Frontend Technology

Option 1: Vue + Javascript

I was considering doing Vue especially because I read online that Vue is more beginner friendly than react. However, Vue is smaller compared to React, and React is a more popular framework. I strongly considered Vue because I'm quite new to Javascript development, but I ended up not choosing it because I haven't done Javascript since grade 10, and I wanted to relearn the language and become more familiar with it first before taking on a new framework.

Option 2: React + Javascript

React is in my opinion the best framework to use this assignment but it is difficult to learn. React has a steep learning curve and requires advanced Javascript. Like I said before, I haven't done Javascript in years so I thought that React would be too much for me to handle as I need to understand the basics beforehand. However, React is the most popular and practical library, and it has the most potential to be used in the future. It is also the most complicated, which is both good and bad. It would pay off if I spent the time to learn it, but it's also very hard to learn. I decided not to use React because I didn't feel I was familiar enough with Javascript.

Option 3: JQuery + Javascript

JQuery is the fastest and smallest Javascript library of the three. It is the easiest framework, and only requires basic knowledge of Javascript as well as HTML and CSS. The disadvantages of JQuery is that I'm not learning something that I will be using years in the future. I'll probably be using react instead as it's a more advanced version. However, JQuery is a stepping stone in my progression as a front-end developer. It is easy, and will give me room to focus on my understanding of Javascript instead. This is why I chose JQuery.

Backend Technology

Option 1 : Javascript

Javascript is capable of computing the functions that are required for a calculator. In addition, Javascript is a very flexible language that allows for many frontend and backend functions. Javascript is an extremely popular language that is a staple for more software engineers. It is simple yet effective, and has many interfaces and libraries that I can build upon in the future. I

haven’t done Javascript in a few years, so I thought this assignment would be a good opportunity for me to get back into the language.

Option 2: Python

Python was another option that is also simple, popular, and has lots of libraries. I personally like the python syntax as it's harder to make bugs and typos. Python is highly compatible with most functionalities, and has a variety of frameworks. It is widely applicable too. I decided not to use Python because Javascript was in the frontend, so I thought it would be more convenient to use the same language in the backend.

Option 3: Django

Django is fast, secure, and very popular. Django is good for web development as Django was made for rapid development. However, I read that it wasn’t for smaller projects, and this project is very small. In addition, this framework is used along with Python, as I didn’t pick python for reasons stated above. If I was using python already, I would have picked Django.

Database Technology

Option 1: PostgreSQL

PostgreSQL is the most common and widely used database. I am fairly familiar with this as I am taking CSC343 currently, and it is teaching me functions. However, PostgreSQL has a fairly low reading speed compared to other database libraries. For my case, I won’t be working with lots of data for this to matter, so this shouldn’t be an issue. The biggest advantage of PostgreSQL is that it is extremely programmable, and has many ways to extract and manipulate data. I picked PostgreSQL because of my familiarity and it doesn’t matter that the reading speed is slightly slower since I’m not working with much data.

Option 2: Redis

Redis is another library I was looking at as it supports caching, which is a temporary storage for data so it can be extracted faster. A big con would be that the dataset is stored in RAM, and this could be an issue for those who don’t have much spare RAM on their computers. It also has memory fragmentation issues. Finally, the syntax is a pain and I don’t want to run into bugs. Therefore, I did not choose Redis because not only can it cause problems for some people to run, but it is also syntax difficult.

Option 3: Mongoose

Mongoose is a schema based solution for data. I read that it can take some time to learn Mongoose. In addition, encapsulation is very difficult in Mongoose. A pro is that it has data validation built into it, which would take work from me for it to be complete. I think mongoose is too complicated, and that it would take too long to learn. I have no use for its additional features so I would rather use PostgreSQL which I'm more familiar with and is overall easier to use.

Summary

I have decided to use JQuery along with Javascript as my frontend, and Javascript as my backend. My frontend is HTML and CSS, which has been enhanced by JQuery. I used HTML and CSS to create buttons and text boxes, as well as the overall interface appearance. I then added JQuery, which causes the text to update, as well as adding additional visually pleasing functions. The JQuery is connected to the backend and when I click on a button to retrieve information, the JQuery will run and cause changes to the webpage. In the backend, the Javascript computes the math, and I have an array on functions. The Javascript also keeps track of the items listed. It has functions where it also tells the frontend to update the price and item list if a button was to be pressed. It also does the mathematical calculations to see how much the total price is.