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Interdisciplinary Studies (IDS 493)

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Reflective Essay

Abstract

This essay reflects on my academic journey at Old Dominion University, highlighting key skills developed in cybersecurity. I focus on three main areas: networking/programming, data analysis/interpretation, and problem-solving. Through hands-on projects and coursework, I've gained practical experience in designing network systems, creating software tools, and analyzing data to inform security policies. Also, there are notable projects including networking for Maury High School and a password strength checker developed in Python. My internship at the ITS Help Desk honed my problem-solving abilities and provided real world insights. This reflection demonstrates how these experiences have prepared me for a successful career in cybersecurity.

Reflective Essay

Introduction

Over the course of my academic journey at Old Dominion University, I have developed a diverse set of skills that are essential for a successful career in cybersecurity. My education, particularly in the Cybersecurity field and Cybercrime, has equipped me with the basics and ability to network and program, analyze and interpret data accurately, and solve complex problems efficiently. This reflection essay will examine these skills and the artifacts that demonstrate my learning and growth. I will also discuss how my academic experiences have prepared me for career readiness and go in depth on my education and its impact on my professional development. This will reflect each artifact, the importance and the contribution to the e-portfolio. Each artifact will be explained thoroughly.

SKILL 1: Networking/Programming

Networking involves designing and managing the connections between computers and devices to enable communication and data sharing. Programming, on the other hand, focuses on writing code to develop software applications and tools that perform specific functions or solve problems.

Wiring Maury High School (IT 315 Networking & Programming)

This is a course that was thought in spring 2023. It consisted of multiple hands-on projects regarding networking in which this project was completed successfully. I gained technical skills from completing all the hand-on assignment from multiple mini projects and a final project.

This key project highlights my networking and programming skills is the wiring analysis initiative for Maury High School, which I included in my e-portfolio. This project required

strategic planning, implementation, budget management, security integration, and thorough documentation. I started by analyzing cable lengths and designing a star topology network to optimize connectivity across all floors. I then managed the installation of telecommunications closets, Cat6 cables, RJ45 connectors, and wiring panels, ensuring the network setup was efficient. I also developed a detailed budget, procured all necessary components, and kept the project within the $9,175.51 budget. For security, I implemented a WatchGuard Firebox multifunctional firewall and created detailed floor plans and schematics. The result was a successfully upgraded network infrastructure that provided a secure and reliable network for students and staff. This project, completed on time and within budget, showcases my project management skills and skills in networking.

Personal project: Password strength checker (CS 150 python)

CS 150 python provided insights on basic programming skills in python, which lead to creating a personal project that shows my skills and abilities in basic programming (Python)

This project highlights my networking and programming skills is the creation of a password strength checker using Python and Tkinter, featured in my e-portfolio. I developed an intuitive interface for real-time password evaluation based on length, character types, and numbers. I designed the interface to be user-friendly, implemented strict password criteria to meet security standards, and added features like secure password resets. Throughout the project, I followed best practices in Python programming, GUI design, and security protocols. This project demonstrates my proficiency in programming and security policies and showcasing my ability to create basic practical softwares. This artifact in my e-portfolio emphasizes my skills in networking and programming.

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SKILL 2: Analyzing and Interpreting Data

Analyzing and interpreting data involves examining information to uncover patterns, and certain information. It's about translating raw data into meaningful conclusions that inform decisions and solve problems**.**

Analysis & Interpreting Data writing: Designing Policy (Introduction to Cybersecurity CYSE 300)

From writing this research paper, I learned that a good security policy protects a company's data by setting clear rules. I understood the need for involving everyone, keeping the policy updated, and focusing on important areas like training employees, quick incident response, following laws, securing passwords, and protecting networks. This helped me see how analyzing and interpreting data is key to creating effective policies.

Analysis & Interpreting Data project: Computer Forensics Plan for a mid-size police department. (Digital Forensics 403)

From my digital forensics projects (Digital Forensics 403), I learned how to design a comprehensive plan for setting up a computer forensics lab that meets industry standards. This experience has taught me the importance of secure evidence handling and the need for proper maintenance protocols.

In this project, I created a detailed plan for setting up a computer forensics lab for a mid-sized police department. The plan included essential equipment, physical layout, accreditation process, lab maintenance, and staffing requirements. I outlined the necessary tools for analyzing digital evidence and designed a secure, efficient layout for evidence processing and storage. Accreditation was emphasized to ensure the lab met high standards, involving security reviews

and equipment calibration. The plan also detailed a maintenance schedule to keep the lab functional and accredited. Staffing requirements were specified, with roles for a lab manager and technician to oversee operations and maintenance. This plan aimed to ensure effective, secure digital evidence analysis while adhering to industry standards.

Forensic Analysis Report - Alleged Contact Between US and Russian Officials

In this forensic analysis project, I investigated potential contact between a high-ranking US government official and a Russian individual named "Red Ralph" by examining the official's cell phone and laptop. I discovered text messages and emails indicating an ongoing professional relationship involving consulting services and payments, as well as deleted zip files containing classified material, which raised significant security concerns and necessitated further investigation. This project shows my ability to analyze and interpret complex digital evidence to uncover important connections and potential security breaches.

Analysis & Interpretating Data project: Cyber threats in U.S California (Cyber War CYSE 526)

In my Cyber war CYSE/POL 506 course, I learned that cyber threats come from various sources, including malware, phishing, and DDoS attacks, causing significant risks to individuals and organizations. I also learned about the importance of strong cybersecurity measures, such as updating software, training employees, and implementing laws like the California Consumer Privacy Act (CCPA) to protect against these threats.

In this project, I explored various cyber threats in California, their impacts, and the vulnerabilities in the state's networks. I also examined the measures taken to defend against these threats, such as the California Consumer Privacy Act (CCPA) and the state's cybersecurity

initiatives. I highlighted the importance of cybersecurity education and training for remote workers.

SKILL 3: Problem Solving Abilities

Problem-solving involves figuring out what's wrong, thinking of ways to fix it, and choosing the best solution. It's about tackling challenges step-by-step and finding effective ways to fix issues.

Cybersecurity Internship (CYSE 368) Information Technology Services (ODU)

From my internship class, I learned the importance of paying close attention to the job and understanding how it directly relates to my major, cybersecurity. Documenting everything allowed me to see how each task and challenge connected to real world cybersecurity practices, which reinforced the concepts I learned in class. This experience highlighted the value of detailed record keeping and systematic problem-solving in enhancing my skills and knowledge in the field.

Internship Documentation/ Final paper

During my internship at Old Dominion University's ITS Help Desk, I really put my problem-solving skills to the test. I tackled a range of issues, from fixing software glitches and network problems to resolving printer errors. Using tools like ServiceNow and the Knowledge Base, I learned to diagnose and address these issues efficiently. The hands-on experience was invaluable, especially when it came to dealing with cybersecurity threats like phishing and malware. Feedback from my supervisors pushed me to pay closer attention to details and communicate clearly, which helped me become more effective in my role. This experience didn't

just build my technical skills it also deepened my understanding of how to solve problems in a real-world setting, which ties directly into my cybersecurity studies and career aspirations.

In conclusion, my time at Old Dominion University has been a journey of growth and discovery in the field of cybersecurity. From hands-on projects like revamping the network for Maury High School to creating a password strength checker, I've built a solid skill set in networking, programming, and data analysis. Each project and course have reinforced the importance of thorough documentation and effective problem-solving. My internship experience at the ITS Help Desk was very eye opening, offering practical insights into real-world cybersecurity challenges and refining my skills. These experiences have not only deepened my technical knowledge but also prepared me to tackle future challenges in the cybersecurity field with confidence.

References

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