

<WA1/>

2020

Applicazioni Web I

Web Applications I

Introduction to the course

Enrico Masala

Luigi De Russis

Fulvio Corno

Alberto Monge Roffarello

Luigi De Russis



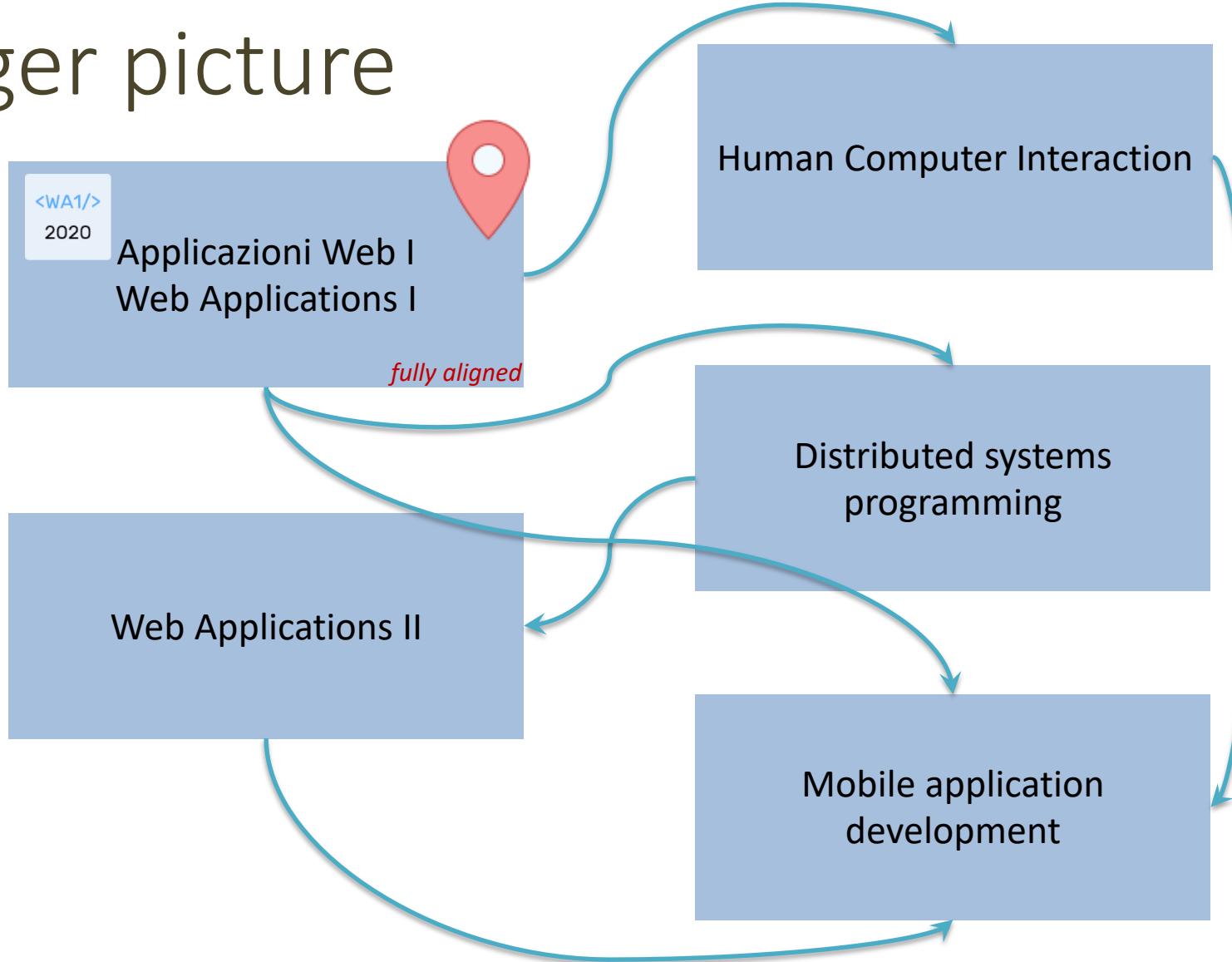
Goal

- 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 framework (React)
- ...with special focus on the front-end

The bigger picture

- Web architecture
- JavaScript
- Browsers
- Front-End programming

- Back-end programming
- Scalability
- Large-scale



- Usability
- Interface design
- Human centered processes

- Distributed Architectures
- Protocols
- Foundations

- Mobile Front-End
- Mobile device programming



You are here

What we will learn

Javascript as a Language

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



The browser ecosystem

- HTML, CSS, page structure
- DOM
- Javascript in the browser
- Events, Properties, Handlers, APIs



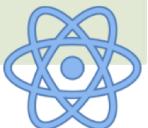
Single Page Applications

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



React framework

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



Course organization (Masala)

- Classes
 - 3 h/week
 - Lectures + Exercises (*mixed*)
 - Bring your own laptop
- Laboratories (@LABINF)
 - 1.5 h/week
 - 2 Lab groups (A-L, M-Z)
 - 11 Labs, starting 3rd week
- **Exception:** first 2 weeks, Class instead of Lab

	MO	TU	WE	TH	FR
08:30				LABINF	7I
10:00				LABINF	7I
11:30					
13:00					
14:30					
16:00					
17:30					

Learning material (Masala)

- Course website – <http://media.polito.it/aw1>
 - Portale della Didattica
 - Slides (in English)
 - Full schedule
 - Links and Supplementary material
- Video lectures (screencasts)
 - YouTube - <https://www.youtube.com/playlist?list=PLuZyhAOPm9pMSXjyRc83gBSUqHIkIE564>
 - Portale della Didattica
- GitHub - <https://github.com/polito-WA1-2020>
 - Examples, exercises, labs, exams, ...

The screenshot shows the homepage of the 'Applicazioni Web I' course website. At the top, there's a navigation bar with links to Home, People, Publications, Research, Classes, Theses, News, and About. Below the navigation is a banner featuring multiple video feeds. The main content area has a title 'Applicazioni Web I' and sub-information '(01UDFOV) Applicazioni Web I' and 'Insegnanti: Prof. Enrico Masala, Dr. Luigi De Russis'. It also lists the program details: '2020-03-05 08:30-10:00 Lezione Introduzione al corso Enrico Masala Aula 10 Video'. A note says 'Pagina ufficiale del Politecnico con la [scheda del corso](#)'. On the right side, there are two columns: 'Latest News' and 'Useful Links', both listing various items. At the bottom right, it says 'Powered by WordPress and Courage'.



About the exam

What

- Develop a web application using
 - React + JavaScript
 - Node + Express
 - SQLite
 - Linux
- Based on a skeleton project
(given some days in advance)
- According to a functional specification

How

- Using LABINF computers
- May use Internet resources
- Using GitHub Classroom
 - Clone Skeleton project
 - Commit+push final project
- Off-line evaluation
 - Running the application
 - Examining the code

Resources (fundamentals)

The screenshot shows the MDN homepage with a blue header bar. It features a search bar, navigation links for Technologies, References & Guides, and Feedback, and a sign-in button. Below the header, there's a large banner with the text "Resources for developers, by developers." and a "Learn web development" section with a "Sign up now" button. On the left, there's a "The browser built for devs" section with a screenshot of Firefox DevEdition showing developer tools. On the right, there's a "Help improve MDN" section with a "Get Started" button. At the bottom, there are news items like "Securing Firefox with WebAssembly" and a "Hacks Blog".

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

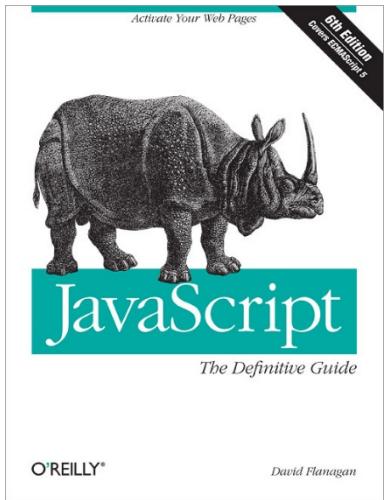
This screenshot shows the MDN navigation menu. It includes two main sections: "Technologies" and "References & Guides". The "Technologies" section has a dropdown menu for "Technologies Overview" which lists "HTML", "CSS", "JavaScript", "Graphics", "HTTP", "APIs / DOM", "Browser Extensions", and "MathML". The "References & Guides" section has a dropdown menu for "Learn web development" which lists "Tutorials", "References", "Developer Guides", "Accessibility", "Game development", and "...more docs".

The screenshot shows the React library homepage. It has a dark header with the React logo and navigation links for Docs, Tutorial, Blog, Community, and GitHub. The main content area features the text "React: A JavaScript library for building user interfaces" and two buttons: "Get Started" and "Take the Tutorial". Below this, there are three main sections: "Declarative", "Component-Based", and "Learn Once, Write Anywhere". Each section contains descriptive text and screenshots. At the bottom, there's a "A Simple Component" example with a JSX editor showing code and a result preview.

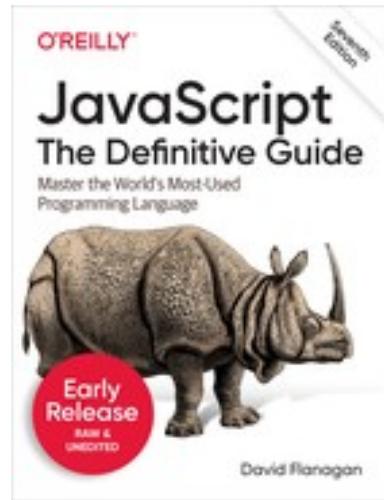
React Library
<https://reactjs.org/>

This screenshot shows the React tutorial page. It has a sidebar with categories like "MAIN CONCEPTS", "ADVANCED GUIDES", "API REFERENCE", "HOOKS", "TESTING", and "CONCURRENT MODE (EXPERIMENTAL)". The main content area is titled "TUTORIAL" and includes sections such as "Before We Start the Tutorial", "What Are We Building?", "Prerequisites", "Setup for the Tutorial", "Overview", "What Is React?", "Inspecting the Starter Code", "Passing Data Through Props", "Making an Interactive Component", "Developer Tools", "Completing the Game", "Adding Time Travel", and "FAQ".

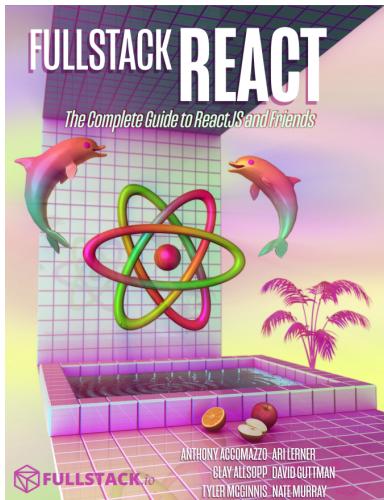
Resources (books)



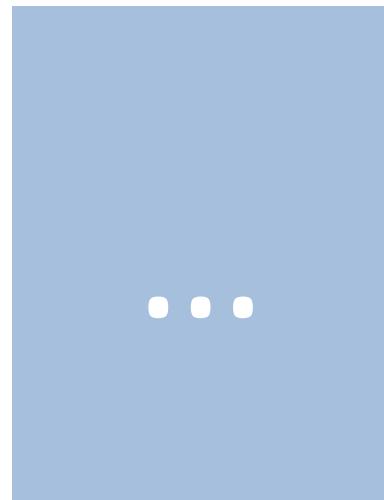
JavaScript: The Definitive Guide,
6th Edition
By David Flanagan
ISBN 978-0596805524
Release Date: May 2011
(not very updated...)



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

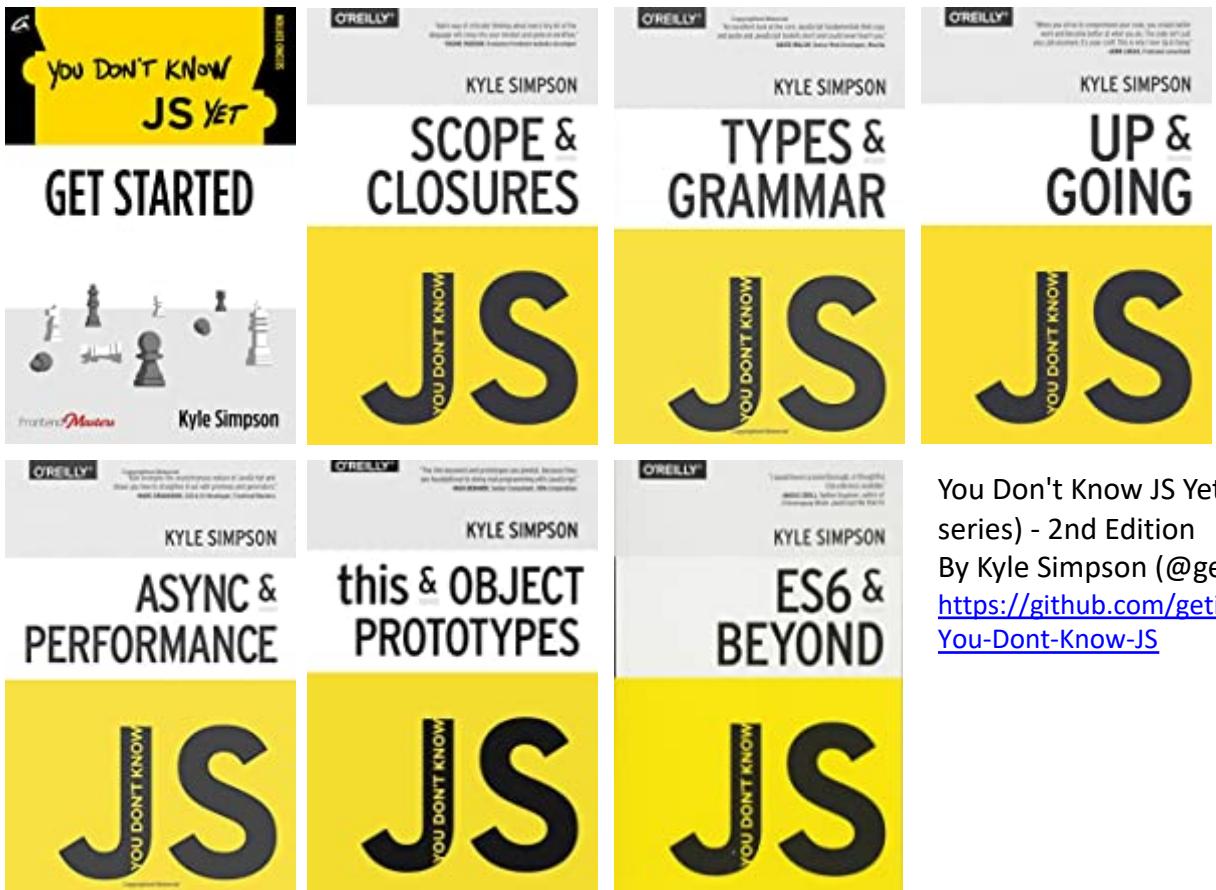


Fullstack React
By Anthony Accomazzo, Nate Murray, Ari Lerner, Clay Allsopp, David Guttman, and Tyler McGinnis
<https://www.newline.co/fullstack-react>
Release: r40 (January 2020)

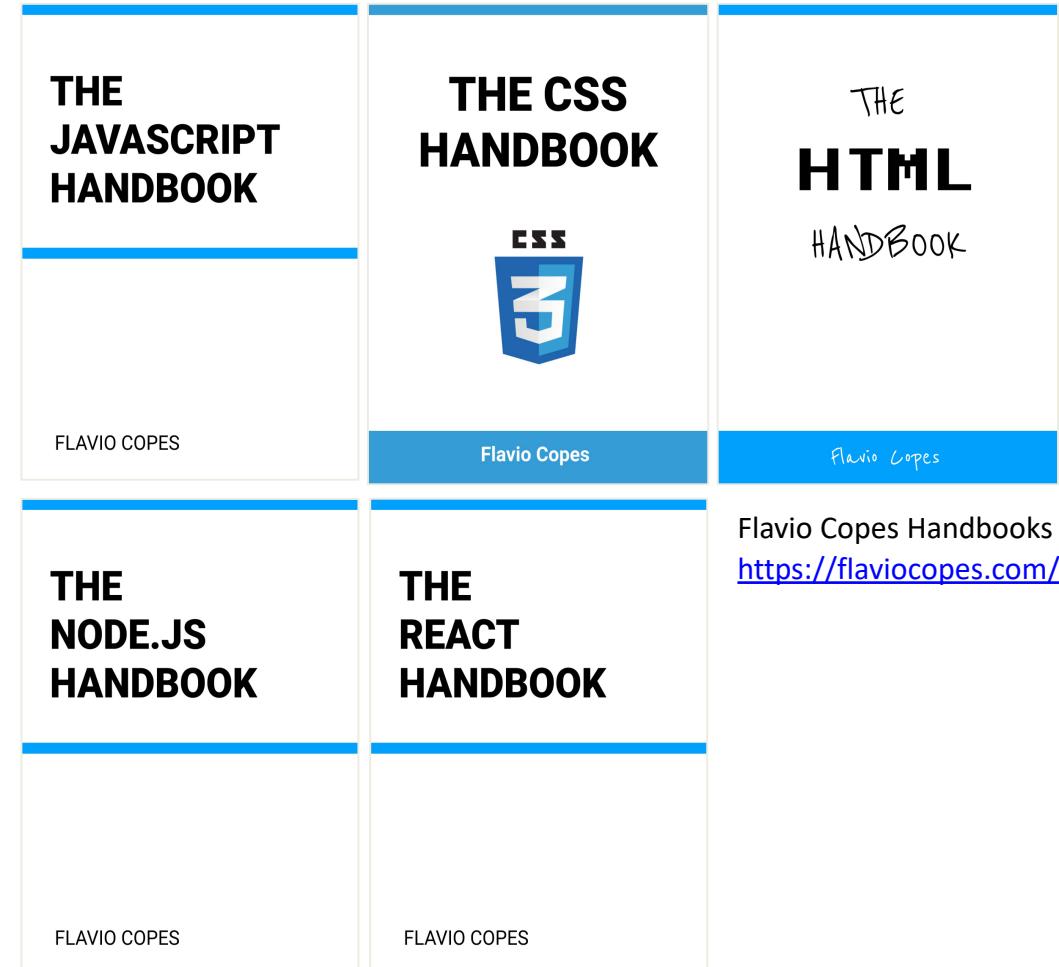


... and many others

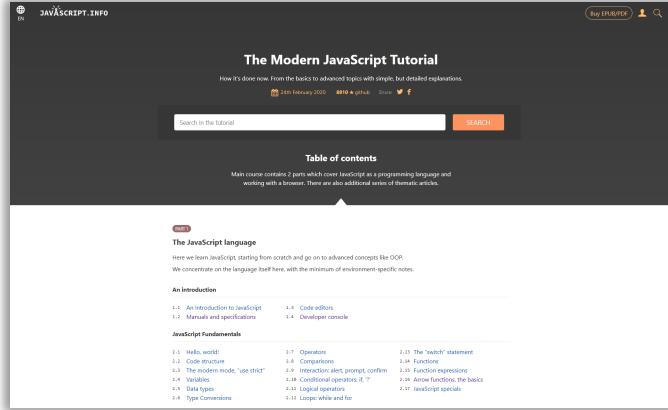
Resources (on-line books)



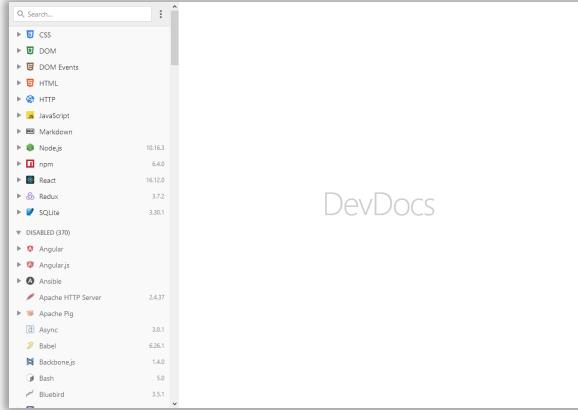
You Don't Know JS Yet (book series) - 2nd Edition
By Kyle Simpson (@getify)
<https://github.com/getify/You-Dont-Know-JS>



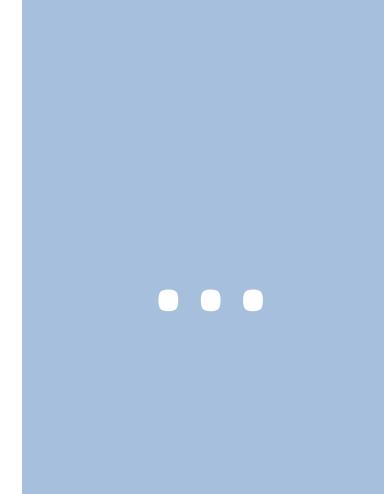
More resources...



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

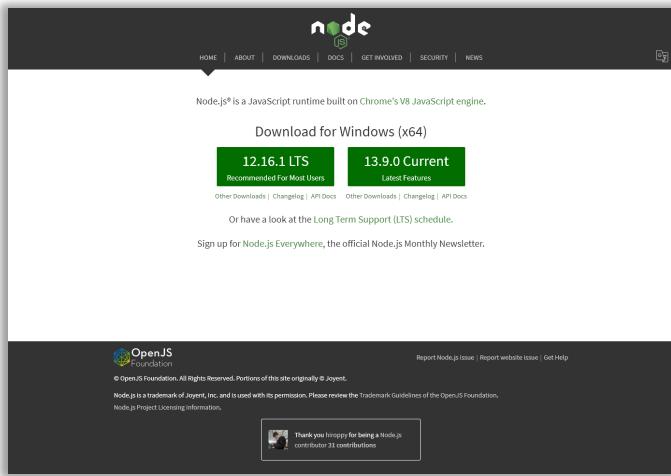


DevDocs: API Documentation
Browser
<https://devdocs.io/>



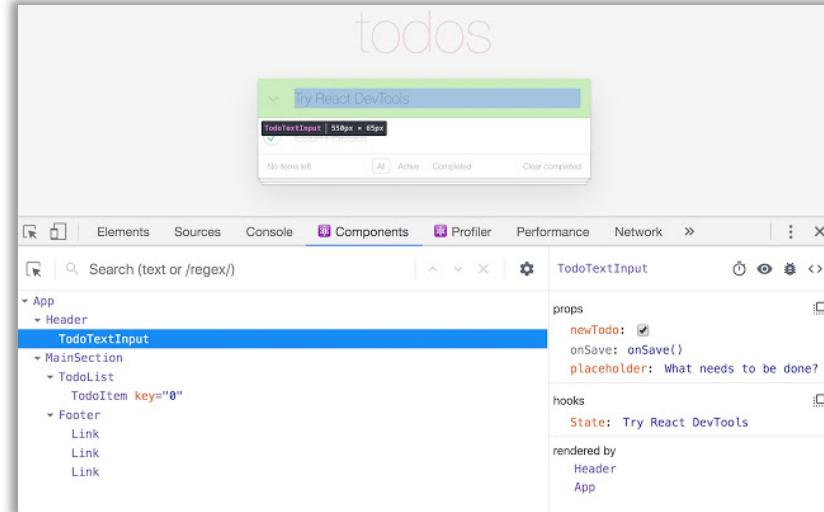
... and many others

Tools



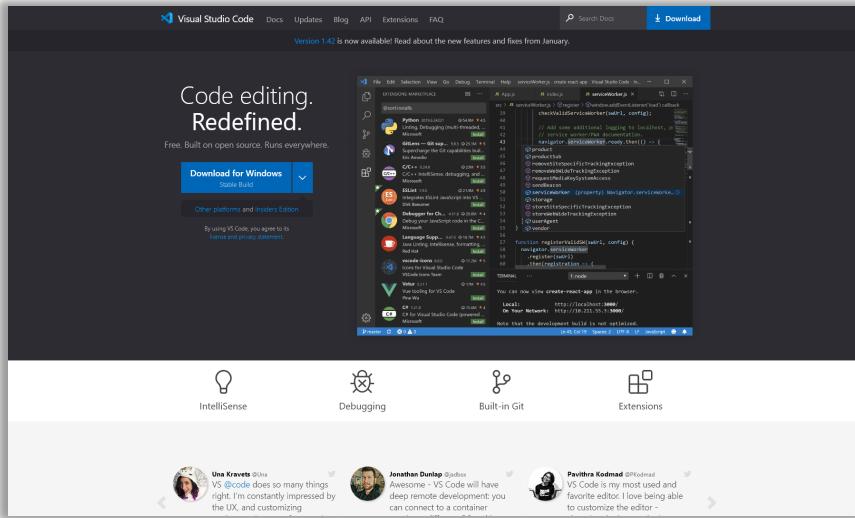
Node.js runtime
Version 12 LTS
<https://nodejs.org/en/>

Install on Linux using the instructions on
<https://github.com/nodesource/distributions>



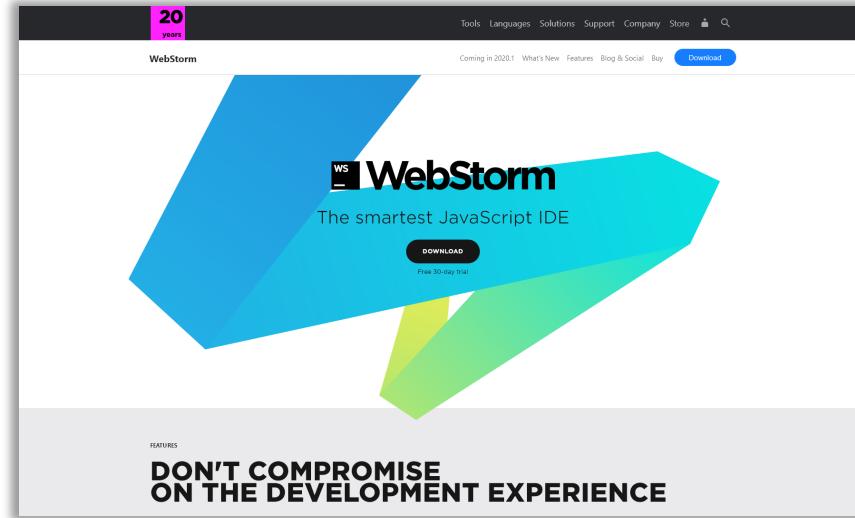
React Developer Tools
Extension for Chrome and Firefox

Programming Environments



Visual Studio Code

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



JetBrains WebStorm

<https://www.jetbrains.com/webstorm/>



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