CS-499 Computer Science Capstone

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# Milestone Two

## Enhancement One: Software Design and Engineering

The artifact I chose to enhance is the Forgot Password feature for the Card Grove application, initially created during my coursework in mobile application development. This feature allows users to securely reset their passwords by requesting a temporary password sent to their email and then setting a new password upon login. The original implementation provided a basic workflow, but it lacked robust security measures, clear user flows, and industry best practices for managing sensitive information. The enhancement was made as part of my capstone project to demonstrate my growth in software design and engineering practices.

I selected this artifact for my ePortfolio because it highlights my ability to design user-centered features while implementing secure and maintainable software. The enhancements to this feature showcase my skills in building dynamic user interfaces, designing workflows, and integrating backend functionality. For example, I improved the feature by adding password validation, secure storage and handling of temporary passwords, and user-friendly layouts that align with real-world software design standards. These improvements demonstrate my ability to analyze a problem, apply modern software engineering principles, and deliver a complete solution that prioritizes both security and usability.

Through this enhancement, I achieved several course outcomes related to software design and engineering. By revisiting and refining the artifact, I improved my proficiency in designing secure workflows and implementing solutions that address real-world scenarios. I also demonstrated my ability to integrate database operations and user interface updates seamlessly. This experience validated my outcome-coverage plans from Module One, as I successfully incorporated industry best practices while achieving a user-centered, secure design.

The process of enhancing this artifact was a valuable learning experience. I learned how to balance usability with security, such as implementing access controls and managing sensitive data like temporary passwords. One challenge I faced was ensuring a seamless user flow between the Forgot Password and Reset Password activities, particularly when handling layout inconsistencies and debugging database operations. Through these challenges, I strengthened my debugging skills and gained a deeper understanding of user authentication workflows. This enhancement allowed me to solidify my ability to design, implement, and improve software in alignment with professional standards, making it a strong representation of my skills in software engineering.