Building RESTful Web APIs with Node.js, Express, MongoDB and TypeScript — Part 1

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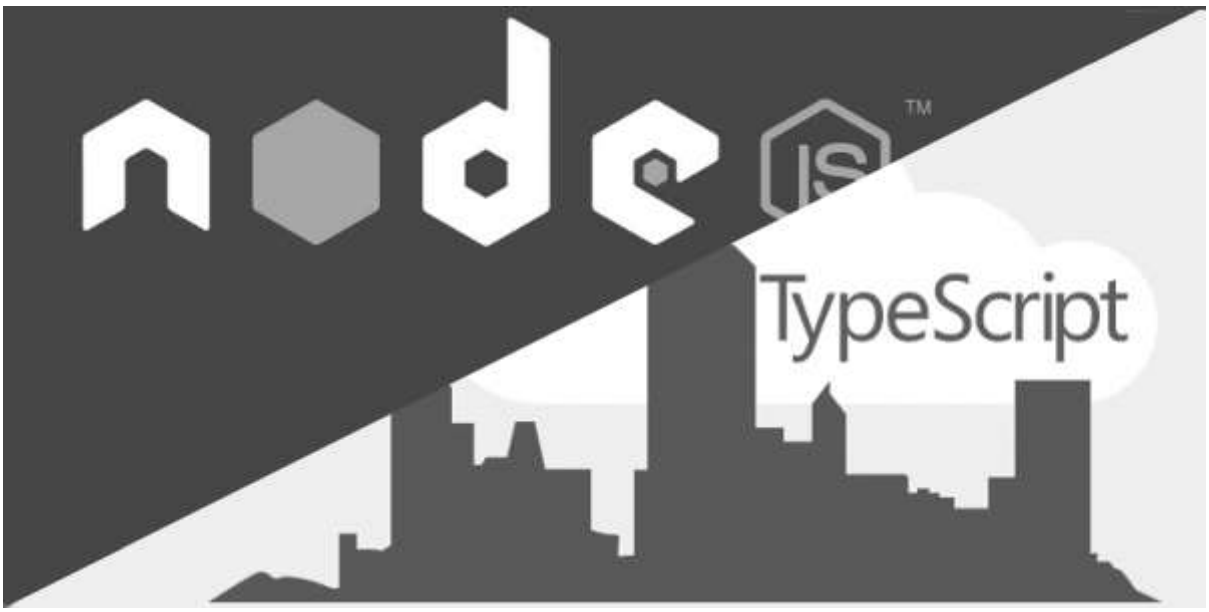


(Image from OctoPerf)

There is a course about how to build a Web APIs on Lynda, but they didn't use TypeScript. So I decided to make one with TypeScript. There are lots of things that need to improve in this project. If you find one, please leave a comment. I'm appreciated that ;)

Part 1: Setting Up Project

Part 2: Implement routing and CRUD

Part 3: Using Controller and Model for Web APIs

Part 4: Connect Web APIs to MongoDB or others

Part 5: Security for our Web APIs

Before we get started

Make sure that you have NodeJS installed on your machine. After that, you have to install TypeScript and TypeScript Node.

```
npm install -g typescript ts-node
```

In order to test HTTP request, we can use Postman to send sample requests.

MongoDB preparation

You should install MongoDB on your local machine, or use other services such as mLab or Compose

If you installed MongoDB locally, you should install either Robo Mongo or Mongo Compass for GUI interface.

Before we dive into the coding part, you can checkout my github repository if you want to read the configuration in advance. Otherwise, you just need to follow the steps in order to get your project run.

Step 1: Initiate a Node project

Create a project folder and initiate the npm project. Remember to answer all the question, and you can edit it any time after that

```
mkdir node-apis-project
cd node-apis-project
npm init
```

Step 2: Install all the dependencies

```
npm install --save @types/express express body-parser mongoose
nodemon
```

Step 3: Configure the TypeScript configuration file

The idea is to put all the TypeScript files in the ***lib folder*** for development purpose, then for the production, we will save all the Javascript files in the ***dist folder***. And of course, we will take advantage of the ES2015 in the project.

```
// tsconfig.json
{
    "compilerOptions": {
        "module": "commonjs",
        "moduleResolution": "node",
        "pretty": true,
        "sourceMap": true,
        "target": "es6",
        "outDir": "./dist",
        "baseUrl": "./lib"
    },
    "include": [
```

So whenever we run the tsc command, all the ts files in the lib folder will be compiled to js files in the dist folder

```
tsc
```

Step 4: edit the running scripts in package.json

```
"scripts": {
    "build": "tsc",
    "dev": "ts-node ./lib/server.ts",
    "start": "nodemon ./dist/server.js",
    "prod": "npm run build && npm run start"
}
```

So, for the development, we can run a test server by running

```
npm run dev
```

For production

```
npm run prod
```

Step 5: getting started with the base configuration

You will need sooner or later the package body-parse for parsing incoming request data.

```
// lib/app.ts
```

```
        constructor() {
            this.app = express();
            this.config();
        }

        private config(): void{
            // support application/json type post data
            this.app.use(bodyParser.json());

            //support application/x-www-form-urlencoded post data
            this.app.use(bodyParser.urlencoded({ extended: false }));
        }

    }

    export default new App().app;
```

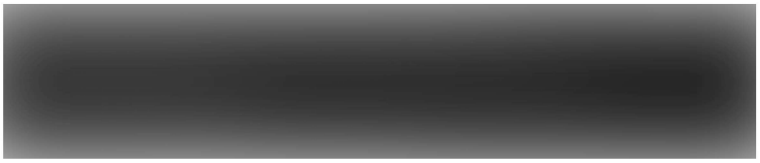
Create lib/server.ts file

```
// lib/server.ts

import app from "./app";
const PORT = 3000;

app.listen(PORT, () => {
    console.log('Express server listening on port ' + PORT);
})
```

From now, although you can not send a HTTP request yet, you still can test the project by running ***npm run dev***.



This is the end of **Part 1**. I will update **Part 2, Part 3, Part 4 and Part 5** shortly. In case you need to jump a head. Please visit my github repository for the full code.

https://github.com/dalenguyen/rest-api-node-typescript