Programming with NodeJS

Lesson 1: Setting up, JS basics and hello world

Febuary 7th, 2017

What is NodeJS? What programming languages is it like?

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Figure: Image curtosy of HackSocNotts

Setting up your development environment

We will be using version: v6.9.5 (with npm version 3.10.10)

- Windows: **https://nodejs.org/en/download/**
- Mac OSX: **https://nodejs.org/en/download/**
- Linux: Either **sudo apt-get install nodejs** or **https://nodejs.org/en/download/**

If at any time you get stuck, just stick your hand up.

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- atom - Fun fact, this was actually written in part in NodeJS!

JS basics

Javascript types

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Javascript also has implicit objects, which contain all other types

Javascript types

Other types:

Javascript types

Other types:

- Arrays

Javascript types

Other types:

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- JSON

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- JSON
- Buffers

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- Streams
- Higher order functions

Javascript syntax

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As with C, javascript contains for loops, while loops, conditional statements (both single expression ternary and expanded) and switches.

JavaScript Object Notation (JSON)

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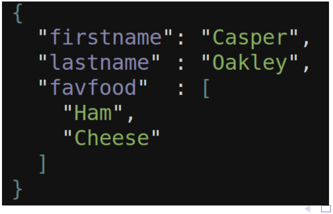
JSONs are defined through curly braces {}.

For example:



```
{
  "firstname": "Casper",
  "lastname" : "Oakley",
  "favfood"  : [
    "Ham",
    "Cheese"
  ]
}
```

What is a web server?

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When you go on a website, you, the client, ask a server for something.This file could be an html document, an image or something completely different.

HTTP requests

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There are many types of HTTP request. The most common two used are:

GET	gets you data from a location/service
POST	sends your data to a location/service

A little more on HTTP

A little more on HTTP

Status code responses

A little more on HTTP

Status code responses

- 200

A little more on HTTP

Status code responses

- 200
- 304

A little more on HTTP

Status code responses

- 200
- 304
- 400

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- 200
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- JSON APIs
- As the backend in a MEAN stack web app - This is the one we will focus on

Running NodeJS code

Two ways to run your NodeJS code:

- Through the command line interpreter (the REPL)
- By putting your code into a file and executing the file

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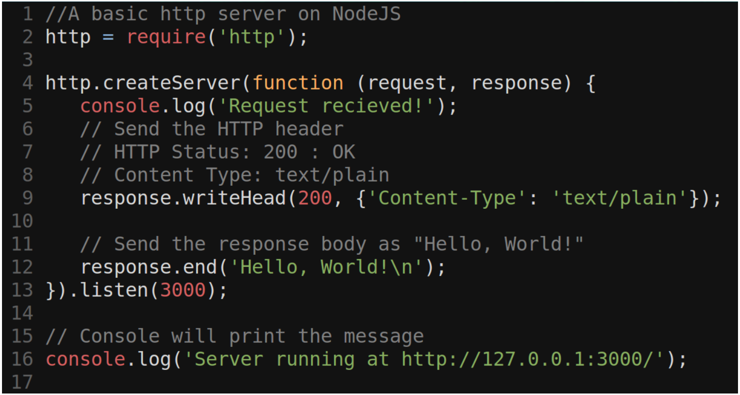
demo

A hello world server



```
//A basic http server on NodeJS
http = require('http');

http.createServer(function (request, response) {
   console.log('Request recieved!');
   // Send the HTTP header
   // HTTP Status: 200 : OK
   // Content Type: text/plain
   response.writeHead(200, {'Content-Type': 'text/plain'});

   // Send the response body as "Hello, World!"
   response.end('Hello, World!\n');
}).listen(3000);

// Console will print the message
console.log('Server running at http://127.0.0.1:3000/');

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A hello world server

Our basic hello world server consists of three primary parts

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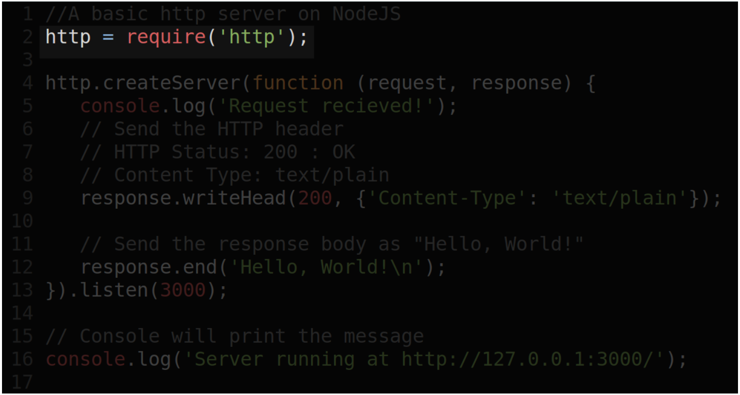

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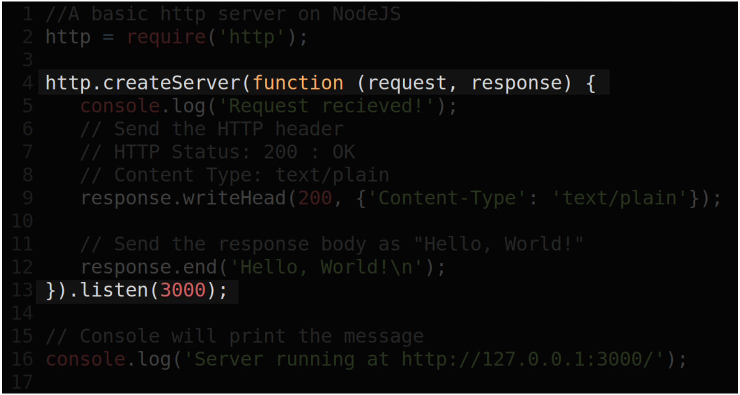

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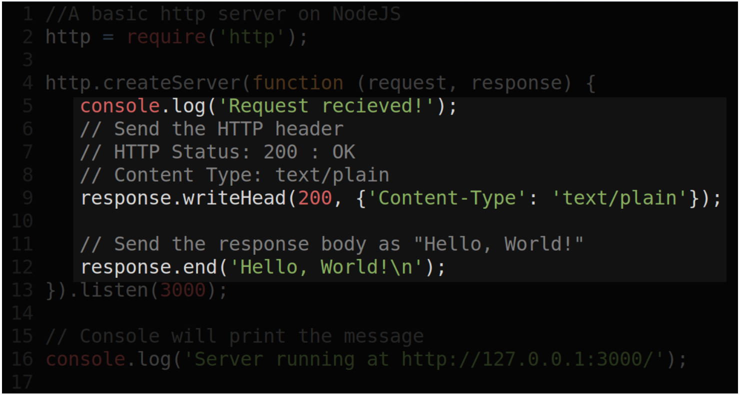

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Emoji demo

That's all for tonight!

To summarise:

- We have installed NodeJS and NPM
- We have learnt about JS syntax
- We have learnt about NodeJS and what it's useful for
- We have made a very simple http server

For next week

Source code plus lecture slides will be available online soon after the lesson.
If you are new to HackSocNotts, please join us on *http://hacksocnotts.slack.com*.
If you have any questions, feel free to ask now or over slack.