Lappeenrannan teknillinen yliopisto

School of Business and Management

Sofware Development Skills

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LEARNING DIARY, FULL-STACK MODULE

**LEARNING DIARY**

15.6.2022  
  
I familiarized myself with the course. I am eager to get started with the course as I wish to develop my skills in software development. It is nice that there are first exercise projects as a “warm up” and then I can learn more and be creative with my own project. I chose Git for my version control. I have used it before this very little, so it is very useful for me to learn to use it more with a “real” coding project. I had previously used Gitlab as a repository hosting service but this time I decided to try Github. For my code editor for this course I have chosen VS Code as I have already used it so it’s easy to get started with that. I had previously already installed some extensions to my Visual Studio. From the link provided in the course material I realized it is very useful to get to know more with the extensions as there seems to be many extensions that make the developers work easier and faster.

I had to do some revision in basic functions in using Git. I had some problems with making a first commit and pushing it to Github. One of the problems seemed to be that my branch was named “master” locally but “main” in Github. I learned that “main” is nowadays the recommended branch name, so I changed the local repository to “main”. I somehow also struggled otherwise in pushing but finally with the step by step advises from the documents in github site it finally succeeded.

Before starting to learn more about Node, I studied little bit (as recommended in the beginning of the tutorial video) about the http response status codes and headers, MVC ( Model-View-Controller) design pattern and REST API’s.

20.6.2022

I started to learn about what Node is through the node.js -youtube courses / tutorials. I learned that Node is an Javascript runtime. Through node, we can use Javascript as a serverside language. Node is fast and efficient, and it can be used almost with anything that is not CPU intensive.

Through the tutorials I learned for example that:

* through Node REPL (Read-Eval-Print-Loop) it is possible to run JS through terminal.
* NPM (node package manager) is essential tool for running Node.js. It provides countless open source packages, which can be installed and interacted in node.js project through npm cli.
* Node module types are: core modules, local modules and third party modules.
  + Node core modules are for example: http, url, os, querystring, path, fs, util, event
* nodemon is a dev dependency tool that automatically restarts the node application when the file is changed
* a simple HTTP server can be started with Node.js
* through Heroku it is possible to deploy an application to the internet

First the syntax of Node.js seemed little difficult for me, especially as I haven’t much used serverside languages. There seems to be anyway good documentations available and after a while it felt more clear.

I did not have any bigger problems in accomplishing the exercises in the tutorials. Of course there were many typo problems but they were easily solved.

28.6.2022

I had problems in pushing to Git remote repository. I did not manage to push all of the contents of my git folder to remote repository, a subfolder could not be opened, and the contents were not accessible in remote repository. I searched help from stackoverflow and other internet sources and tried many things. Apparently the problem was that I had a .git folder higher up in the folder hierarchy. After removing that folder I could finally successfully push all of the contents to github.

29.6.2022

I watched the MongoDB crash course videos. I was unfamiliar with MongoDB before this but it was quite easy to catch up with it through the videos. I learned that MongoDB is a no-SQL database. It has advantages compared to relational databases, it is for example easy to scale and faster. The data is stored in collections. JSON -like syntax is used with MongoDB.

I followed the tutorial and successfully created, read, updated and deleted the data in my own Mongo database.

3.7.2022

I started watching the first Express crash course video and doing the exercise project. I learned that Express is a minimalistic web framework for node. It is a server-side framework. It is fast and most popular node framework

Compared to creating a server with pure node.js in the node crash course, with express it seemed that much less code was needed to build a server and web application.

Totally new things for me were for example middlewares, creating routes, express router function, and template engine express-handlebars.

I had couple of problems with implementing the express application (members app).

I could not register the handlebars view engine with the code provided in the video. From stackoverflow I found an instruction to update the path app.engine("handlebars", exphbs({ defaultLayout: "main" })) to app.engine("handlebars", exphbs.engine({ defaultLayout: "main" }));. By doing as advised there, solved the problem.

I also had problems with adding members through the browser, after confirming that adding members succeeded through postman, I realized the problem was in index.habdlebars -file. The problem was one extra quotation mark around POST in HTML-code.

In the project an API was build, where it was possible to create, update and delete members and render views.

5.7.2022

In the older Express tutorial same kind of application was build like in the newer tutorial. A database (mongo) was also used here, so it was a bit more like a “real” application compared to the application build in the newer video. It was also good rehearsal with Mongo here.

The template engine used in this project was called “ejs”. Different kind of syntax was used compared to handlebars but otherwise it seemed to work somehow same way.

I ran into a problem that I could not get the ajax call to work and get the users deleted from the database in Firefox browser, in Chrome it worked fine. In the video tutorial’s comments someone else had the same problem but there were not any solutions proposed. Unfortunately I did not manage to find a solution to this.

In the index.ejs -file I had problems to get it working, problem seemed to be in the syntax. Through stackoverflow thread I found out that I need to change the code a bit in “include-call”. I am not sure if the syntax used in the video was deprecated or if the problem was something else. After changing the line I got it working anyway.

6.7.2022

I started to study Angular, which was totally new to me. I started going through the Angular “Tour of Heroes” -tutorial but found the Angular syntax difficult so instead started to study first the syntax a bit for example through w3schools tutorials. I learned about the use of modules, directives, data binding, controllers, scopes, filters, http and services in Angular. I learned that Angular is an open-source front-end framework and is typically used to build single-page web applications. I also tried to learn little bit more about TypeScript, as I had not used it before, and TypeScript seems to be used with Angular mostly.

13.7.2022

I have gone through the Angular Tour of Heroes and got the application working coding along with the tutorial. I learned to use Angular command line interface, which is a tool to create angular applications and which helps to generate and configure components, services, dependencies etc.

I am still struggling quite a bit with learning Angular. I find it complicated to put pieces together with Angular, for example file structures are hard to perceive for me.

18.7.2022

I started to watch the MEAN Stack series and learned from the first video that this project will be covering for example topics like Node.js & Express REST API, Passport,js, MongoDB and Mongoose, JWT Authentication, Angular 2 and Angular-CLI, Angular2-JWT, Angular 2 Flash Messages and MEAN Deployment. It is nice to get to put things together and make one project, where all technologies that have been studied in this course will be used. Hopefully this will make things more clear to me.

In the second video it was advised how to start to build an authentication app back-end using node and express. There was useful repetition for example on setting up Express server and creating routes. Connection to MongoDB database was made with Mongoose module. Also middleware for the required dependencies were set up (cors, body parser..).

20.7.2022

In the third MEAN stack video an user module was set up, mongoose Schema was created and back-end registration functionality was build. Password encryption was implemented with NodeJS bcrypt library.

I struggled for long with getting the post request to get a user registrated working. I tried to find the problem from the code but finally I found out that the problem was that in the Postman POST-request I did not have the auto-generated headers on, only Content-Type -header.

It also took me until now when I realized that the abbrevitation “MEAN” comes from the names MongoDB, Express, Angular and Node…

26.8.2022

In the fourth video the authentication system was built and token system was put working. Now a user can be registrated to the API with MongoDB and by logging in, the user gets a JSON Web-token, which allows the user to get authorized to the protected profile route.

I had some problems with authorization to profile -route. To be honest, I am not sure what was actually the problem. After taking a break, it suddenly just was working even though I think I did not change anything in the code from the original.

4.9.2022

In the fifth video angular front end, components and routings were set up. Bootstrap navigation bar was also added.

I had problems with compiling the angular application. After the command “ng serve” it gave an error message “Invalid ‘reference’ directive syntax” in the “..node\_modules/@types//node/index.d.ts” From Stackoverflow I found discussion that this kind of error message could have been fixed by upgrading or downgrading the typescript version. I tried to change the typescript version to different versions but I could not get it working. From Stackoverflow I found also a hint to remove the first slash in the front of “/// <reference lib=”es2015” /> from the index.d.ts -file. After doing this, it compiled successfully.

I also had problems with bootstrap navbar. I assume that the problem might have been because of bootstrap updates. I copied the changed version of navbar.component.html from Brad Traversy’s Github and removed the “\*ngIf”, after that the navbar was shown correctly.

6.9.2022

In the sixth video markup was added to the homepage, the registering form was created to register page and a service was created to make a request to backend to register an user. Validation was added to check the correctness of the entered email address in the form. Also an Angular2 flash messages module was added to show flashing messages if a user for example doesn’t fill all fields in the form.

For some reason the layout of the register page did not display correctly. The top of the got partly hidden behind the nav bar. I did not succeed to find the solution to this, so I used a bubblegum fix and added couple of line breaks to the app.component.html -file after the app-navbar element.

7.9.2022

In the seventh video the registration functionality was created and the register form was connected to the backend API. This time I got everything working without problems.

In the eighth video login and logout functionality were created. In the login, the token and user data are stored from the server into the local storage. When logging out the local storage gets cleared out.

In the ninth video authentication functionality was added to make authenticated requests to protected routes. This was made by sending the token in the headers with the request. Also the logic was built to show or hide links in the navbar depending on if the user is logged in or not. Angular2-jwt library was used for this.

I had problems with building the application, I got an error message “Login sessions require session support”. From Stackoverflow I found out that apparently with express version 4.0 on, express-session should be installed and added to app.js -file (app.use(session[{secret: ‘’, resave: true, saveUnitialized: true})). After this I got everything working.

The tenth video was about deploying the app to Heroku. The cloudservice mLab for MongoDB databases, which was used in the video, was not apparently in use anymore. So instead of mLab, I registered to “Atlas” and created a free MongoDB database cluster there. After whitelisting all IP addresses (0.0.0.0/0) on my created Atlas cluster I managed to get connection from my Heroku application to the Atlas database. After this everything seemed to work like it should in my remote application. Address to my deployed Heroku meanauthapp: https://protected-shelf-59842.herokuapp.com/

Even though it was bit frustrating that some parts of the tutorial were deprecated and I had to spend a lot of time to try to find the solution to fix the problems, it was also educational. it was also a good reminder that things change very fast because of version updates and a coder has to always learn new and check updated instructions.

I did some recap of Angular by watching Brad Traversy’s video “Angular in 60 minutes” and after that went through the whole code in the Meanauthapp. Angular seems at least a little bit clearer to me now and now I understand better how Angular, Node.js, MongoDB and Express.js work together.

16.9.2022

I had not remembered to commit my coursework to git for a while. I added node\_modules to .gitignore -file and pushed all contents to git. I also cloned the whole repository to a new repository so that I can use the code of the “meanauthapp” to test things and to possibly use it as a base for my own project.

To get the cloned project compiled I had to edit again the index.d.ts -file and remove the first slash in the front of “/// <reference lib=”es2015” />”.

14.10.2022

I felt that I still had not understood Angular well enogh to be able to build an application with it. I was distracted about this, so I ended up taking a course about Angular in Udemy. I haven’t gone through the whole course yet, but I feel now that I begin to catch up how Angular functions much better.

I build a simple app using MEAN stack for making reservations to my rowing club’s church boat renting. There is a real need for this kind of an application, as at the moment the reservations are usually made by email and then the details of the reservation are brought manually to excel file. It would be necessary that the booking info would go straight from the person who makes the reservation to the database (or some other storage), where it would be easy to see all the reservations and get the details for invoicing.

For this project I updated my Node and Angular-CLI versions to the latests and noticed some differences with the syntax compared to the “meanstackapp”, where older Node and Angular-CLI -versions were used. Bootstrap was used with the layout.

I got the first step of this application working, so that the user can fill the details of the reservation to the form and by submitting the form the information goes to a MongoDB database. My purpose is to continue building this app but I will now return this as my project for this course. The next step for developing this app will be to add routing to redirect to another route after submitting the form (to show only the confirmation of booking on the site). The calendar should also be made in a way, that the user can see the availability of a boat and the reservation can only be made at times when boat is available. The new reservation should of course also update the calendar so that the time of the reservation will be then shown booked. The UI of the application need also some developing.