WEB701

Assignment 1

Documenting practice reviews

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Milestone 1 Review (DESIGN)

For the first milestone many activities were covered in the initial introduction and design of the course project. The course project is to look at design of a website, evaluate web technologies and build a full stack website based on a selected technology. This allows for a project that can be used as an example for future work with web technology.

In a step-by-step process the outcomes of this project I will be able to:

- Analyse and critically compare existing web application frameworks
- Modify a database-driven dynamic application to meet specified requirements
- Implement and then critically assess the use of modern web technology in a specific business context
- Research emerging web technologies and justify their potential role in advanced web systems. How are the web technologies used in a range of different situations.

The beginning weeks an introduction to web technologies was covered along with information architecture, frameworks, installing frameworks and API to database work. Also included as the first milestone hand in is the project brief and design of the purposed web application. This was presented in report format.

During the introduction to web technologies, I found it to be straight forward as I felt I had some good baseline knowledge coming from previous courses of web technology. What was interesting was doing the beginning practical work for setting up what would later become the basis of the web application project, this of course being the web stack installation.

The stack of the web project is of course the overall frameworks. Initially, I investigated MERN and MEAN stack these of course being:

MERN

- Mongo DB - Database
- ExpressJS – Backend web application framework
- ReactJS – Front end web application framework
- Node.js – Backend run time environment

MEAN

- Mongo DB - Database
- ExpressJS – Backend web application framework
- AngularJS – Front end web application framework
- Node.js – Backend run time environment

Both stacks are near identical apart from the front-end web application framework. I have had some previous experience with React, so I saw this as a great opportunity to dive in deeper and increase my knowledge on the framework even further. When it came to Angular, I have never used its front-end framework. This would be another great opportunity to expand not only my knowledge, but my skill set as a software developer.

Surprisingly installing both these stacks was relatively straight forward. Both had excellent documentation but if I had to be picky, React's documentation was much more friendly and up to date in my opinion.

After the installation of both stacks, following the course schedule, it was time to do some backend work. This predominately consisted of Controllers, routes, and API stubs/Calls to and from the database. I saw this as a positive reinforcement of knowledge experience/activity. As mentioned, having some initial experience with React and in turn the MERN stack previously from another course allowed me to build the server-side backend with relative consistency. I enjoyed building, structuring, and seeing my API calls to the database fire off with success.

Lastly, in combination with the practicality of the project a web application design brief/ report was put together. The brief consisted of a business scenario/context. Its purpose, to build an online charity web application of our choosing. My chosen website was to be an online clothing charity store that allowed users to donate items and other users to claim/collect items.

The project brief is always exciting to put together, allowing for investigation and design into how the app will look, feel, and function for its indented users/audience. I particularly enjoy investigating and composing competitive analysis, UX/UI, and user centred design. There are so many great designs of websites out there and it's fascinating to see what features and functionalities they have. This helps me draw upon and take inspiration from.

Milestone 2 review (EVALUATE)

During this milestone the main goal and purpose was to compare web frameworks for final implementation of the project.

There were multiple parts to this milestone including:

- A report of the purpose of web frameworks and common features
- An evaluation of two web frameworks that are chosen for use on the project
- A conclusion in the report of the final chosen framework to procced with for the next milestone

To start, since I had already chosen (previously) two frameworks being MERN and MEAN I found this a good place to begin some research into each of the frameworks and web frameworks in general. This is best practise for a software developer to continuously be keeping up to date with the latest web technologies and continually learning in self-development to not only sharpen skill sets but learn new ones to be adaptable.

After conducting research on the two frontend frameworks, I found another frontend framework that was newer and interesting. This new frontend framework being Svelte. Based on the chosen frameworks of MERN and now the newly chosen MESN, the frameworks are very similar in design, the only point of differences were realistically going to come from the two frontend frameworks

The main points of difference between React and Svelte are:

React

- Creation of interactive UI elements.
- Virtual browser based
- Declarative views and components make it easy to write code and manage the state of components.

Syntax of component:

```
function Welcome(props) {
  return <h1>Hello, {props.name}</h1>;
}

const root = ReactDOM.createRoot(document.getElementById('root'));
const element = <Welcome name="Sara" />;
root.render(element);
```

Svelte

- Also focus on building UI elements
- Acts like a compiler of sorts. Compiling the code upon building the app and surgically updating the DOM
- Components are also used but different syntax
- Faster code
- Simplistic

Syntax of component:

```
export default Signup

<script>
  // logic goes here
</script>

<!-- markup (zero or more items) goes here -->

<style>
  /* styles go here */
</style>
```

To comprehend these points of differences as part of the evaluation prototypes of both stacks were to be designed, built, and implemented. Due to time constraints this was hugely challenging for me. The line between prototype and near early alpha like build of the web application in both stacks was becoming blurred. I found myself overwhelmed to keep up with the task and deliver the project milestone on time. The part that made this a challenge was implementing prototype features as some features are not possible without others being also implemented.

Overall, I fell that the rush of achieving the deadline for milestone 2 did not solidify my understanding of the new Svelte framework. My work felt rushed and, in some areas, incomplete. This is the challenge of deadlines and a simple fact that as a software developer there is a need to be adaptable and be able to deliver quality standard of work as best, we can with what time is available to us. There are lessons and perhaps ways to manage challenges like that with certain techniques. It is something that comes with time, experience and help from other developers/mentors.

Milestone 3 Review (DEVELOP)

At this stage in the project and for the remaining course weeks, it was time to pick a web framework after designing and evaluating previous frameworks. The chosen framework would be used with the aim to implement it within the scope of the purpose project brief and chosen charity. Also, an investigation into an emerging edge web technology took place.

My final chosen web framework was the MERN stack. The reason is because React is well established, stable and has rich community support. It has many libraries at its disposal and being compatible with multiple devices is a safer bet for the current purposed web application.

The next step I began my work on taking the existing prototype, fleshing out all the functionality that was needed to meet the requirements as per the project design brief. I had to rewrite a substantial amount of code and redesign certain aspects to present a cleaner/simplistic approach.

One area I struggled with was the token creation and usage between both members and beneficiary users of the project. I overhauled the voucher/credit system and instead opted for a token system which largely operated the same as the credit system. A user had a set number of tokens to use within a certain period. I added the functionality for use and subtraction of used tokens, along with the refreshing/resetting of said tokens. This iteration proved to be much more simplistic for all users in my opinion.

The transaction/token claim procedure was another great challenge that I still believe could be improved upon, as with all things, I believe there is always room for improvement. Originally, I had the transaction as a confirmation from both users that they would "tick off" their respective sides to say that one had received the order and the other had confirmed that the order had been claimed. After deliberating on this I found that having the action from one side confirm the order would be a much safer and easier approach.

I began through another iteration to refactor the code to suit that requirement. The member now has an interface that inputs the beneficiaries code to confirm the order's authenticity and then updates the order status to be completed and then show on the beneficiaries' end.

After the functionality was mostly complete, I proceeded to design the rest of the web application with interactive and visual elements for the UX/UI experience. This is my favourite part, being able to create something the user will interact with. First impressions of a webpage matter and can lead to continued engagement of a user or they may look elsewhere.

As per the brief and my design I tried to stick as close to the original design as possible but as always, this experience allows me to recognise areas of my development that need improvement. I can't wait to investigate and practise new techniques when it comes to UX/UI design of a website and produce something that wows a user and produces high quality user centred design.

Overall, this course has taught me a lot about time management, guided me to learn new and exciting skills. It has also sharpened existing skills and allowed me to produce a project that I can use as a working example moving forward to showcase for my own career development.