Old Dominion University

IDS 493 Electronic Portfolio Project

Reflection Essay

Professor: Tucker Stephen

Brian Delos Santos

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Introduction

Throughout my time at Old Dominion University studying for my Bachelor of Science in Cybersecurity and a minor in Information Systems and Technology, I have been loaded with security and I.T. concepts. There has been so much to absorb, but there have also been common themes that persist through each class that have developed into skills that I have gained over time. Skills of analysis of large complex systems, networks, applications, and correlating concepts. Learning how to research and communicate new or complex ideas and problems. Most importantly, teamwork with classmates, teachers, and ODU staff to learn and produce quality work. These are the three skills through my academic career that I have relied on and honed through each class and below I will discuss a few major assignments that exemplify these skills.

Analysis

Analysis is one of the main skills I have acquired throughout my academic career. It is one of those skills that has helped me in each of my classes. The ability to understand topics and problems by thoroughly examining the topic. Analysis is also a skill I believe to be essential for Cybersecurity because of the interdisciplinary nature of the field. In my internship alone I have worked in multiple different networks which utilize different operating systems, hosts different applications, and have vastly different purposes. The ability to analyze different environments, requirements, applications and more will work to my advantage when I start my career.

I.T. 363 Final Assignment

This artifact is the final deliverable that outlines each step of the system development life cycle for a chat bot used to streamline bank inquiries from customer to the supporting administrator. For this assignment, I took system idea to system creation by exploring use cases, developing a narrative, and creating supporting diagrams that will be integral to the creation of the described system. One aspect of this assignment that stood out to me is that the system development life cycle is not just about programming and that there could be a position for me as a software developer, even without computer science style programming skills.

C.S. 465 Incident Report

This artifact from my Information Assurance for Cybersecurity class is a breakdown of a cyber-attack for a fictional company. The biggest takeaway for me from this artifact is not only the development of analysis skills for cyber-attacks, but also the concept of learning and improving from mistakes. Cyber-attacks on real companies like U.S. Cellular or solar winds happen often and is something that I saw throughout my academic career. Completing this exercise was not only beneficial for my degree, but something I may have to do later on in my career. One thing I that is scary about cyber defense is that even with proper cybersecurity posture, there is still risk of a cyber-attack on a vulnerability that is unknown like a zero-day threat.

I.T. 450 Database concepts database ERD

This artifact from my database concepts class shows the result of mapping out a new database for a fictional company. Extracting requirements and displaying dependencies through an entity relationship diagram. Through this assignment I was able to learn the building blocks of a database and how to analyze database requirements and create a display of dependencies which we would build upon later using MySQL.

Research and Communication

Research and communication skills are something all college students need to thrive in their academic career. This is because without these skills it will be difficult to produce quality work, whether that is a research paper, general assignment, or project. Higher education is all about taking large, complex topics that the student will have little to no experience with and creating an understanding of said topics and communicate understanding through tests and assignments. This is not all accomplished in the classroom. A lot of learning for me is done after the class is over, while I am working on an assignment or researching to find a different explanation to help my understanding. This is a skill that I believe is essential, not only for education, but especially for work environments where practical work can be much different then concepts studied in school.

C.S. 462 Pegasus Spyware Research

This artifact on Pegasus Spyware, malware targeted at mobile devices created to spy on and extract information from unsuspecting victims. This was a form of malware that I had not heard of, especially because it targeted mobile devices rather than traditional computers. The biggest lesson I learned from researching Pegasus spyware is that all technology comes with vulnerabilities, not just traditional computers, but all internet of things devices like cell phones.

I.T. 417 Writeup on US cellular Data Breach

This writeup on US cellular's data breach is just another example of modern-day data breaches that occur more often than I used to think. Large organizations are under attack daily and if only one individual in an entire company makes a negligent decision, like in US cellular's case, then it can impact many who rely on them. Their data breach was caused by one individual in one of their many store locations that fell victim to a social engineering attack. This attack gave hackers the ability to extract personal information from one of their customer relation management applications. Unfortunately, this one individuals' action lead to hundreds of customers data to be compromised. One of the lessons I pulled from this research paper is that information security is not just an I.T. problem and all active employees must become part of the solution.

Cyse 450 Social Engineering Write-up

This writeup on social engineering is one of my favorite security topics and one that is especially relevant for small businesses to large organizations alike. This is because as computer systems become more secure and awareness for common vulnerabilities or methodologies are standard practice, hacking a computer or network is harder than ever. Using social engineering as a method to bypass the difficulty of hacking a system by manipulating the user to willingly divulge sensitive information is commonplace. In my research of social engineering, I found that more often than not, some form of social engineering is used in a large portion of the recent major data breaches. This is a scary idea and something I wanted to explore more, especially after the realization that the user is the weakest link in the security schema of a network.

Teamwork

Teamwork is a skill I developed through my academic career not only through group assignments, but also through camaraderie with my classmates. During my academic career COVID-19 disrupted higher education across the world. Schools tried to adapt and implement remote learning environments and techniques, but if it wasn't for class group chats, everyone looking after one another and lending a helping hand when others couldn't get in touch with the teacher, then many including myself would have struggled much more. Teamwork is something I have come to enjoy, especially when my classmates and I enter the workforce we will not be alone. There will be many others who are working towards a similar goal which requires cooperation regardless of job responsibilities.

IDS 300 Exploration of Workplace Incentives

This project from my writing intensive course, Interdisciplinary Studies which allowed me to take a brief step back from Cybersecurity to develop writing, analysis, communication, and teamwork skills. This project had me analyze the effectiveness of workplace incentives using scholarly articles and statistics from publicly implemented workplace incentive outcomes. I analyzed articles and utilized statistics from workplace incentive outcomes to create a persuasive essay identifying the flaws of certain types of incentives. Then I was placed in a group to share each other's essays and create discourse about each other's topics. This assignment introduced me to a variety of topics, but mainly created a healthy discussion about what we liked about each other essay and certain edits we could make to bolster our main points. This assignment was a great way to create a discussion about different disciplines and aide team members to create a more refined argument for their topic.

I.T. 417 Network Implementation and Security Administration

One of the group projects that challenged me the most was the I.T. 417 Management of Information Security final project. This project required my team members and I to create implementation guidance and a system security plan for a brand-new network. Not only did this assignment test our security concepts, but also networking, planning, diagramming, work delegation, and critical thinking as a team. The class is focused on Managing information security, but this assignment culminated the knowledge we had gained throughout our time at Old Dominion University. I had to think back to my Networking and Security class to build a functional network. Identifying logical placement and connection of supporting servers, switches, and routers. I implemented security concepts of least privilege and least functionality of different subnets, while also thinking back on my Ethical hacking and penetration class to understand threats and vulnerabilities to the network we created. I utilized concepts from my Cybersecurity strategy and policy class as a reference to create secure policies and procedures. As a team we created guidance to build and secure network from the ground up that required the team to not only use concepts from our current class, but from many others which helped us reflect and build upon knowledge we had gained from earlier on in our academic career.

Conclusion

Analysis, teamwork, research, and communication are the skills that I have honed throughout my time studying for a Bachelor of Science in Cybersecurity and a minor in Information Systems and technology. It is not an exhaustive list of skills, but skills that I believe are integral to Cybersecurity and the three that have persisted through each class I have taken. Due to the interdisciplinary nature of the field of Cybersecurity, it can be difficult to become a master at every aspect. It shows from the variety of skill artifacts I have chosen that the field of Cybersecurity is broad. Although, equipped with the core concepts instilled in me through Old Dominion University's Bachelor of Science in Cybersecurity program, I am ready to enter the workforce headstrong and take on any challenge that comes my way.