

Module Four Journal

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CS-499: Computer Science Capstone

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Part One: Career Reflection Journal Entry

1. Have you changed your career plans? If so, what prompted this change? If not, why have you remained with your original plan?

When I first started the Computer Science program, my main interest was in software development, particularly in 3D design and modeling. As I progressed, my exposure to fields like AI and data science expanded my outlook. Although I still enjoy software development, I'm now drawn to data science and machine learning, especially since these skills have become valuable in the current market and my current workplace. My coursework introduced me to data analysis and emphasized the growing influence of data driven tech. The projects I've completed along the way also showed me how much I enjoy working with data to address real world challenges.

2. How has your thinking about your career evolved?

Initially, I focused on landing a traditional developer role after graduation. Now, I see my career as a journey, not just a destination. I am more open to interdisciplinary roles that combine programming, statistics, and domain knowledge, such as data analyst, machine learning engineer, or even roles in tech consulting. My thinking has evolved from a narrow focus on coding to a broader appreciation of how computer science can intersect with various industries and societal needs.

3. Have you completed any research about your choice of career? How has this impacted your thinking? Have you thought about seeking an advanced degree or certification after earning your undergraduate degree?

Yes, I have researched job trends, read about the experiences of professionals in the field, and attended several career webinars. I've also explored job listings, and the skills employers seek. This research highlighted the importance of continuous learning, soft skills, and specialization. It has convinced me to pursue additional certifications, like AWS Certified Data Analytics or Google's Professional Data Engineer, to strengthen my credentials, I currently have some more basic certifications like CompTIA A+, and ITIL Foundations. I am also considering a master's degree in data science or artificial intelligence in the future, depending on how my interests develop and the opportunities available.

4. Which course outcomes have you achieved so far, and which ones remain?

So far, I have:

- **Achieved:** Proficiency in software design principles and ability to implement standard algorithms and data structures.
- **Remaining:** I still want to deepen my understanding of advanced topics such as distributed systems, big data tech, and advanced machine learning techniques. I also plan to work on more collaborative, open source projects to enhance my teamwork and project management skills, although being in school full time and work full time, I find myself spread thin and with not a lot of free time to explore other things.

Part Two: ePortfolio Artifact Status Update

Status Checkpoints for All Categories

Checkpoint	Software Design and Engineering	Algorithms and Data Structures	Databases
Name of Artifact Used	CS-499 Enhancement Project (OpenGL Scene Modularization)	CS-499 Enhancement Project (Planned: Mesh Management/Adaptive Mesh Refinement)	CS-499 Enhancement Project (Planned: Scene Data Persistence)
Status of Initial Enhancement	Completed: Refactored code for modularity, added managers, improved documentation	Completed: Implemented Octree, appropriate classes, improved documentation	In Progress: Planning integration of SQLite for scene save/load
Submission Status	Submitted for review	Submitted for review	Not yet submitted

Status of Final Enhancement	Finalized: All planned enhancements implemented and tested	Finalized: All planned enhancements implemented and tested	Not started
Uploaded to ePortfolio	Yes	Yes	No (to be uploaded after enhancement)
Status of Finalized ePortfolio	In progress: awaiting database artifact completion	In progress: awaiting database artifact completion	Not started

Details and Trouble Spots:

- **Software Design and Engineering:** The main challenge was integrating design patterns in a way that improved maintainability without overcomplicating the code. I don't have any access to Peer feedback, so I tried my best to make it simple, although adding the octree and its associating code really cluttered up the code again in my opinion. Additional documentation improvements are complete.
- **Algorithms and Data Structures:** Ensuring the accuracy/performance of my algorithms took extra time. Visualizing the steps helped, but optimizing for large datasets was tricky.
- **Databases:** This will be the most challenging part for me, I have zero confidence in database implementation. I will try to keep it simple and stick to SQL best practices to help guide me.

Otherwise, I am proud of my progress and the skills demonstrated in each category so far, looking back on week one it seemed so unattainable, but I'm surprised I've gotten so far and am very proud of my work.