

Assignment: Riding on Rails

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Production version: <https://taskinate-app.herokuapp.com>

Overview

Looking back at the first day I received the assignment, I was excited but did not know what to expect for the next two months. The only thing I know is I want to join the CVWO team which is the perfect combination of my interest in voluntary work and programming. This let me ponder upon what I could do to prepare myself for future. The assignment is just like a bridge which has guided me from one who knows little about Web App development to one who are willing to take on more challenges. I am very grateful of this precious learning opportunity.

The experience of building an app independently from scratch is challenging and fruitful. I had never imagined that I could push myself to the boundary of learning to such extent before this assignment. It is a journey where I tried my best to absorb as much information as needed and process it into useful knowledge for my application.

I also did not know I am capable of building a functioning app with such useful features. It is amazing to see how the knowledge I learnt could be transformed into real impact. It is a great learning experience that taught me not only programming knowledge but also expectation management.

What I have achieved

I could hardly believe that I have really accomplished all the tasks that I listed in my To-do List in mid-assignment submission. The first thing that impressed me is the idea of CRUD operations on tasks and tags. CURD are something that are so common that ordinary people would hardly realise how fundamental they are. The moment I created CRUD methods in controller and see how they work, I feel like I had just printed HelloWorld for my assignment: it is an encouragement to keep on trying.

Then comes the idea of RESTful API. Initially I was building my MVC completely under Rails structure, but after talking to some of my friends who are also trying their best for this assignment and searching online, I feel building an RESTful solution might be more suitable. It provides significant flexibility and portability that might be more scalable in the long run. Although only two months were given for submission, I may want to continue to improve on the features beyond just the assignment. I then switched to building a Rails API and React frontend separately. It is interesting to see how two totally separated projects could communicate each other through the idea of RESTful.

At the point of mid-assignment submission, I feel that I have reached a bottleneck where I have implemented tasks model but have not touched on tags. I spent days to thinking how I should implement tags. Should I choose the easier way to just add another field in tasks model or should I link tags and tasks through many-to-many association? In the end I chose the latter. The reason is similar to why I choose

RESTful: I want to learn as much as possible and I want the project to be more scalable. Building a Todo list is the mean but not the end. I did not want to be limited by the seemingly safe choice. Such decision definitely means more anxiety because I was not sure if I did the right thing. I am glad that I did not give up. Otherwise I will feel regretful of not taking on the challenge.

Meanwhile, I really enjoyed UI/UX design. The material UI library is so interesting that I can spend days just browsing through it. Improving on the UI is similar to put together small pieces of puzzles and magical chemistry happens with just a few lines of CSS or Material UI elements. The visual impact is very interesting and motivating as I am always wondering how the apps in the market design their UI. Some of their elements look familiar to me after I started on this assignment.

I increasingly appreciate the importance of UX because a good app needs to make a good first impression on its users. Sometimes we might be too fixated on the functionality while forgetting the need to make the UX smoother and more pleasant. I feel this is especially important for my Todo list target users, who are anxious about tons of tasks and looking for a simple app to help them stay organised. It is not necessarily true that more complex functionality is merrier in this case. UI and UX are thus the intersection of simplicity and functionality.

Moreover, I managed to learn React router and React hooks. I tried to use hooks as much as possible instead of class components because I feel hooks are very powerful and may replace lifecycle methods sometimes. It is a relatively new feature that I want to explore.

I have also learnt about user authentication and hosting. There was debate on what kind of method (JWT or Session Data) developers should use for their user authentication. I decided to use HTTP Cookies and the Rails Session Data but still interested in learning JWT tokens in the future.

What I want to do in the future

- 1. User authentication:** Due to time constraint, I feel I did not learn enough about user authentication features. As a result, the current version of user authentication is not very stable or secure. I want to know more about JWT tokens and local storage. I also want to enable “forget password” and “edit profile” choices.
- 2. UI Design:** Sometimes I have nice ideas in mind but do not know how to implement those features due to insufficient CSS and design knowledge. I want to set time to learn design systematically and implement nice UI.
- 3. Add more features:** For example, add scheduled tasks and calendar view, and add subtasks under main task.
- 4. Learn Typescript, Promise, React context and Redux:** These are the things I think would be useful but did not manage to learn much due to my weak foundation in web development.
- 5. Clean up the code:** I feel I did not fully utilise the DRY react method as sometimes I am duplicating certain features. I also want to use states more wisely.

Learning points

1. **Be brave to try - Just do it:** My biggest takeaway is to be brave but not perfect. Building the project was like climbing mountains. You would not know how it feel until you have climbed to the peak. It takes effort and perseverance to reach one peak as I sometimes feel there is no way in front of me. It feels like I am walking in the dark. It is then very easy for one to choose to rest on one peak and become reluctant to go for the next summit because they do not want to experience the anxiety facing uncertainty again and again. There are many times I feel frustrated and do not know what to do. But I have successfully managed through it thanks to my friends and seniors. Sometimes the magic is to just believe in yourself.
2. **Be patient to learn:** I was anxious in the beginning because I know so little that I did not know what is a reasonable goal for myself. The steep learning curve propelled me to absorb knowledge as fast as I can and I slowly figured it out. Now I think the correct mindset would be not to waste time worrying about potential failure, but just be patient to understand the knowledge at hand.
3. **Be meticulous and do not overestimate the difficulty:** It happened several times that a bug that blocked me days is due to small typos. The error messages look intimidating, but after a while I started to change my mindset that actually error messages are here to help. And never overestimate the difficulty in front of me.
4. **Cope with expectation:** There are simply too many ways to accomplish the same thing in today's information age, so how to select the most relevant and useful method becomes essential. Although I recognise the importance of learning as much new thing as possible, it is strategically important to decide what are the really necessary things needed to build my app and what is the reasonable amount of extra things I could learn. Learning less is sometimes learning more especially in terms of building a solid foundation. So in the future I may need to look back on what I have done and reflect on how I can improve on it.

Conclusion

Just as a Chinese saying goes: Small as it is, the sparrow has all the vital organs. A Todo list is simple but complete. It entails many essential features that are relevant in larger scale projects. I would like to thank CVWO team for this unique and precious learning opportunity. This "HelloWorld" project has opened a whole new world of web development to me and sparked my deep interest in exploring more. Moreover, a Todo list application is also useful for myself who are looking for similar product so I really enjoyed what I did.

There are challenges and seemingly impossible difficulties along the journey, but it turns out that everything will be fine magically if I put in consistent effort. Even if it turns out not okay, I will not regret trying my best as I have learnt so much along the way. My Todo list app named Taskinate is still very basic, and my learning never stops.