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SNHU

CS-499 Computer Science Capstone

Professional Assessment - ePortfolio

When I first started this Computer Science program, I focused mostly on getting my code to work. If it compiled and ran without errors, I considered it successful. Over time, I realized that professional software development is much more than functionality. It requires structure, security, maintainability, and the ability to explain and defend design decisions. This capstone project represents that shift in my thinking. It shows not just that I can build an application, but that I can evaluate it critically, improve it intentionally, and communicate those improvements clearly.

One of the biggest challenges I faced during this capstone was restructuring the project repository. All of my files were originally organized differently in GitHub than they were in my local project folder. I had to manually reorganize the file structure and make sure everything connected properly after moving components into the correct directories. At first, I underestimated how many small dependencies would break when files were moved. Routes stopped working, imports failed, and configuration paths needed adjustment. Debugging these issues forced me to slow down and truly understand how each part of the system interacted. That experience strengthened my understanding of project architecture and dependency management.

Working with Git and GitHub also challenged me more than I expected. Merge conflicts and version control mistakes required patience and problem-solving. Instead of simply re-uploading files when something broke, I learned how to properly commit incremental changes, track modifications, and resolve conflicts correctly. This experience made me more comfortable working in environments where version control is essential. It also reinforced the importance of organization and clear documentation, skills that are critical in IT and networking roles.

Throughout the enhancement process, I improved the backend structure using Node.js and Express. Rather than keeping logic tightly grouped or repetitive, I separated concerns into more organized components and improved routing clarity. This demonstrated growth in applying software engineering principles such as modularity and maintainability. I began thinking about how the application would scale if it were used in a production environment rather than just focusing on meeting assignment requirements.

My understanding of algorithms and data handling also improved significantly during this program. Earlier in my coursework, I would implement straightforward logic without evaluating efficiency. In this capstone, I considered how data filtering, processing, and routing decisions would perform with larger datasets. Even when the dataset was small, I practiced designing with scalability in mind. This reflects my growth in algorithmic thinking and understanding trade-offs between simplicity and performance.

Security awareness became a much more intentional part of my development process. I evaluated input validation, configuration management, and how sensitive data should be handled. Instead of hardcoding information, I ensured that configuration details were structured properly and could be managed securely. This mindset shift is important as I pursue a career in IT and

networking, where system security and reliability are central responsibilities. I now approach development with a stronger understanding that security must be proactive rather than reactive.

Communication was another area of growth for me. Writing the milestone narratives required me to clearly explain what I changed, why I changed it, and how it improved the system. This pushed me to think beyond technical implementation and reflect on impact. Being able to describe technical decisions in a structured and professional way is a skill I will carry into the workplace, especially in roles that require documentation, troubleshooting, and collaboration across teams.

This capstone also helped me recognize my resilience. There were moments when reorganizing files, debugging broken imports, or resolving GitHub issues felt frustrating. However, instead of abandoning the approach or simplifying the project, I worked through each issue methodically. That persistence improved not only the quality of my project but also my confidence as a developer. I now feel more prepared to handle real-world technical problems that do not have immediate solutions.

As I transition into the IT and networking field, I bring a stronger understanding of backend systems, application structure, algorithmic reasoning, and secure development practices. More importantly, I bring the ability to analyze systems critically and improve them intentionally. This ePortfolio reflects my growth from a student focused on functionality to a computing professional focused on quality, security, and long-term sustainability.

The work presented here demonstrates my readiness to contribute to professional technical environments. I am confident in my ability to adapt to evolving technologies,

collaborate effectively, and continue developing my skills beyond this program. This capstone represents not just the completion of my degree, but the foundation for my career in computing and IT systems.