**Reflection Paper**

**Brandon Zakaras**

**Old Dominion University**

**IDS 493 Electronic Portfolio Project**

**Professor Carin Andrews, MBA, MAcc, CPA**

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**Abstract:** I have done a lot over my four years here at Old Dominion University, but the most important things that I have obtained here are the skills that I have developed. The three most marketable skills that I have are my work experience, Programming, and Ethical Hacking Skills. The three of these are all marketable as important cybersecurity skills, and each one has its own benefits that it has given me. This includes the ability to understand hackers on a deeper level and how they operate, experience in professional settings and appropriate ways to act in the workplace, and how to write and read code in multiple languages.

**Personal Reflection Essay**

**Introduction**

My degree here at ODU that I am about to graduate with is Cybersecurity, with a minor in Computer Science. I had learned a little bit about computers and cybersecurity before beginning my education here, because of the classes I took back in high school, but the stuff I have learned since going here has allowed me to mov far past the point I was at before, and be ready to start a career in the field I want to spend the rest of my life in. Some of the skills that I have learned while being here at ODU include Coding, Ethical Penetration Testing, building networks, firewalls, frameworks, and I now have genuine work experience that is relevant to my career. I obtained most of these skills from courses from the Cybersecurity department, Computer Science department, and a student worker job under the CCIA department in ODU, where I was given the opportunity to be involved in many hands-on activities and learn in the moment.

**Background**

I originally started taking coding classes not because I needed to, but because I wanted to. At Old Dominion, Cybersecurity majors do not have to take any programming courses in order to graduate, but I made it my mission to begin learning coding languages. In my sophomore year, I began with my first coding class, which was focused on C++. I had not been told beforehand that C++ is one of the harder languages to start with, so the first class that I had in that language was more difficult than the others I’ve had since, because I had to learn on the fly what I was doing. I had to learn very quickly how to become better with my TIme Management skills, and as is the case with all programming assignments, I had my Critical Thinking skills challenged. Whenever I had issues in that class, I had a group of students that I would assist and who would assist me, and so I also had my Communication skills put to use, and grew. When I was going through this class, LLM’s and other Chat AI’s didn’t exist at the time, so they weren’t there to be able to ask any questions that were had, so knowing how to research any questions I had about the code and how it operated had to be done the old fashioned way, using a browser and search engine.

**Coding**

Java and Python were the next two languages that I learned, and with each one, it got a bit easier to understand. Java was my second one, and I learned about how all of the languages seem to share the same core ideas, but their implementation of those ideas could be completely different. I learned about how even simple ideas like taking input and printing basic messages could be written completely differently, but for that language it was completely normal. With each new language, I learned how to adapt to new languages and even new ideas even faster. I grew in my ability to learn new things very quickly, and operate at an efficient level even while learning the topic that I am working on. I have taken two classes of C++, Python, and Java, so I have a pretty good understanding of all three of the languages, and am interested in learning Rust at some point in the future. I have also had to use my English skills in order to most adequately convey what my written codes were doing. Therefore, I believe that my programming skills weren’t the only skills that grew through my programming classes, but also my skills as a professional.

**Ethical Hacking and Penetration**

Ethical Hacking and Penetration is a rather interesting topic to discuss with classes, because there are so few of them that actually teach how to do this skill at ODU. The main class that I was actually able to have experience with this skill was my rather aptly named Ethical Hacking and Penetration. In that class, I was able to do hands-on assignments with SQL injections, Packet Sniffing, and using a false browser exploit along with many other assignments. I was able to put some of the ideas for hacking techniques into actual practice with a hacking lab hosted by ODU, and had the opportunity to see what I hoped to one day do with my career in practice. This was an eye opener to what I would one day do, and gave me further resolve to continue in my path. I didn’t get to continue to learn more about ethical hacking and penetration until later on in my college career, when I was working for the school as a student worker and working on an assignment given to me by my bosses. I had to learn how to get into a computer with a user that had completely forgotten their password, and did not have any built-in methods in order to get in, like a question about their childhood or first pet. Instad, I had to learn about recovery techniques that would allow me to change the password without ever having an account on the computer in the first place. Now, I am continuing to learn more about infiltration techniques, to continue to build my understanding of what to defend against.

**Work Experience**

Work experience is a somewhat all-encompassing term I have used to describe the many experiences I have had that have helped me grow in my understanding of the concepts to be a proficient cybersecurity professional. Many of these experiences have given me the opportunity to feel comfortable doing the actual activities instead of just learning about them in theory. I have worked three different internships while taking classes here at ODU, and one of them even evolved into the student job I work now. The three internships that I worked are as a student intern under the CCIA and IT departments at ODU, as a cybersecurity consultant to a local law firm in a pilot clinic, and as a researcher into new AI applications for drones for the US military. By going into all of these different experiences, each of which were completely different in terms of expectations and goals. I was able to learn Teamwork skills with a bunch of different environments, and see how teamwork changes depending on the people you work with.

**Conclusion**

Through my work experience as well, and somewhat through my experiences back in high school, I do also know a high amount about firewalls, Active Directory, DNS, and plenty of other core ideas that are important to have. I believe that all of these different skills have come to me over these past years, especially throughout college. I know I have a lot more to learn, and that’s why by the end of this semester, I plan on having my CompTIA Sec+ certification, and AWS cloud practitioner certification underneath my belt, just like the Google Cybersecurity certification I already have. I’ve done my best to ensure that I have never limited myself in what I study, and to make sure that my knowledge spanned more than just my degree required. I never wanted to be limited in my choices, and I wanted to know that my knowledge wouldn’t just be defined by the job that I chose to pursue. I never want to stop learning, and that’s part of the reason I chose the career path I did. I know my skills will only continue to grow, and I’ll develop new ones along the way.