**ENHACEMENT TWO: ALGORITHMS AND DATA STRUCTURES**

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The artifact I selected for my ePortfolio originates from the CS-319 UI/UX Design course, with the implementation knowledge I gained in the CS-360 Mobile Architecture and Development course. The project is an app I developed called SHOP HEALTHY! which is designed to help health-conscious consumers make informed decisions by allowing them to choose their dietary preference and scan product barcodes to quickly access ingredients information before purchasing.

A screenshot of a computer program

Description automatically generated

In Module One, the proposed enhancement aimed to improve the efficiency of the ingredient matching algorithm in SHOP HEALTHY! App. Initially, the application I created in CS-360 utilizes a list-based data structure to store and search. In this development, I implemented a HashMap, which allows for constant time look up. This enables the app to quickly retrieve ingredient information based on the scanned barcode. The code I implement uses a HashMap<String, String>, where the barcode is the key and the corresponding ingredient data is the value. By using this data structure, the app can now efficiently search for ingredients and provide immediate feedback to the user upon scanning a product. This enhancement can improve the user experience by reducing the time needed to retrieve ingredient information. A screenshot of a computer program

Description automatically generated

The process of enhancing and modifying the SHOP HEALTHY! App is teaching me valuable lessons about both mobile development and optimization. One key takeaway was the importance of choosing the right data structure for the specific task. By switching to a HashMap, I ensured the app could efficiently handle larger datasets in the future, all while providing users with improved performance and a smoother experience.