

Web Technologies

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JavaScript Frameworks

JavaScript popularity in a nutshell

JavaScript

- JavaScript started as a **client-side scripting language**
- It could be used along with HTML for writing web pages
- It provides dynamic functionality at the client-side
 - validation of inputs
 - animations

JavaScript

- A big change started when **AJAX** comes into the picture
- AJAX allowed to update a part of the web page without downloading the whole web page
- As a result, this made the **GUI faster** and more **responsive**

JavaScript

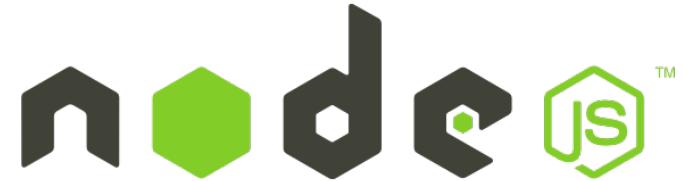
- **jQuery** made the JavaScript hugely popular
- It put on top one the JavaScript as a programming language on the client-side
- However, server-side language like Python, PHP, and Ruby was still required to develop web applications

JavaScript

- Creating and managing UI required different technologies e.g. JSP, ASP .NET,...
- Then comes **node.js** which made it possible to develop a server-side component using JavaScript
- Currently, a fully functional web application can be developed by just using JavaScript

Web Development Frameworks

node.js



- **node.js** is an open-source, cross-platform JavaScript run-time environment for executing JavaScript code server-side
- You can use node.js to create dynamic web pages on the server side before you send them to the client
- I/O is Asynchronous and Event Driven

<https://nodejs.org>

React JS



- React is a JavaScript library or framework for building user interfaces
- It allows to create large web-applications that can change over time without reloading the page
- It is maintained by Facebook, Instagram, and a community of individual developers and corporations
- React Native can provide a nearly seamless mobile experience to pair alongside your React application for the web

<https://reactjs.org>



ANGULAR

Angular

- It provides a completely client-side solution
- It allows to create dynamic web pages on the client side
- Angular provides declarative templates, dependency injection, the end to end tooling and integrated best practices to solve common development challenges on the client side
- It is maintained by Google

<https://angular.io/>

Vue.js



- **Vue.js** is another open-source progressive JavaScript framework for building user interfaces, similar to React
- It supports declarative rendering using template syntax to provide data to the DOM.
- Vue is very lightweight compared to Angular or React
- Vue comes with Data Binding property. It helps to set and influence the values of HTML attributes

<https://vuejs.org>



Bootstrap

- Initially brought to us by Twitter
- Open-source, front-end web framework for designing websites and web application
- Bootstrap provides s HTML- and CSS-based design templates for typography, forms, buttons, navigation, and other interface components, as well as optional JavaScript extensions
- Bootstrap supports responsive web design

<https://getbootstrap.com>



Django

- Django is a full-stack Python framework
- It includes all the necessary features by default instead of offering them as separate libraries
 - Authentication, URL routing, template engine, object-relational mapper (ORM), and database schema migrations

<https://www.djangoproject.com>

Flask



- Flask is a microframework
- Flask aims to keep the core simple but extensible

<https://flask.palletsprojects.com>

JavaScript Libraries



Polymer JS

- The **polymer** is an open-source JavaScript library
- It allows to create custom reusable HTML elements, which can be used to build maintainable web applications
- Angular and Polymer are developed by Google. Angular is a complete framework for building web apps, whereas Polymer is just a library for creating Web Components
- Polymer.js uses Google material design to develop hybrid mobile applications

<https://www.polymer-project.org>

JQuery



- jQuery is a fast, small, and feature-rich **JavaScript library**
- **JQuery** provides CSS like selectors to change the behaviour of several elements on the fly

Save Fork Settings

JS

```
$('ul').children().slice(1,-2).css('background-color','salmon');
$('ul').children().first().has('b').css('background-color','violet');
$('ul').children().last().has('em').css('background-color','lime');

$( "ul" ).click(function( event ) {
  var target = $( event.target );

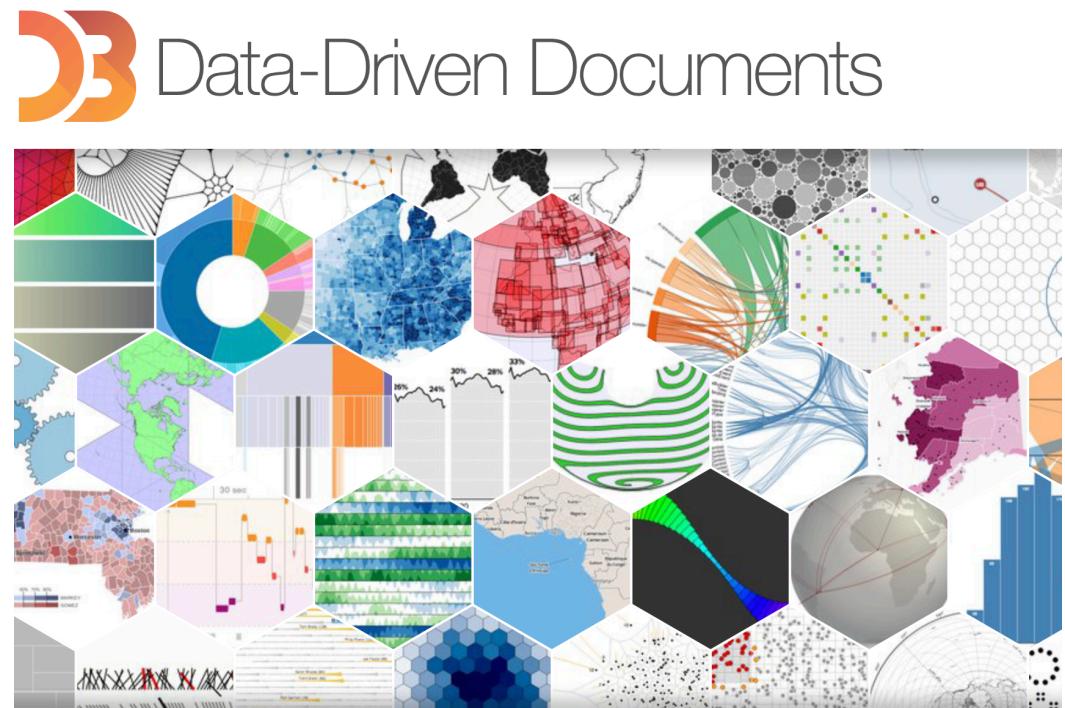
  if ( target.is( "b" ) ) {
    target.css( "background-color", "red" );
  }
});
```

jQuery

<https://jquery.com>

D3.js

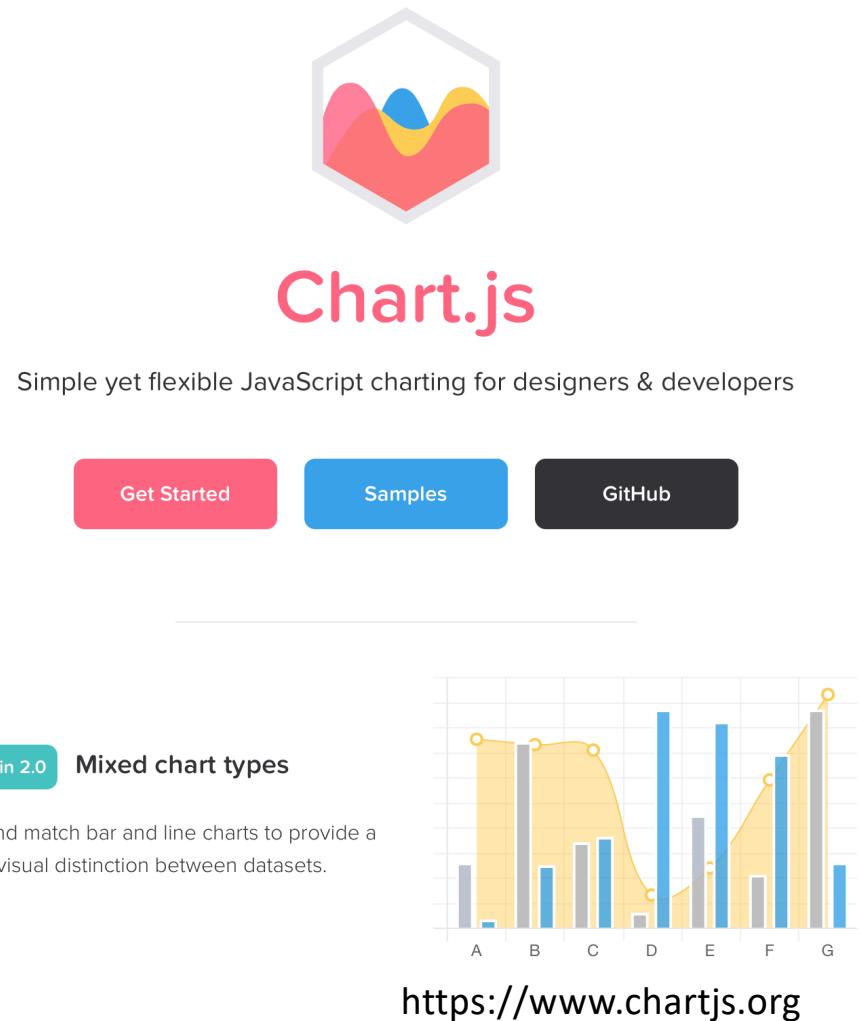
- D3.js is a very extensive and powerful graphics JavaScript library. It allows you to bind arbitrary data to a Document Object Model (DOM), and then apply data-driven transformations to the document



<https://d3js.org>

Chart.js

- **Chart.js** is an open source JavaScript library supporting 8 chart types. It is a small js library at just 60kb. Types include line charts, bar charts, area charts, radar, pie charts, bubble, scatter plots, and mixed. A time series is also supported. It uses canvas element for rendering and is responsive on window resize to maintain scale granularity.



The screenshot shows the official Chart.js website. At the top center is the Chart.js logo, which consists of a hexagonal frame containing a stylized, colorful area chart with red, blue, and yellow segments. Below the logo is the word "Chart.js" in a large, bold, pink font. Underneath that is a subtitle: "Simple yet flexible JavaScript charting for designers & developers". There are three buttons below the subtitle: "Get Started" (pink), "Samples" (blue), and "GitHub" (dark grey). Further down, there's a section titled "New in 2.0" with the heading "Mixed chart types". A descriptive text follows: "Mix and match bar and line charts to provide a clear visual distinction between datasets." To the right of this text is a chart example showing a combination of bar and line data across seven categories labeled A through G. Category A has a grey bar and a yellow line. Category B has a grey bar and a blue line. Category C has a grey bar and a yellow line. Category D has a grey bar and a yellow line. Category E has a grey bar and a blue line. Category F has a grey bar and a yellow line. Category G has a grey bar and a blue line. The chart uses a light grey grid background.

<https://www.chartjs.org>

Push.js

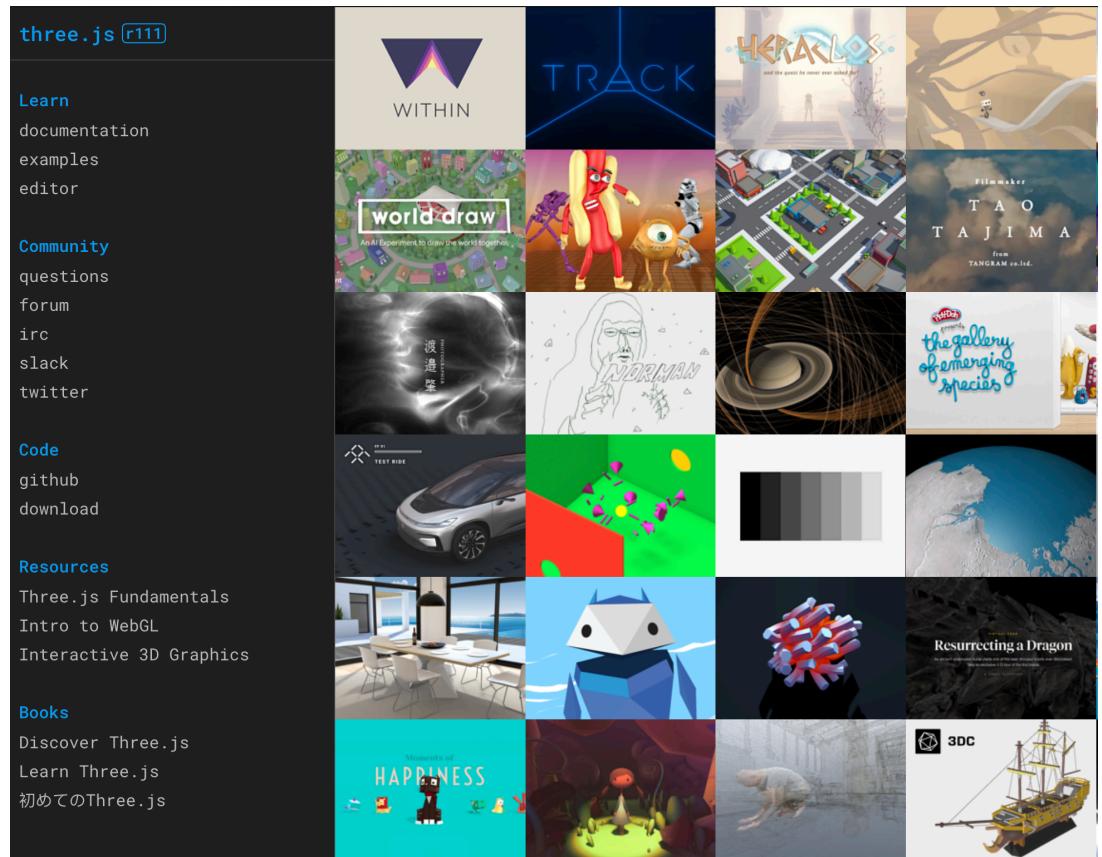
- Push is a library for managing JavaScript desktop notifications. It is based on the powerful Notification API but also acts as a reliable cross-browser solution.



<https://pushjs.org>

Three.js

- A JavaScript 3D library, The aim of the project is to create an easy to use, lightweight, 3D library with a default WebGL renderer. The library also provides Canvas 2D, SVG and CSS3D renderers in the examples.



<https://threejs.org>

Leaflet

- Leaflet is the leading open-source JavaScript library for mobile-friendly interactive maps. Weighing just about 37 KB of gzipped JS code, it has all the mapping features most developers ever need.



[Leaflet Quick Start Guide](#)

A simple step-by-step guide that will quickly get you started with Leaflet basics, including setting up a Leaflet map (with Mapbox tiles) on your page, working with markers, polylines and popups, and dealing with events.



[Leaflet on Mobile](#)

In this tutorial, you'll learn how to create a fullscreen map tuned for mobile devices like iPhone, iPad or Android phones, and how to easily detect and use the current user location.



[Markers with Custom Icons](#)

In this pretty tutorial, you'll learn how to easily define your own icons for use by the markers you put on the map.



[Using GeoJSON with Leaflet](#)

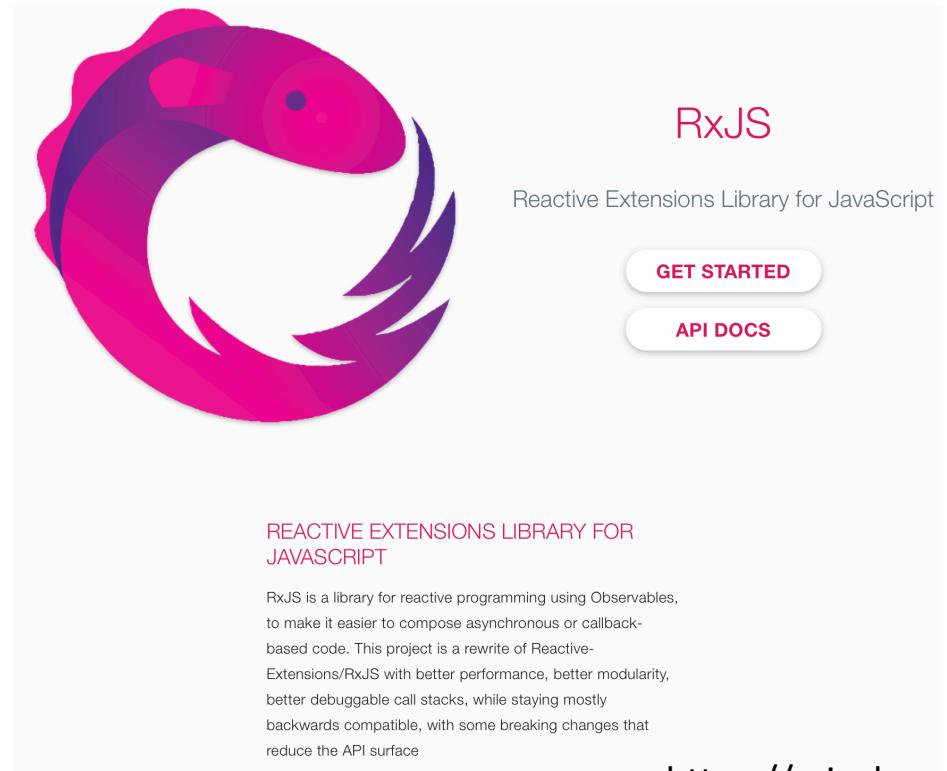
In this tutorial, you'll learn how to create and interact with map vectors created from [GeoJSON](#) objects.

MAPBOX
Commercial solution for developing maps
<https://www.mapbox.com>

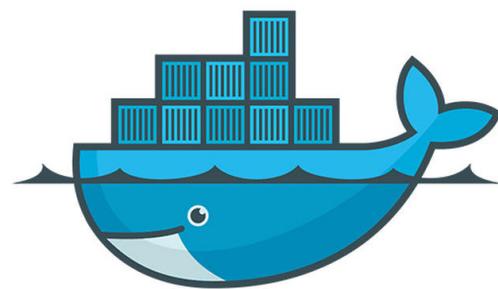
<https://leafletjs.com>

RxJS

- RxJS is a library for reactive programming using Observables, to make it easier to compose asynchronous or callback-based code.



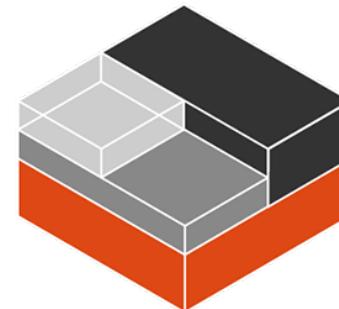
Other topics



docker



kubernetes



LXC