

01 - Introduction

Development environment

TWEB 2017
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<https://softeng-heigvd.github.io/Teaching-HEIGVD-TWEB-2017-Main/>

<https://t.me/joinchat/CPWmAsLLgWdXQhoXTaNHw>

<https://t.me/joinchat/AAAAAEE3IWzr-jZRRMq3qg>

Introduction



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What are we going to do in this course?

Activities



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- Build web applications with modern tools, libraries and techniques.
- Code, code, code.
- Use Javascript on the client and on the server.
- Have fun!

Objectives



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- The web ecosystem is **extremely** dynamic.
- **New** frameworks and tools are appearing every day.
- The Javascript dialects and idioms are **evolving** a lot.
- It is important to build a “**map**” of the ecosystem: what is the role of different “types” of tools.
- It is also important to get used to learn **how to evaluate** and use these tools.

How it feels to learn JavaScript in 2016

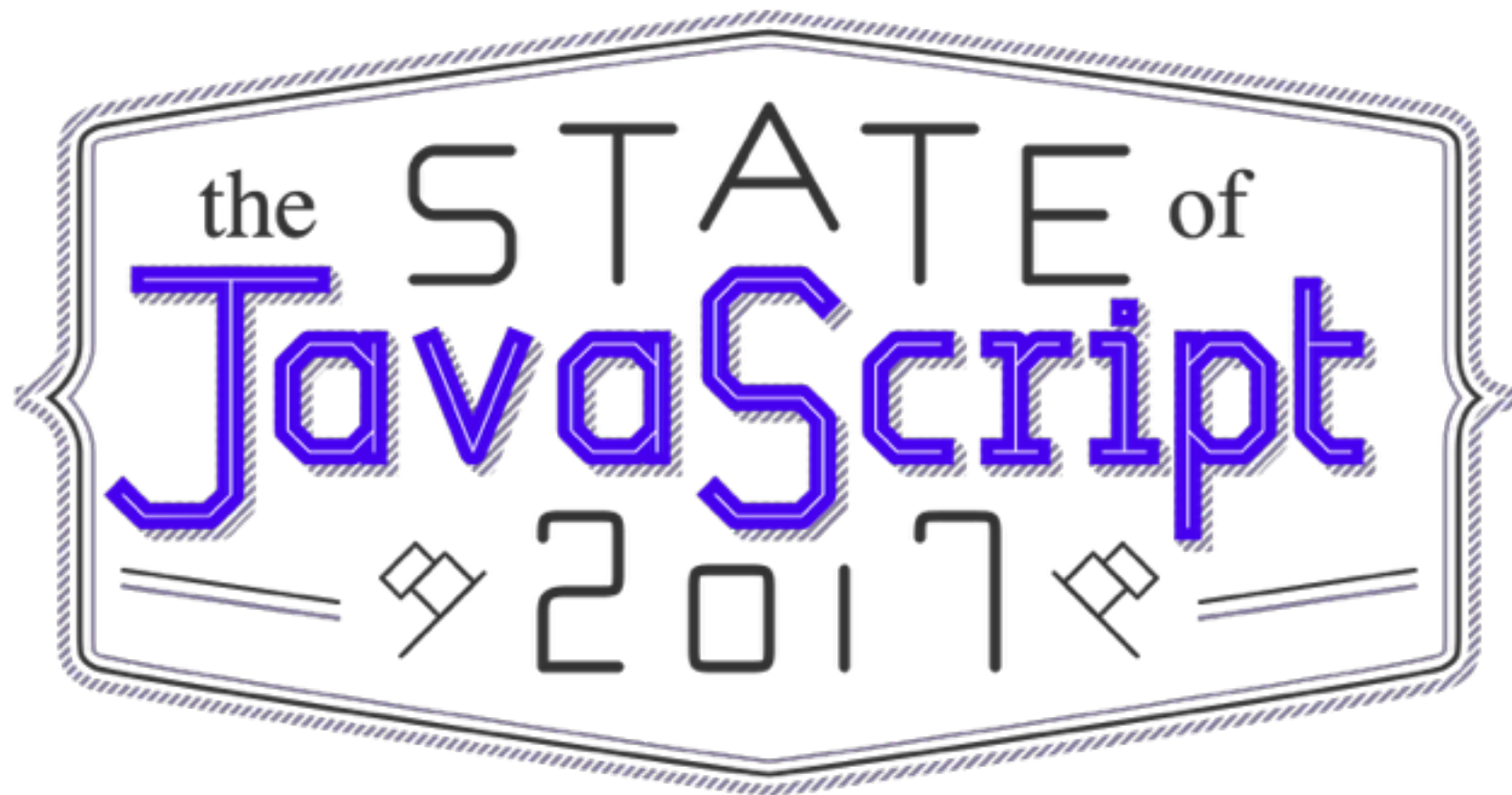
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[https://hackernoon.com/
how-it-feels-to-learn-
javascript-in-2016-
d3a717dd577f](https://hackernoon.com/how-it-feels-to-learn-javascript-in-2016-d3a717dd577f)

No JavaScript frameworks were created during the writing of this article.



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<https://stateofjs.com/>

JavaScript is great!

JavaScript is a mess!

Planning



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- 1 semester = 16 weeks = 4 iterations
- 3 projects of ~4 weeks
- 1 iteration to wrap up and present projects
- 2 tests

Planning

4 weeks

5 weeks

4 weeks

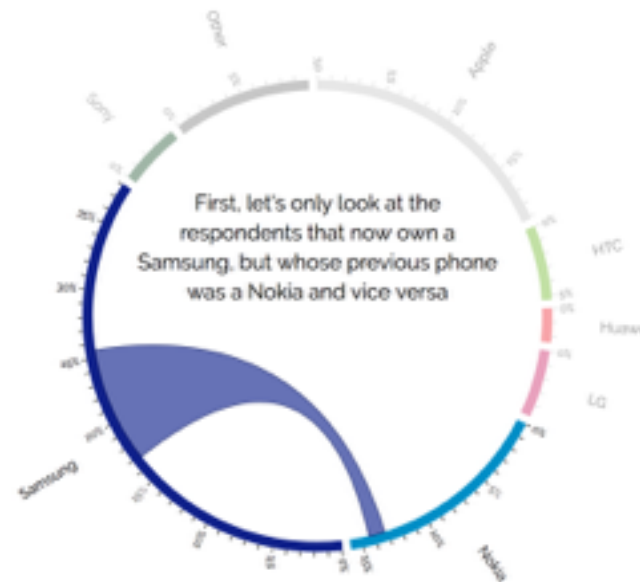
3 weeks

Github Analytics

Digital Storytelling

Gamification

Wrap-up



Daily menu



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How are we going to spend the
next 3 periods?

Goals



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- Setup our development environment.
- Introduce a first set of tools that will make us better and happier.
- Study the anatomy of a dynamic web page.

Plannning

08:30 09:15	What tools should I use to be a productive developer?	visual studio code chrome dev tools
09:15 10:00	How do I know if I write good Javascript code?	ESLint
10:25 11:10	How do I create a dynamic HTML playground ?	JQuery

Problem



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What tools should I use to be a
productive developer?

Forces

- I could use a simple text editor to write HTML and Javascript.
- I could “debug” my code with `console.log(‘argh’)`.
- I could assemble my web application manually, repeating same tasks over and over again.
- I would **lose time** and deliver **lower quality** software.

Solutions



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- Invest time to make most of your **IDE**.
- Use a **debugger** on the client and on the server side.
- Use a **build pipeline** and take advantage of various automated tasks.

In practice



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- Microsoft Visual Studio Code
- Debug client-side code
- Node.js & npm (nvm)
- Debug server-side code
- Let's start *without* a build pipeline

Webcasts



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- Setup (01): install tools
- Setup (02): client-side debugging
- Setup (03): server-side debugging

References



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- Debugging in Visual Studio Code
<https://code.visualstudio.com/docs/editor/debugging>
- http-server
<https://www.npmjs.com/package/http-server>
- Node Version Manager (nvm)
<https://github.com/creationix/nvm>

Problem



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How do I know if I write “**good**”
javascript?

Forces



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- With Java, the **compiler** detects some of my mistakes. With Javascript, I often lose time because of typos and silly mistakes.
- Javascript is evolving a lot and I am not sure if my **coding style** needs an upgrade.

Solutions



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- Use coding guidelines
- Learn from others
- Enforce the rules in the IDE and in the build process

In practice



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- Create a JS project with npm
- Install ESLint
- Configure ESLint
- Launch Visual Studio Code

Webcast



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- ESLint: configure and test in Visual Studio Code

References



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- Overview of ECMAScript6 (es6, es2015)
<http://es6-features.org>
- Airbnb Style Guide
<https://github.com/airbnb/javascript>
- ESLint
<https://eslint.org>
- Douglas Crockford playlist
<https://www.youtube.com/playlist?list=PLEzQf147-uEpvTa1bHDNixUL2kiHUMHJu>

Problem



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I am new to this web stuff. How can I make experiments with dynamic HTML, CSS and Javascript?

Forces

- Some of us have very little experience with web development.
- Before moving to advanced frameworks, it is important to familiar with basic libraries.
- It is useful to have a simple project to make first experiments.

Solution



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- Build a toy project with a few files
- Make live experiments in the browser (dev tools)
- Write first lines of CSS and Javascript

JQuery

- Select elements
- Manipulate elements
- Traverse the DOM



You Don't Need jQuery!

Free yourself from the chains of jQuery by embracing and understanding the modern Web API and discovering various directed libraries to help you fill in the gaps.

```
// A $( document ).ready() block.  
$( document ).ready(function() {  
    console.log( "ready!" );  
});
```

```
// Shorthand for $( document ).ready()  
$(function() {  
    console.log( "ready!" );  
});
```

```
$("#myId");  
$(".myClass");  
$("#contents ul.people li");
```

```
$("ul li").first();  
$("ul li").eq( 5 );
```

Webcasts



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- [DOM, CSS and JQuery \(1\): overview](#)
- [DOM, CSS and JQuery \(2\): prepare project and play with CSS](#)
- [DOM, CSS and JQuery \(3\): using the DOM in the browser console](#)
- [DOM, CSS and JQuery \(4\): loading JQuery and using it in a script](#)

References



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- JQuery Learning Center
<https://learn.jquery.com>
- You don't need JQuery
<https://blog.garstasio.com/you-dont-need-jquery>
- Document Object Model (DOM)
https://developer.mozilla.org/en-US/docs/Web/API/Document_Object_Model