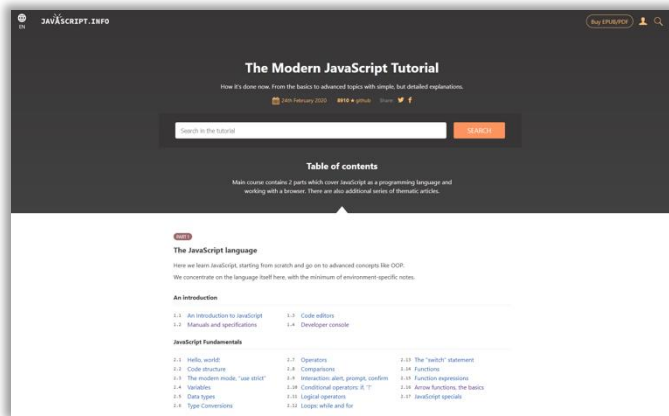


<https://exploringjs.com/impatient-js/index.html>

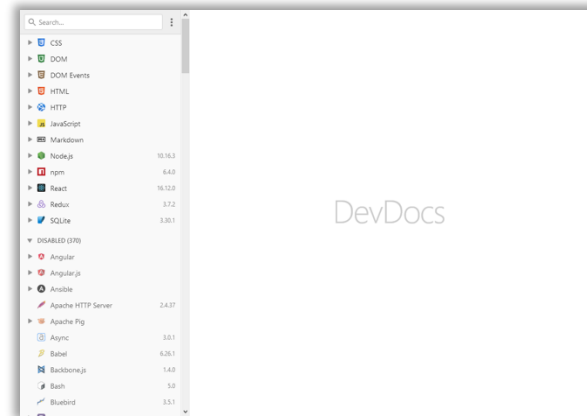
<https://exploringjs.com/deep-js/index.html>

<http://speakingjs.com/>

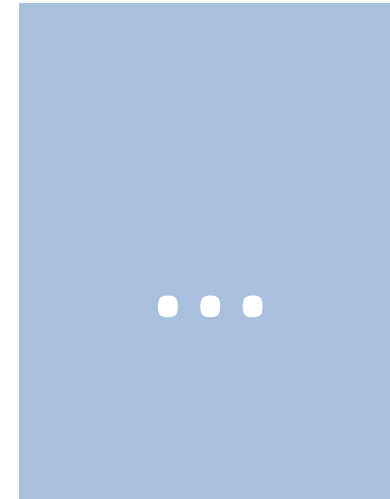
More Resources...



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



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



... and many others

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