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CS-499

Professional Self-Assessment

Completing the Computer Science program has been a transformative experience that allowed me to strengthen both my technical expertise and professional skills. Through a combination of coursework, hands-on projects, and collaborative exercises, I have developed the ability to not only design and implement technical solutions but also to communicate effectively with both technical and non-technical stakeholders. These experiences have helped me shape my career goals and prepared me to become a highly adaptable and employable professional in the computer science field

Collaborating in a team environment:

Throughout the program, I participated in multiple team-based assignments, including agile development projects where I acted as a Product Owner. In this role, I facilitated sprint planning, managed backlog priorities, and ensured team alignment on deliverables. This experience strengthened my ability to lead teams, resolve conflicts, and foster collaboration in diverse working environments. I have also had vastly different experiences at previous jobs, and while in the United States Marine Corps.

Communicating with stakeholders:

In my projects, I frequently had to translate technical requirements into language that stakeholders could understand. For example, while developing a network design for a new office location, I explained the rationale behind hardware and bandwidth choices to non-technical audiences. This reinforced my ability to bridge the gap between technical complexity and business value.

Data structures and algorithms:

The program required me to apply data structures and algorithms in problem-solving contexts. A prime example was my collision-based animation program in OpenGL, where I implemented efficient logic for vector-based movement, paddle collision detection, and object interaction. Additionally, I strengthened my problem-solving abilities by rewriting a Java-based contact management system in C++, while also refactoring its data handling from basic arrays to hash maps. This change greatly improved lookup efficiency, scalability, and memory management, demonstrating my ability to evaluate and apply more advanced data structures for real-world applications. These projects collectively highlight my ability to write clean, optimized code while balancing accuracy and performance.

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Software Engineering:

From building a Java-based contact management system to developing a full Android app with login, CRUD functionality, and SMS alerts, I consistently applied principles of software engineering. I gained experience in modular design, testing with JUnit, debugging, and ensuring scalability of applications. These projects taught me to treat software as an evolving product that requires continuous improvement.

Databases:

Working with MongoDB was an important part of my growth. I designed and queried collections in a real-world dataset, creating dashboards that displayed live data using Python and Dash. I also connected databases to mobile applications, demonstrating my ability to integrate backend systems with user-facing applications.

Security:

In cybersecurity coursework, I developed decision aids to evaluate detection, characterization, and response strategies against threat actors. I also recommended technical, administrative, and physical security controls to protect business assets. These projects emphasized the importance of secure design principles, regulatory compliance, and proactive risk management in any computing environment.

The artifacts in my portfolio showcase the full range of my computer science talents and provide evidence of my technical and professional growth. Each project highlights a different dimension of my skills:

- **OpenGL Graphics Project:** Demonstrates my ability to implement low-polygon 3D models, lighting, textures, and physics-based interactions.

- **Android Studio Mobile App:** Showcases my skills in software engineering, UI/UX design, database integration, and SMS-based notifications.

- **MongoDB Dashboard in Python/Dash:** Highlights my capability to connect databases to analytical tools and create user-friendly dashboards with geospatial visualization.

- **Cybersecurity Decision Aid:** Illustrates my knowledge of security best practices and the application of administrative, technical, and physical controls.

- **Networking Project:** Provides evidence of my ability to plan, configure, and present a complete network infrastructure proposal.

- **C++ Contact Management System:** Demonstrates my ability to rewrite and optimize existing applications by shifting from Java arrays to C++ hash maps, improving efficiency and scalability.

Taken together, these artifacts demonstrate that I am not only capable of building functional and efficient software but also of designing secure, scalable, and user-focused solutions. They reflect the wide breadth of my computer science education and my readiness to contribute meaningfully to future technical teams.