Reflection Essay

Introduction

My name is Matthew Mattozzi, and I am a Cybersecurity major and Computer Science minor at Old Dominion University. Switching from the medical field to a career in tech has been a bit of a culture shock, although there are certainly similarities and overlaps between the two. Cybersecurity is a large part of the medical industry, as protection of patient PII is of paramount importance. A common thread that runs through each field is that they are both interdisciplinary. Medicine and cybersecurity are each comprised of dozens of disciplines, with each discipline a result of a multitude of skills and knowledge. In a narrative fashion, I would like to go through some of disciplines and skills I have learned during my time here at ODU.

Information Technology Overview

Information Technology, or IT, is one of the foundational pillars of the many disciplines that Cybersecurity is comprised of. In my opinion, it is where every individual looking to pursue a career in cybersecurity should start. Below, I will discuss a couple of IT classes I have taken here at ODU, as well as some additional personal study I am undergoing on the side.

IT 315 - Intro Network and Security

This class was foundational for learning fundamental concepts, technologies, components, and issues related to communications and data networks. We discussed basic network architecture, which included diagramming our own personal home network and all devices contained therein.

CYSE 280

While this class is technically a cybersecurity class, it is IT in nature. We dealt primarily with

Windows Server 2016, where we did a deep dive into setting up, configuring, etc.

To gain a deeper understanding of IT, and to possibly prepare for helpdesk job, I am currently completing a Udemy IT Support course. My goal with this course is to deepen my IT knowledge and be more effective in a helpdesk role.

Cybersecurity Overview

Not surprisingly, our curriculum is composed of many cybersecurity-oriented classes. Much like the section for IT, it is beyond the scope of this paper to detail every class completed while working towards a degree in cybersecurity. I will highlight a few of my favorites below, as well as additional learning I performed after.

CYSE 270 - Linux for Cybersecurity

This class began my foray into the world of Linux. Starting with basic commands on the command line, we worked our way up to utilizing various tools such as John the Ripper, a popular password-cracking tool. As a student new to Linux, I found the class to be well taught and, upon completion, I felt significantly more competent with it than when I started.

CYSE 301 - Cyber Techniques and Operation

A spiritual follow-up to CYSE 270, 301 expounded on the basic command line inputs learned in 270 with tools such as Metasploit, pfSense, Wireshark, and more. It is a class where I got a taste of what hacking looked like, which took a topic that was previously abstract to me and made it more tangible.

CYSE 406 - Cyber Law

Whereas the previous two classes discussed focused on the machinations behind cybersecurity, this class came at the field from a different angle. We had to research and write papers on

plethora of different cybersecurity-related topics. This strengthened my research skills while simultaneously educating me on real-world cybersecurity cases.

I believe self-study to be an important part of every education, as class work can only teach one so much in a semester. Professors are constrained by the limitations that class time provides. For this reason, even though I have no goal of being a pen tester, I am learning to hack in order to be a more well-rounded cybersecurity professional. I have started a TryHackMe subscription, which provides hundreds of hours of learning content in controlled virtual environments. Additionally, I am working through a book on Linux, as Linux is a cornerstone for not just cybersecurity but much of the Internet itself.

Computer Science Overview

CS 150

CS150 was my first programming class here at ODU. We learned the basic syntax and program structure of C++. The class consisted of labs where students would turn similar programs to those covered in lecture, along with quizzes and tests that were compromised of small programs and multiple-choice questions based on language knowledge. This class was very important for me, as although I have messed around with some programming in the past, this class gave me a better sense of direction and structure.

CS 250

Continuing with C++ programming, this class did a much deeper dive on the language, going over more advanced features such as pointers and linked lists. I particularly enjoyed this class for the in-depth projects we worked on. We built a program that controlled a phalanx of Spartans

with a menu to issue commands. It was a struggle most of the class, but the knowledge I gained was invaluable.

CS 330

This class is focused on Object Oriented Programming. To date, this is one of the tougher classes I have taken here at ODU. OOP as a concept is new to me, so learning as the class goes has been a process since all the information is new to me.

The Computer Science classes I have taken here at ODU have given me a great jumping jumping-off point to further my programming knowledge. I may not continue in C++ necessarily but may instead switch to Python as it appears to have more immediate uses in the realm of cybersecurity like in scripting, for example.

Conclusion

These classes mentioned make up but a fraction of the classes I completed while finish my cybersecurity degree, and mentioning every class is outside the scope of this paper. Without a doubt, I feel significantly more competent and ready to start a job in cybersecurity after completing my degree. That said, self-education has been vital to fill in the gaps of knowledge that classes do not have to cover. For example, completing certifications is arguably just as important as the degree itself, and that is something that must be accomplished on every student's own time. Balancing school, work, and personal work is an obstacle that every student must find a way to overcome. I believe that this balancing act in these three areas has led to significant personal growth as not just a student, but as a future cybersecurity professional as well.