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Milestone Three: Narrative

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

The artifact is a software application developed for the CS-320: Software Testing, Automation, and Quality Assurance course at SNHU. It was originally created during the course to demonstrate skills in writing and executing unit tests, implementing test-driven development (TDD), and ensuring code quality. The project includes core Java classes along with a comprehensive suite of JUnit tests designed to validate functionality, handle edge cases, and ensure the software meets specified requirements. This artifact highlights my ability to create reliable, maintainable code through structured testing practices.

1. **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 selected the CS-320 project for my ePortfolio because it demonstrates my ability to apply object-oriented programming principles, implement test-driven development, and ensure software reliability through rigorous unit testing. This artifact includes a comprehensive set of JUnit tests that validate functionality, edge cases, and error handling, showcasing my ability to write clean, maintainable, and well-documented code. Additionally, the project reflects my understanding of software quality assurance by incorporating test fixtures, parameterized tests, and code coverage strategies. These components illustrate my technical proficiency in Java development, problem-solving skills, and commitment to delivering robust, high-quality software—key abilities that employers look for in a software developer. I enhanced this project by incorporating hash maps into the structure of the ContactService, TaskService, and AppointmentService classes. This helped in improving the key operations such as insertion, deletion, and lookup.

1. **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?**

Yes, I met the course outcomes I planned to achieve with this enhancement. My primary goal was to strengthen my understanding of software testing and quality assurance, and through this enhancement, I successfully applied test-driven development principles and implemented robust JUnit tests. I also demonstrated the ability to analyze, design, and debug code to ensure reliability and maintainability, which aligns with the planned outcomes from Module One. At this point, I do not have significant updates to my outcome-coverage plan, as this enhancement covered my targeted objectives. However, I plan to continue refining my skills in automated testing and code optimization to further support continuous integration and quality assurance in future projects.

1. **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?**

Enhancing and modifying the CS-320 artifact taught me the importance of structured testing and how it directly impacts software reliability. I learned how to apply test-driven development more effectively, ensuring that code meets requirements before implementation. This process also reinforced best practices in writing maintainable and modular code, as well as the value of thorough documentation for long-term usability.

One challenge I faced was determining comprehensive test coverage, especially for edge cases and negative scenarios, without overcomplicating the test suite. Balancing readability and completeness in the test code was another hurdle. Additionally, recalling the original design and understanding how new changes would affect existing functionality required careful analysis. Overcoming these challenges helped me strengthen my debugging skills and improve my approach to planning enhancements systematically.