Software Engineering Group Project Write-Up

CS 3773-01T

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Group 1

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Group Project - Write-Up of Back-End Implementation

For the Software Engineering Group Project of the Summer 2023 course at the University of Texas at San Antonio, Group 1 decided on implementing an administrative dashboard with back-end functionality. Group 1 members consist of Brandon Evins, Riley Jackson, John McCann, Aaron Perez, Lasya Yakkala. It was decided in the beginning of the group project to implement a MERN stack as the foundation of the ecommerce administrative dashboard. A MERN stack is a collection of technologies that enables faster application development that includes the Mongo Database, Express JavaScript, React JavaScript, and Node JavaScript. This is the heart and soul of Group One's project. The group project that was created can be broken up into three distinct parts, the first being the front-end of the ecommerce website, the application programming interface that connects to the Mongo Database, and lastly the admin dashboard.

First and foremost, Group 1 had an unshakable faith at the beginning that the implementation of the group project would lead to all group members having a better understanding of how an ecommerce website functions and by extension how a website operates at a fundamental level. Group 1 originally created the front-end of the ecommerce website as a test of how to design a React application and to better understand the flow of information from a website to a database. With the input from the group, the front-end underwent a major overhaul to its current finished state. The front-end, which began as an experimentation, flourished and became a part of the application.

By focusing on the back-end aspects of the project, the group would have hands-on experience working with application programming interfaces (APIs) and a thorough understanding of the open-source Javascript library, "Redux," which manages the application state of the React application. All group members learned a great deal about working with APIs and Redux. Additionally, the API included the model schemas which represent the core aspects of the project such as users and the corresponding information. Next, a route was created on how to handle the models and how to input data into the database, how to retrieve the data, how to modify the data, and lastly how to delete the data. This was all done inside the API portion of the project.

After finishing the front-end portion and the API portion of the application, the group shifted towards creating an admin dashboard which connects to the Mongo Database. Using the lessons learned from creating the front-end, the admin dashboard was created with simplicity in mind. With a sidebar to help navigate through the various functions of the admin dashboard, the group began the tedious process of connecting the admin dashboard to the API or the back-end of the application. This was achieved by copying the Redux that was already created in the API portion, creating the slices needed to understand the API, and finally the apiCall, the heart of the dashboard. The justifications of the group valued simplicity, and that was achieved with the admin dashboard. That concludes the brief overview of Group 1's group project, the back-end admin dashboard and the basic functions that are used in the project.