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CS 499

Module Three

Milestone Two Software Engineering and Design Narrative Assignment

**Briefly describe the artifact. What is it? When was it created?**

This document outlines my thorough assessment and refinement of a particular project from CS 320 in May of 2024. This will be demonstrating my knowledge and skills in Software Engineering and Design. I will analyze the current code functionality, identify potential improvements, and detail the changes implemented. These upgrades will align with course goals, ensuring the project is well-prepared for my ePortfolio. This endeavor highlights my development in the field and underscores my dedication to applying best practices in software development.

**Justify the inclusion of the artifact in your ePortfolio. Why did you select this item?What specific components of the artifact showcase your skills and abilities in software development? How was the artifact improved?**

I chose this project as a chance to revisit the artifact and address the difficulties I faced earlier. My objective is to refine my skills while effectively applying advanced software engineering concepts. This endeavor will demonstrate my ability to design and implement software solutions that adhere to object-oriented principles.

In my strategy, I plan to enhance the code's quality by emphasizing modularity, which will facilitate easier maintenance and scalability. I will also focus on input validation to guarantee robustness and reliability, while aiming to boost overall efficiency. Through these efforts, I aspire to develop a more polished and effective software solution that showcases my progress as a software engineer.

**Did you meet the course outcomes you planned to meet with this enhancement in Module One? Do you have any updates to your outcome-coverage plans?**

I am confident that I have met the course outcomes for Module One. By modularizing the code into smaller, focused functions, I demonstrated my ability to create maintainable and scalable systems, reflecting my understanding of object-oriented design principles, especially the Single Responsibility Principle. Additionally, I implemented thorough input validation and effective exception handling, showcasing my skill in developing resilient software that manages real-world edge cases. Furthermore, switching from an ArrayList to a HashMap has greatly improved the efficiency of contact retrieval, demonstrating my capability in choosing suitable data structures to enhance system performance. Collectively, these efforts illustrate my grasp of essential concepts related to the course objectives.

I don’t think I have any new updates at this time. However, it’s important to remember that there is always room for enhancement in your work. Perfection is an elusive goal, and there are always ways to refine and elevate what you’ve created.

**Reflect on the process of enhancing and modifying the artifact. What did you learn as you were creating it and improving it? What challenges did you face?**

I feel that I have made notable progress in improving my artifact from CS 320. By emphasizing design aspects and leveraging advanced data structures, I aim to demonstrate my ability to enhance software performance while effectively managing design. Transitioning to a modular coding strategy has been an advancement, making the code more organized and easier to maintain and scale. I have focused on implementing strong error handling methods, which are vital for developing resilient software capable of managing unforeseen circumstances. To strengthen the security of the system, input validation and exception handling have been installed. These upgrades are essential for mitigating potential risks, such as the entry of invalid data. By ensuring only valid information is processed, I am dedicated to preserving the system's integrity and security, which enhances the reliability of the artifact.

The challenges I faced included the complex effort of creating a code that was both thorough and simple, ensuring that it could be easily understood by others. After countless attempts and multiple rounds of editing, I feel that I achieved my goal. I have successfully developed a piece of code that meets the course expectations but can still be improved.