**5-2 Milestone Four: Enhancement Three: Databases**

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**Narrative**

**Briefly describe the artifact. What is it? When was it created?**

The artifact used within this category of enhancement is the same as the first enhancement. It is a full stack single page application (SPA) that displays trip information for a vacation booking website. The SPA is meant to provide an easy-to-use UI for server-side CRUD functionality, so that administrators of the site can add, view, modify, and delete trip data as needed. Data is contained within a MongoDB database as the project was based around the MEAN stack. The front end UI of the SPA was constructed using the Angular framework and its components in compliance with the MEAN stack as well. This artifact was originally completed during CS-465: Full Stack Development as the final project of the course.

**Justify the inclusion of the artifact in your ePortfolio. Why did you select this item? What specific components of the artifact showcase your skills and abilities in software development? How was the artifact improved?**

Previously mentioned in the narrative of the first enhancement, this artifact was chosen because it was not functional by the time it was submitted in the CS-465 course. This was due to logic conflicts between versions of the Angular framework used to build the SPA’s components, and the version the guide utilized within the course materials. Because the project remained incomplete once the course had finished, I had hoped to address the logical errors present within the SPA. So that I could have a working full-stack application to add to my portfolio as was the original goal of the course. Regarding the SPA’s components, its nature as a full-stack application requires the usage of various front and back-end development skills. These include the ability to design and implement database structures, establish database management tools (CRUD functions), create RESTful APIs, design easy to use user interfaces, utilize multiple development languages, etc. Because the SPA is based on the MEAN stack, different technologies and frameworks were required throughout development. Showing capability to adapt these technologies together through problem solving and critical thinking skills. At the time of writing, I have hit a roadblock in the process of enhancement. Previously, progress had been consistent until the login component of the SPA needed to be addressed. I provided insight within the first enhancement narrative regarding how the objective after correcting multiple errors and updating package versions was to address the login screen. I managed to successfully establish button functionality so that login credentials could be input and set authenticated credentials to the user database with a JSON web token. But each time the credentials are entered, an error occurs when trying to read what the page labels as an undefined variable for the token. Even though the system returns a token when testing different methods in Postman and the code has token parameters defined. At this point, I feel it is better to move back to an earlier branch of the program, add each component back one by one, and test them to determine what underlying errors exist. I will continue working on the SPA until it is due for this Module, but just note that it will likely be missing many features from the previous submission since I am leaning towards starting over.

**Did you meet the course outcomes you planned to meet with this enhancement in Module One? Do you have any updates to your outcome-coverage plans?**

Unfortunately, most of my experience with enhancing each artifact has been met with obstacle after obstacle. As such, I feel as though I still have not made much progress in reaching any of the course outcomes I planned in Module One. I was closest to meeting outcome number four after the first enhancement submission back in Module Three. But as I have hit another obstacle with no determination as to why, it appears that what little progress I made back then is rapidly dwindling. Enhancement number two was planned to meet outcome number three, but each test I ran for the reinforcement learning algorithm was much slower than the original. And this current enhancement was proposed to meet course outcome number two, which shows the ability to design, develop, and deliver professional-quality oral, written, and visual communications that are coherent, technically sound, and appropriately adapted to specific audiences and contexts. And since this enhancement uses the same artifact as the first enhancement, progress on meeting this outcome has also halted now. The idea was that the UI of the SPA, when functional, would provide professional quality visual communications to an audience that would use it to facilitate server-side operations to a travel booking website. As is, the program cannot even load the main page since the login page does not accept any credentials. As such, the course outcome cannot be met in the SPA’s current state. As for updates, I mentioned above that I am planning on starting over at an early branch of the SPA and trying again. I am also going to attempt setting up a virtual machine to run my algorithm artifact for the second enhancement to see if that improves its efficiency. That way, there is still potential for me to achieve the planned course outcomes.

**Reflect on the process of enhancing and modifying the artifact. What did you learn as you were creating it and improving it? What challenges did you face?**

As I have not made much progress modifying the artifact this time around, there was not much I could learn. As mentioned, I was able to establish sign in button functionality to input login credentials. And I posted authenticated credentials to the user database through Postman to obtain a JSON web token. In that short time, I experienced verifying JSON web token signatures, which can be used as a learning experience in future projects requiring JWT generation and authentication. The main challenge during this round of enhancement though was that the login page would not accept the JWT, labeling the token variable used for JWT generation as undefined. Even though tests in Postman would return a JWT upon posting login credentials, and the code contained definitions of the token variable. I could not find any useful information on how to address this issue either, so now I am leaning towards returning to an earlier branch of the project. Possibly leaving out the login component in the final submission as well if I cannot find a solution to this issue after starting over. Just as long as the CRUD functions are working and the trip data is properly displayed on the home page.