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Southern New Hampshire University

CS-499 Computer Science Capstone

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23 November 2025

Module 4 Journal: Career Choice and Artifact Update

Part One:

When I first entered the Computer Science program, my long-term goal was to work in information security. My experience in the Navy, particularly in handling sensitive medical data and managing radiation health systems, led me toward a career focused on protecting information and supporting secure operations. As I moved through the program, I gained exposure to software engineering, artificial intelligence, full-stack development, and database systems. These experiences helped me refine my career plan, but they did not change the core direction. I still want to work in information security, but I now understand how closely security is connected to system design, algorithms, and software engineering.

My thinking has evolved because I learned that security is not a single tool or job function. It is a mindset that must be built into every part of computing. Courses like CS 465, CS 360, and CS 370 showed me how important secure coding, authentication, data protection, algorithm efficiency, and system architecture are. This helped me look at my future career with a wider perspective. Instead of focusing only on cybersecurity tools, I now see myself as a well-

rounded computer science professional with a strong focus on secure software development and secure system design.

I have researched several career paths such as cybersecurity analyst, penetration tester, security engineer, and secure software developer. These roles all require strong skills in programming, networking, algorithms, and secure design principles. I also learned that certifications such as CompTIA Security+, CySA+, and CASP can help strengthen my career path. I have also considered pursuing a master's degree after my undergraduate program to further specialize in cybersecurity. This research supported my goal and motivated me to keep improving my technical skills.

So far in CS 499, I have completed several program outcomes through my enhancements. I completed Outcome Four and Outcome Five in my Software Engineering enhancement by improving the Travlr Getaways web application with secure architecture, REST APIs, authentication, and UI improvements. I am now working toward Outcome Three in my Algorithms and Data Structures enhancement by improving the Deep Q-Learning Treasure Hunt project. My final remaining outcome will be covered in my Database enhancement, where I plan to strengthen the data management in my Android weight-tracking application.

Part Two:

Status Checkpoints for All Categories

Checkpoint	Software Design and Engineering	Algorithms and Data Structures	Databases
Name of Artifact Used	Travlr Getaways Full-Stack Web Application (CS-465)	Deep Q-Learning Cartpole Project (CS-370)	Amos Weight Tracking App (CS-360)
Status of Initial Enhancement	Completed. Added full JWT authentication, RESTful CRUD routes, Angular interceptors, improved service architecture, and UI enhancements.	Enhancement in progress. Improved epsilon logic, replay memory scheduling, and algorithmic documentation.	Enhancement plan approved: planning cloud sync, SQL optimization, and UI updates.
Submission Status	Submitted for Milestone Two.	Submitted for Milestone Three in this module.	Not yet submitted. Planned for Module Five.

Status of Final Enhancement	Ready and polished.	Enhancement is being finalized.	Final enhancement scheduled after Module Four.
Uploaded to ePortfolio	Yes, uploaded to GitHub ePortfolio and organized under artifacts.	Not yet, will upload after instructor feedback.	Not yet.
Status of Finalized ePortfolio	In progress.	In progress.	In progress.

References:

Code a New Career | ComputerScience.org. (2022, February 10). ComputerScience.org.

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Simmons, L. (2024, August 19). *Top Careers in Computer Science*. Computer Science.Org.

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