**SOFTWARE DESIGN AND ENGINEERING**

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COMPUTER SCIENCE CAPSTONE

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The artifact I selected originates from the CS-319 UI/UX Design course. It is an ingredient scanner application designed for grocery shoppers with dietary restrictions, offering features to help users make informed decisions about the food they purchase.

The specific artifact from my ePortfolio is an application I initially conceptualized called “SHOP HEALTHY!” designed to function as an ingredient scanner for health-conscious consumers. The original output was a preliminary layout that served as both a visual and functional mockup, outlining the structure I had envisioned. For my Capstone project, I aimed to transform this concept into a fully functional application, using the original design as a foundation.

To develop this app, I used Android Studio to showcase the design while coding the initial login screen. My goal was to demonstrate the progression from a theoretical mockup to a working login screen, illustrating my ability to apply UI/UX design principles in a real-world setting. This highlights my skills in both front-end and back-end development.

Focusing on key functionalities, I implemented a secure login and sign-up system, which is critical to user interaction and data protection. I also ensured that the login screen adapts seamlessly across different devices and screen sizes, demonstrating my knowledge on mobile-friendly development.

Reflecting on the process of enhancing and modifying the “SHOP HEALTHY!” application, I learned how to balance aesthetics and functionality. The layout needed to be visually engaging without compromising usability. Additionally, I realized the importance of focusing on security, particularly with password protection, to ensure secure authentication. This emphasized the need for careful consideration of privacy and data protection when designing user interfaces.

One of the challenges I faced was managing the scope of the initial project. Initially, I intended to develop more screens and features, but I quickly realized that focusing on a single and critical component such as the login screen allowed me to ensure quality and attention to detail. Limiting the scope helped me avoid spreading myself too thin and ensure the final product was polished and functional for use.

Below is the original flowchart for the UI/UX design of the “SHOP HEALTHY!” app. This flowchart represents the initial mockup and outlines the key design elements required for development. It highlights the user journey from login to core functional of the ingredient scanner, ensuring all necessary components were considered. The flowchart served as a blueprint to guide the design and ensure consistency throughout the development process.

A screen shot of a cell phone

Description automatically generated

For the construction “SHOP HEALTHY!” app. I have implemented a layout using Androids XML structure. The *LinearLayout* serves as the main container, organizing elements vertically while centering everything on the screen. I applied a custom background using a design created Canva to align with the app’s theme, I used t*ools:context=”MainActivity”* so that I can easily preview the layout in Android Studio. Within the layout, I added a *CardView* to act as a container for key elements like the login field and header. I gave the *CardView* a nice, rounded corner and some elevation to create a visually appealing look. Inside, there are two *EditText* files, one for the username and one for the password. The username filed is set up to handle email input, while the password field uses a secure input type to mask the text. Both fields are enhanced with drawable icons to make them more user friendly.

Below the input fields, there’s a *TextView,* with the title “EAT HEALTHY!” displayed in bold. It’s centered on the screen to catch users’ attention and kind of reinforce the apps branding. After *CardView,* I included another LinearLayout that holds two buttons, one for logging in and the other for signing up. These buttons have a purple background, and rounded corners aimed to stay consistent with the app’s design.

The goal is to show case my ability to create a functional and visually appealing login screen that adheres to strong UI/UX principles, while also demonstrating my skills in transforming the design into a complete software development solution.

I have attached a preview of the “SHOP HEALTHY!” app after construction the code based on the original UI/UX design mockup.

A screenshot of a computer program

Description automatically generated