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CS499  
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21 September 2024

The artifact that is being displayed in this enhancement is a mobile application from my CS 360 class. This Application is an inventory management system, it features a login screen and a database interface. The app also has SMS functionality built in; it will send users a notification whenever an item reaches a quantity of ‘0’. This artifact was created in August 2024.

I chose this artifact to display my knowledge in software development. This item displays my knowledge as well as my creative expertise. In this artifact we were not only responsible for the functionality but also the style of the interface. More specifically, this artifact displays my knowledge of managing data in a database environment, I can create proper user interfaces that give users access to CRUD commands as well.

In this enhancement, I added input validation to the add item screen. This prevents users from inserting items that can break the system or even the database. I also created user settings like theme, SMS quantity, and SMS delete. These settings are tracked in the user database. The theme is a binary value where the theme is either light or dark. SMS quantity is used to define when a user receives a message that an item is reaching low supply. SMS delete is a binary value where users can allow the system to send a message when an item is deleted or not. I also added a new screen for managing these settings, as well as moving the SMS screen into the settings screen. Finally, I implemented a dynamic coloring scheme that allowed for toggling between light and dark modes.

I think this enhancement did meet course outcomes, specifically:   
“Design, develop, and deliver professional-quality oral, written, and visual communications that are coherent, technically sound, and appropriately adapted to specific audiences and contexts”

“Demonstrate an ability to use well-founded and innovative techniques, skills, and tools in computing practices for the purpose of implementing computer solutions that deliver value and accomplish industry-specific goals”

I don’t have any updates to the outcomes. If I had more time to work on another enhancement to this artifact, I would like to employ this artifact:

“Develop a security mindset that anticipates adversarial exploits in software architecture and designs to expose potential vulnerabilities, mitigate design flaws, and ensure privacy and enhanced security of data and resources”

The process was fairly straightforward, I started with adding the settings columns to the database. After this, I created the settings screen and incorporated the java code around it. After this, I updated XML to allow for different theming. Finally, I made the settings functional. I had to make the system send an SMS when quantities reached a specific amount and when deleted. I needed to add code for changing themes depending on the setting.

I ran into trouble when creating the themes. A lot of the theme data was not translated to the actual interface. To overcome this, I found a workaround for those UI elements where they were strictly defined. After this, I ran into a problem where the settings would be overwritten every launch. It was working before creating the theme, afterward the database was refreshed. I never found what the issue was, however, I fixed the problem by removing code and trying again.