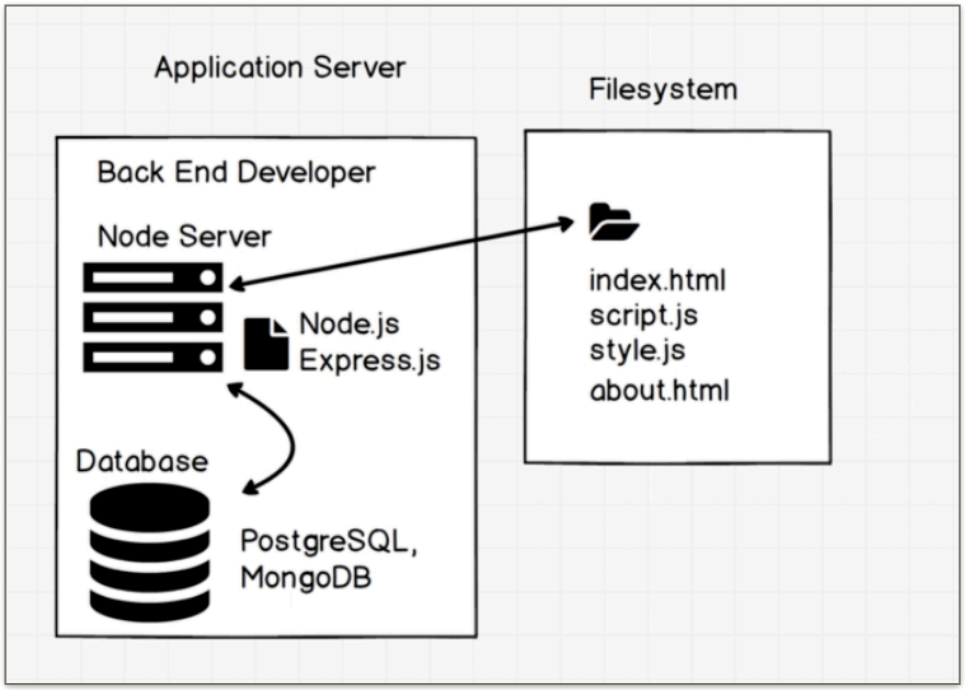
Node.js



Check node version in terminal

```
node -v
```

Use node in terminal

```
node
```

No window object, instead we have `global` and `process`

```
> window
ReferenceError: window is not defined
```

Exit node and return to terminal

```
> process.exit()
```

(`Ctrl-c` for general exit)

Create file from terminal

`touch script.js`

Run file from terminal using node (it will exit automatically)

`node script.js`

Example:

`setTimeout` to wait a few seconds before execution

`__dirname` to get name of current path

```
                        script.js

const a = 4;
const b = 5;

setTimeout(() =>{
    console.log(a+b);
}, 3000) // wait 3 seconds

console.log(__dirname);
```

```
                    Run in terminal

~/git/node:master$ node script.js

/Users/stepha/git/node

9 <<<< waits 3 seconds to show up
```

Exports & Imports between Modules

Each file is called a module. Must export and import to access data from other modules.

```
                                script2.js
const largeNumber = 356;

// export from this module
module.exports = {
    largeNumber: largeNumber
};
// end of export
```

```
                                script.js
// import from other module
const script2 = require('./script2.js')
// NOTE: const script2 can have any name
// end of import

const a = script2.largeNumber;
const b = 5;

console.log(a+b);
```

Types of Modules

Three types of modules:

1. Modules you create yourself
2. Built - in modules, like ‘ fs ’ and ‘ http ’
3. Packages from npm

‘ fs ’ module - allows you to read the file system

```
const c = require(‘fs’); // import statement
console.log(c);
```

Use with these functions:

```
const c = require(‘fs’).readFile; // import
```

```
const c = require(‘fs’).readFileSync; // import
```

‘ http ’ module - used to build server

```
const c = require('http'); // import statement
console.log(c);
```

nodemon - npm package used so you don't have to refresh while developing modules

Run from terminal to generate package.json file (-y skips questions) in the node folder…

```
npm init -y
```

Install 'nodemon' and add it to devDependencies in package.json file:

```
npm install nodemon --save-dev
```

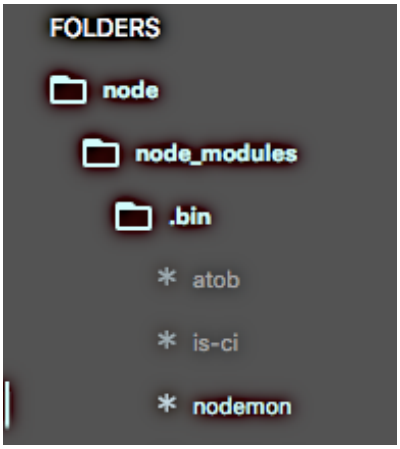
Note: devDependencies are only used while developing, not released with final app or server.

We can use nodemon because it is in:

node_modules > .bin > nodemon

To use it, go to the `package.json` file and find the scripts section:

```
  "scripts": {
    "test": "echo \"Error: no test specified\" &&
exit 1"
  },
```



Change that to this:

```
  "scripts": {
    "start": "nodemon"
  },
```

Go to terminal and run:

```
npm start
```

We have a clean exit but see that something is still running… nodemon. As we develop, nodemon will listen for changes and automatically output them so we don't have to keep running the "node script.js" command. `Ctrl-c` to exit

Building a Server

From terminal, create new file:

```
touch server.js
```

server.js

```
const http = require('http');

const server = http.createServer(() => {
    console.log('I hear you, thnks for the request')
})

server.listen(3000); // port number can be anything
```

In the `package.json` file, edit the scripts section:

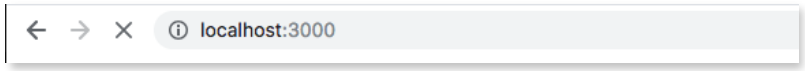
```
  "scripts": {
    "start": “nodemon server.js”
  },
```

Run from terminal:

```
node server.js
```

It looks like its just hanging there.

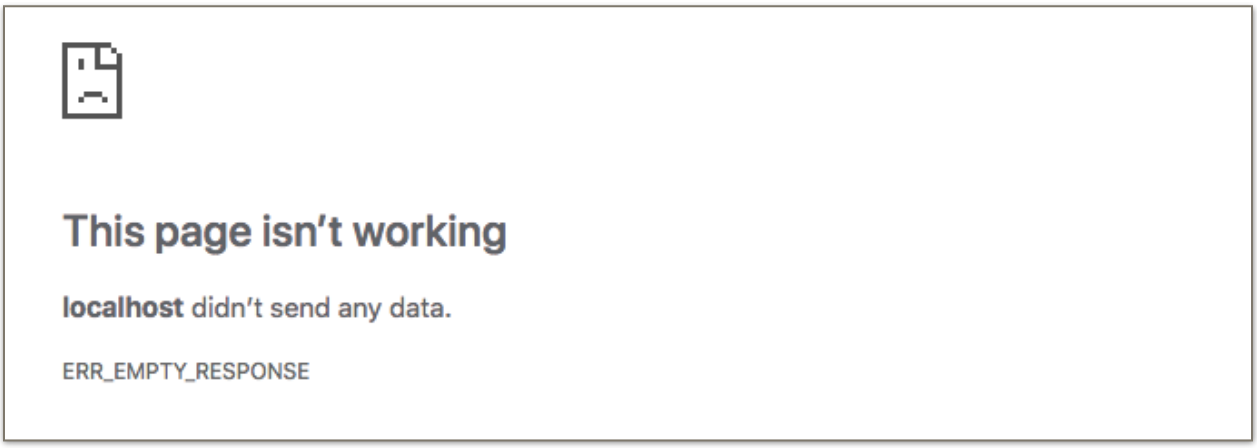
Let’s go to port 3000 on our local host (my machine). Go to browser, navigate to `http://localhost:3000/`



Every time you connect to port 3000 (includes refreshing browser), this pops up in terminal:

```
I hear you, thnks for the request
```

This is happening because `server.js` is running in node, listening for connections to port 3000. However, the server is not responding to the request with anything.



`Ctrl-c` to exit.

Let's edit our server file:

server.js

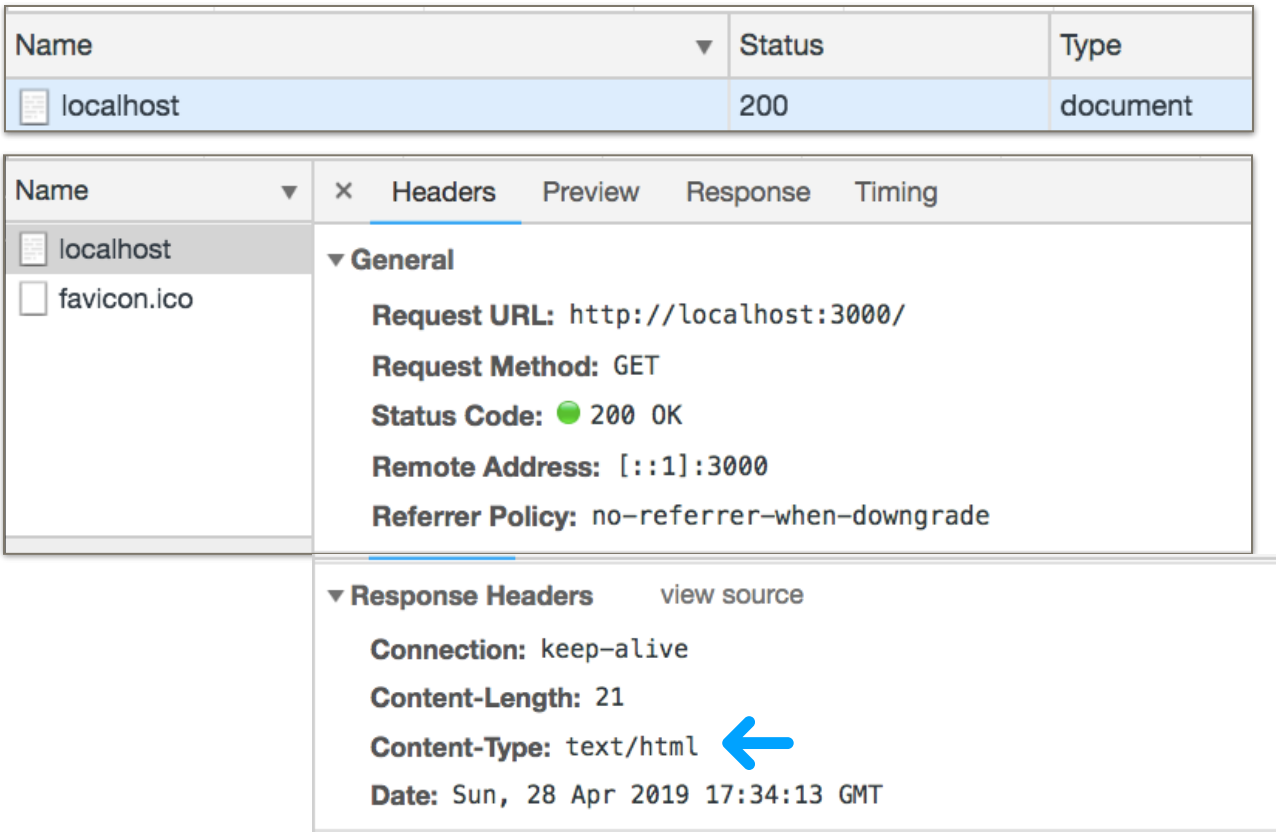
```
const http = require('http');

const server = http.createServer((request, response) => {
    response.setHeader('Content-Type', 'text/html');
    response.end('<h1>Hellooooooooo</h1>');
})

server.listen(3000); // port number can be anything
```

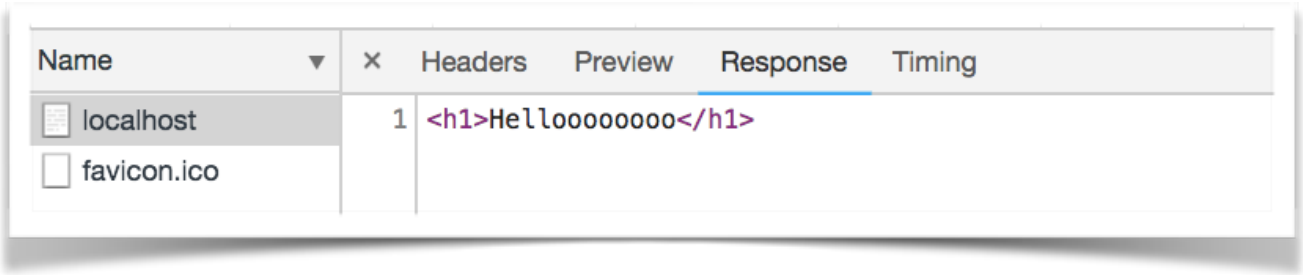
`npm start`

To track changes with **nodemon**, run `npm start` in terminal. (`package.json` file set up to watch `server.js` in previous step)

Refresh in browser to get:

In Network tab of dev tools:





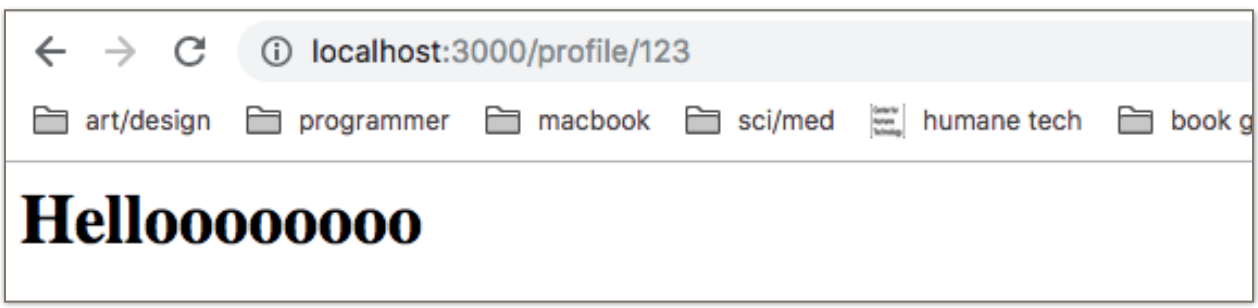
Can get information about server requests…

server.js

```
const http = require('http');

const server = http.createServer((request, response) => {

    console.log('I hear you, thnks for the request')

    // request
    console.log('Headers:', request.headers)
    console.log('Method :', request.method)
    console.log('Url    :', request.url)

    // response
    response.setHeader('Content-Type', 'text/html');
    response.end('<h1>Hellooooooooo</h1>');

})

server.listen(3000); // port number can be anything
```

Now whenever we connect to the port, information about the request (headers, method, url) appears in the terminal.

If I connect to `http://localhost:3000/profile/123`



the terminal shows:

`Url  : /profile/123`

Instead of

`Url  : /`

Using JSON for responses

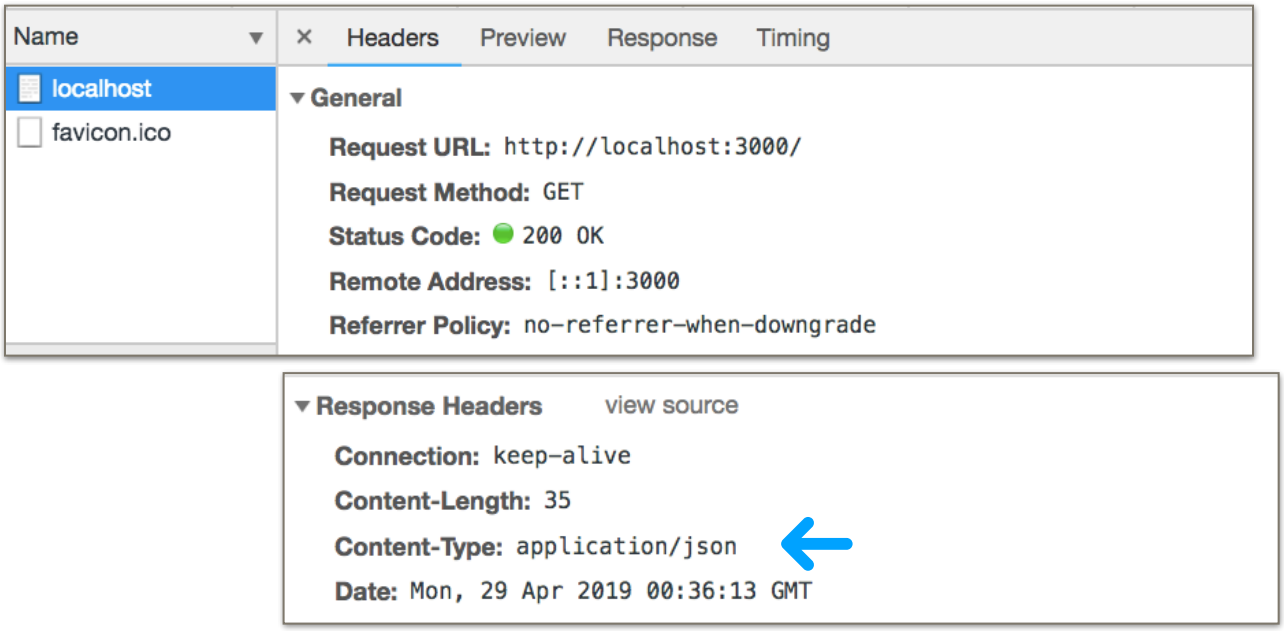
In the previous example, the `Content-Type` of our response is `'text/html'`. JSON is great for AJAX requests and responses, so let's do that.

server.js

```
const http = require('http');

const server = http.createServer((request, response) => {

    console.log('I hear you, thnks for the request')

    // request
    console.log('Headers:', request.headers)
    console.log('Method :', request.method)
    console.log('Url    :', request.url)

    // response

    const user1 = {          // javaScript object
        name: 'Steph',
        hobby: 'painting'
    }

    response.setHeader('Content-Type', 'application/json');
    response.end(JSON.stringify(user1)); // convert object
to JSON so we can send it over

})

server.listen(3000); // port number can be anything
```

See response in JSON format below:

In Network tab of Chrome dev tools, we see content-type is JSON:



Response is in JSON format: