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CS-499 Computer Science Capstone

7-1 Final Project

**Professional Self-Assessment**

Completing the CS-499 Capstone and developing my ePortfolio has been an eye-opening experience, allowing me to reflect on the skills I’ve gained throughout the program, particularly through CS-360: Mobile Architecture and Programming. This process has highlighted my strengths in mobile application development, software engineering, and database management. My work on the Weight Tracking Android Mobile App showcases my ability to design functional, secure, and scalable applications that solve real-world problems.

1. **Coursework and ePortfolio Development**
2. **Collaboration and Team Environment**

Although I worked independently on the WeightTrackingApp, the experience highlighted the importance of taking ownership of the entire development lifecycle. Working solo required me to manage multiple aspects, from user interface design to backend database integration, while maintaining a high-quality standard. I had to make design decisions and troubleshoot without the immediate feedback a team setting provides, which improved my problem-solving and self-reliance skills. This experience allowed me to practice thorough documentation and planning, critical for maintaining clarity when working without direct collaboration.

1. **Communication with Stakeholders**

One of the key takeaways from this course was learning to develop user-centric mobile applications. Though I didn’t work directly with stakeholders, I designed the WeightTrackingApp with the end user in mind, focusing on intuitive navigation and user-friendly interfaces. This project helped me understand how to translate user requirements into functional app features, an essential skill for communicating effectively with non-technical stakeholders in real-world projects.

1. **Data Structures and Algorithms**

CS-360 emphasized the importance of applying appropriate data structures and algorithms for performance optimization. In the WeightTrackingApp, I implemented a moving average algorithm to predict weight trends based on user input. This demonstrated my ability to integrate algorithms that improve functionality while maintaining efficient performance, which is critical when dealing with user data over extended periods.

1. **Software Engineering and Databases**

One of the most significant improvements I made to the app during the capstone was transitioning from SharedPreferences to an SQLite database for better scalability and data management. This project allowed me to demonstrate my understanding of software engineering principles, particularly in mobile architecture and database integration. I utilized the MVC design pattern to organize the app’s structure, separating the user interface from business logic and data management, which made the application more maintainable and scalable.

1. **Security**

Ensuring the security of user data was a critical aspect of the WeightTrackingApp. I applied industry best practices by integrating PBKDF2 hashing for password storage, ensuring that user credentials are securely handled. This enhancement shows my understanding of secure coding practices and my ability to safeguard sensitive information, which is a crucial skill for any software developer.

1. **Artifact Summary and Introduction**

My ePortfolio focuses on the Weight Tracking Android Mobile App developed during CS-360: Mobile Architecture and Programming using Android Studio. This artifact highlights my skills in mobile application development, database management, and secure coding practices.

* The WeightTrackingApp demonstrates my ability to design and build a functional mobile app from the ground up. It showcases my proficiency in implementing SQLite for managing user data such as weight entries and goal weights, and optimizing the app's performance by using appropriate data structures and algorithms.
* I implemented the MVC design pattern to ensure the app remains scalable and maintainable, which is essential for developing applications that can grow and adapt over time.
* I also applied secure coding practices, such as using PBKDF2 password hashing, to safeguard sensitive user information, reflecting my focus on building secure applications.

This artifact serves as a comprehensive demonstration of my technical skills in mobile development and software engineering. It reflects my ability to design and implement solutions that prioritize usability, performance, scalability, and security.