**Professional Self-Assessment: A Reflection on Growth and Technical Mastery**

Throughout my Computer Science program, I have embraced challenges that pushed me to grow as a developer, thinker, and collaborator. My coursework and capstone project, a weight tracking Android application, have not only sharpened my technical abilities but also shaped my professional identity. This self-assessment reflects on my journey, the skills I’ve cultivated, and how my portfolio artifacts demonstrate my readiness for a career in software engineering.

**Strengths, Professional Goals, and Employability**

My academic journey has been defined by hands-on learning, collaboration, and a commitment to writing efficient, maintainable code. Early in the program, I recognized the importance of teamwork in software development. During a database design course, my team and I created a library management system, where I took ownership of query optimization. This experience taught me how to communicate technical decisions clearly and delegate tasks effectively, a skill I later applied while refining my capstone project.

Communication extends beyond team collaboration; it also involves translating technical concepts for stakeholders. In a software requirements course, I crafted user stories and wireframes to bridge the gap between developers and end-users. This skill proved invaluable when enhancing my weight tracking app, where I prioritized user feedback to refine features like input validation and theme switching. By ensuring the app provided clear error messages and intuitive interactions, I demonstrated my ability to balance technical rigor with user-centric design.

A strong foundation in data structures and algorithms has been critical to my growth. While academic exercises, such as implementing Dijkstra’s algorithm, honed my problem-solving skills, my capstone project demanded practical application. I optimized sorting mechanisms (by date and weight) and implemented averaging calculations directly in SQLite for performance efficiency. These enhancements required careful consideration of edge cases, such as empty datasets, reinforcing the importance of robust, real-world algorithm design.

Software engineering principles guided my approach to system architecture. Initially, my weight tracking app relied on a monolithic structure with tightly coupled components. Through iterative refinement, I adopted the Model-View-ViewModel (MVVM) pattern, integrated Room Database for persistence, and decoupled business logic from the UI. This transformation underscored the value of modular design and maintainability, a lesson I now apply to every project.

Security, though not the initial focus of my capstone, became a priority as the app evolved. Early versions lacked input validation, leaving the system vulnerable to crashes from malformed data. Drawing from cybersecurity coursework, I implemented sanitization checks and structured error handling, ensuring the app remained stable and secure. This experience highlighted how proactive measures can prevent costly issues in production environments.

**Artifacts and Portfolio Overview**

My ePortfolio artifacts, **Software Design and Engineering**, **Algorithms and Data Structures**, and **Databases**, are interconnected milestones that showcase my technical progression.

The **Software Design and Engineering** enhancement marked a turning point in my app’s architecture. By migrating from raw SQLite to Room Database and adopting MVVM, I demonstrated my ability to modernize legacy systems. Features like LiveData observation and theme persistence via SharedPreferences reflected my attention to user experience and maintainability. This artifact is a testament to my commitment to professional-grade development practices.

In the **Algorithms and Data Structure** enhancement, I tackled real-world challenges in data processing. Sorting mechanisms and dynamic averaging algorithms required careful optimization to ensure responsiveness. I also introduced a lightweight, text-based visualization—proving that effective data representation doesn’t always require complex libraries. This artifact underscores my ability to innovate within constraints while prioritizing performance.

The **Databases** enhancement revealed the importance of resilience in software systems. Threading issues initially caused crashes during database operations, but by implementing background threading and LiveData chains, I transformed a fragile feature into a reliable one. This artifact exemplifies my problem-solving process: diagnosing issues, iterating on solutions, and leveraging tools like logging to ensure stability.

Together, these artifacts illustrate my holistic approach to development: architecting scalable systems, optimizing algorithms, and ensuring data integrity. They also reflect my growth mindset as each challenge became an opportunity to learn and improve.

**Conclusion**

This program has equipped me with more than technical skills; it has instilled a philosophy of continuous improvement and user-centric design. My capstone project, once a simple weight logger, evolved into a polished application through iterative enhancements and a willingness to tackle unforeseen challenges. As I transition into the professional world, I carry forward the lessons of collaboration, adaptability, and meticulous craftsmanship. My portfolio is not just a showcase of work but a narrative of growth and a promise of potential. I look forward to applying these skills in dynamic environments and contributing to impactful software solutions.

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