Kenyhacta Busby

CS 499

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Milestone Two

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

The artifact is a security-focused project created in C++ as part of the CS 405 course. It involves creating uniform implementation guidelines, presenting a security policy guide for Green Pace, and ensuring that the development team adheres to best practices. It includes writing unit tests to identify vulnerabilities and addressing risks using 10 guiding security principles.

**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 chose this artifact because it demonstrates my ability to apply security principles in software development and adapt code to meet modern standards. It highlights critical skills, such as secure coding practices, risk assessment, and the application of adversarial thinking to protect against vulnerabilities. These abilities are key for a career in cybersecurity and align well with industry expectations. Key components include the implementation of unit tests in C++ to detect vulnerabilities, the development of a threat matrix, and the use of the Triple-A framework for enhanced security. The planned improvements, such as migrating the C++ codebase to Python, adding retry limits, enhancing input validation, and implementing SQL injection prevention, showcase my ability to refine and enhance software for security and usability.

**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 planned outcomes by demonstrating secure coding practices, designing solutions based on algorithmic principles, and addressing security vulnerabilities with a proactive mindset. Moving forward, I aim to deepen my knowledge of modern tools and frameworks to further align with industry best practices and ensure scalability in future projects.

**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 artifact taught me a lot about working with legacy code and transitioning it to a more modern and user-friendly language like Python. I learned how critical it is to keep your projects organized because you never know when you might need to refer back to them. One of the biggest challenges I faced was adapting C++ features like memory management and buffer handling to Python, which required me to really dive into the differences between the two languages. I also found it tricky to balance adding new security features, like retry limits and SQL injection prevention, without overcomplicating the code, but it was a great learning experience overall.