



# Modern Web Development 2018

# Course summary

## Backend

- Node and HTTP APIs with Express
- MongoDB, NoSQL and mongoose

## Frontend

- HTML, CSS, responsive websites (using Bootstrap)
- SPA's with Vue.js



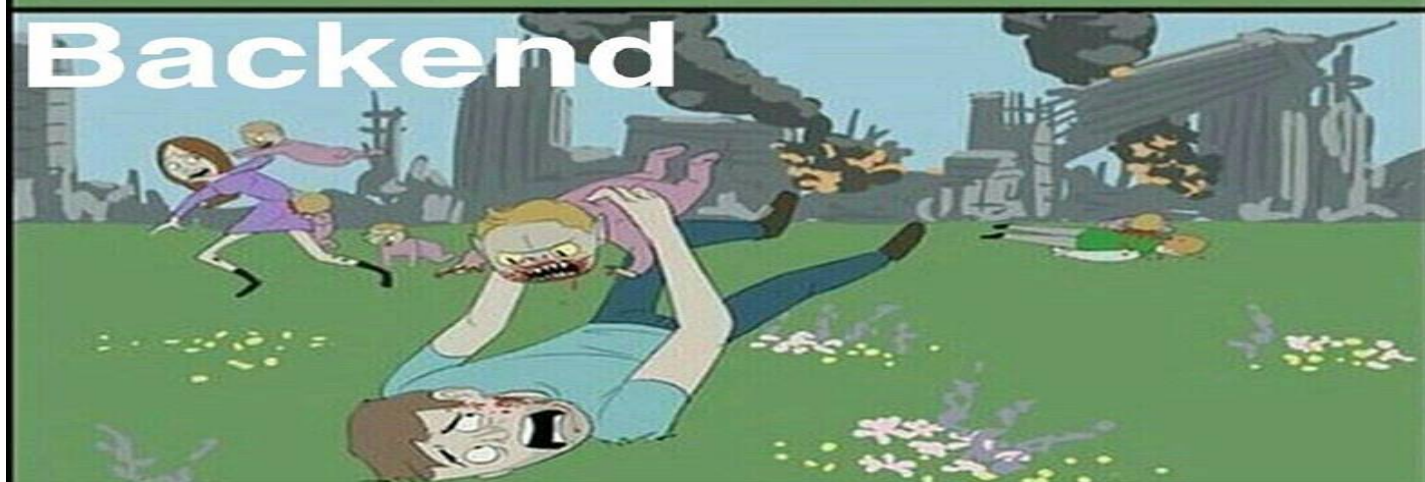
# Frontend and backend = fullstack

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# Frontend



# Backend



# Node and HTTP APIs with Express

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# Summary

- What is HTTP?
- What is node.js?
- What is an api?
- How to use callbacks/clojures

# Internet





# Http

Protocol over TCP that is the basis of data communication on the internet.

It uses URLs for identification of resources.

*Ex: <https://www.advancedinstaller.com/index.html>*

It exposes HTTP verbs for actions.

Most common verbs: **GET, POST, DELETE**

# GET

With the HTTP GET request the server will respond back with some resource: an html file, a json etc.

A GET request can have query params:

<https://www.example.com/resource?param1=someValue>

The server can respond accordingly.

# Query params

Query params are used for resource identification

<https://www.example.com/news?country=Romania&page=2>

The query params string is limited(size depends on the server) and is visible to everyone that can see the request (ISP, proxies)

# Post

Used for sending data (pictures, comments, username and passwords etc.)

The body length has a bigger limit (it depends on the server).

If you use HTTPS the request is encrypted.

# DELETE

Used for deleting a resource.

DELETE: <https://www.example.com/article/comment?author=John>



# Node.js

Node.js® is a JavaScript runtime built on **Chrome's V8 JavaScript engine**. Node.js uses an event-driven, non-blocking I/O model that makes it lightweight and efficient. Node.js' package ecosystem, **npm**, is the largest ecosystem of open source libraries in the world.

*Source: [nodejs.org](https://nodejs.org)*

***Read: Efficient servers written in JS***

# Node is *not* ready for production!

Used in production by:

- Netflix
- LinkedIn
- NASA
- Caphyon and others

Source:

<http://www.tothenew.com/blog/how-are-10-global-companies-using-node-js-in-production/>



# JavaScript



# Java and JavaScript

Java is to JavaScript as Ham is to HamSter



JS AA Java™

# JavaScript key features

- JavaScript is a lightweight, dynamic, interpreted, prototype based programming language
- It is multi-paradigm (supports): object-oriented, imperative and declarative programming styles
- A language that runs on every browser(desktop and mobile) and on server (with Node).

Source: <https://developer.mozilla.org/bm/docs/Web/JavaScript>

# DEMO 1

\$ node

```
>console.log("Hello World Node!")
```

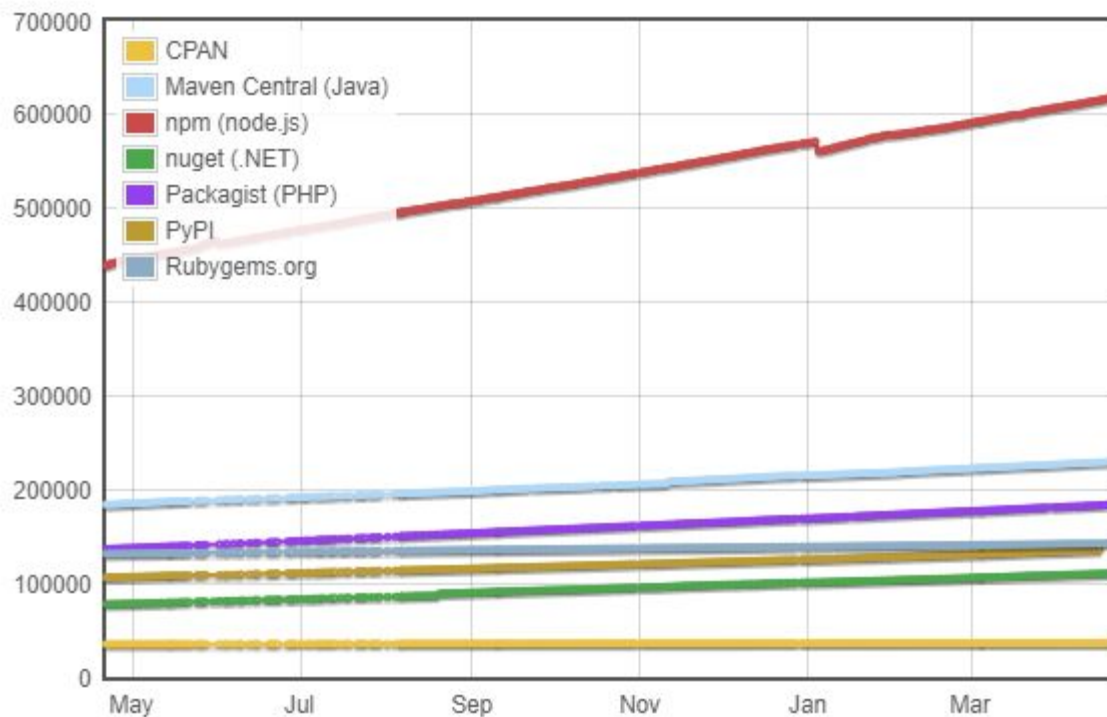
# NPM

Npm is a tool to manage node packages.

Mostly written in JS (or compiled to from TS, Coffee Script or others)

More than 600k of libraries that can be reused so that you can focus on your product/idea

## Module Counts



Source: <http://>

## Demo 2

Let's init a project in your work folder:

```
$ npm init
```

Let's install a package:

```
$ npm install --save express
```



# Callbacks

A callback is a function that is to be executed after another function has finished

```
request('https://www.advancedinstaller.com/products.json', (err, res, body) => {  
    // do something with the json  
})
```



**KEEP  
CALM  
AND  
DO  
CALLBACKS**

KeepCalmAndPosters.com

# Additional resources

- Javascript Guide:  
<https://developer.mozilla.org/en-US/docs/Web/JavaScript/Guide/Introduction>
- Node documentation: <https://nodejs.org/en/docs/>
- Node tutorials: <https://www.tutorialspoint.com/nodejs/index.htm>