Reflective

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Abstract

My years at ODU made me realize I have grown so much. These rigorous courses have enabled me to learn new skills that will be helpful in future jobs. I have found my strengths and weaknesses, allowing me to grow further. My journey has yet to end, but until then, I continue to march as I take advantage of my last year at ODU. I'm learning as much as possible to have a solid foundation when getting a job.

Reflective Essay

Over the years, I've honed my skills through rigorous courses. These courses allowed me to develop essential skills for my career readiness. In this essay, I will discuss three major projects that enabled me to acquire skills. Each skill set will be explored through artifacts produced during my coursework, demonstrating how they have contributed to my learning and career readiness in cybersecurity.

Not all skills can be attained through projects. However, projects that present as artifacts are key tools in letting employers know that you, as a person, have completed a task. This also proves your journey as a professional because it shows your growth. For example, my coding style is different from where I started. I only continue to grow through these experiences.

Journal Entries

The journal entries can be found in the blog section of my eportfolio. These are the weekly assignments to engage the class in understanding the social, political, legal, and economic dimensions of the interdisciplinary field of cybersecurity. This has strengthened my research, writing, and critical thinking skills.

I encounter challenges, such as outdated information that needs to be updated, a lack of information, etc. Usually, I ask teachers for help as the instructions can sometimes be vague. However, I created a mind map to overcome the challenges. Listing related information regarding a topic can be helpful when having writer's block. The mind map enabled me to view specific issues in a broader term.

Along with research skills, I've developed summarizing long articles into a list. The importance of this skill applies in a job where the higher-ups task employees with summarizing a

topic. This can be done with pages upon pages of paper, but time is money. The easier to understand, the better, thus leading to saved time.

Course Projects

Two programming courses enable me to become a better programmer. Both of which significantly contribute to my proficiency in the respective language. Each individual has their way of processing information. The class became intense, but both professors made each sample simple and easy to understand.

The first course was about C++. Before this course, I only knew Javascript, PHP, and Python. C++ was one of the programming languages that I wanted to learn. C++ is utilized in the development of Windows applications. I have ideas about applications, but I need to learn to start. The C++ course enables me to learn about the fundamentals of C++ and basic algorithms. Unfortunately, we did not make Windows applications, but we were tasked with our final project for the class. The final project was to write a program that reads a file and applies learned knowledge. It was a simple yet robust application. Writing the code was not a simple feat, but it was easier than I thought it would be after completing the project. Part of the code needed to have correctly worked. I queried forums and documentation for answers. Multiple forums showed similar concepts, but in the end, I had to revise and adapt codes to achieve the desired result.

The second class was Java. I added my first project because I utilized my research skills and attention to detail. The TAs were lenient with the assignment; in other words, it’s up to us how we infer the task. The task was simply to solve a sliding puzzle. Through trial and error, the project was completed. However, I further extend the code by adding colors. The project outputs are sent to the console, and the console has colors. Error messages would have red bold

production. At the same time, the input with information is light blue. This emphasizes the importance of output. This is a simple addition, but it can be informative when other users execute my code. Furthermore, I implemented security features, such as printing errors, regarding user input. This is to prevent stack overflow.

Overall, both classes have allowed me to sharpen my problem-solving and analytical skills and made me think like a programmer. These courses are my go-to location for deconstructing complex problems. They enable me to think critically and systematically. The fundamental problem of software development lies in the ability to understand the issue. Solving a problem is easy because it requires the imagination. Wrongly identifying the concern leads to a waste of money for business. Time and effort are the only ones that dictate the solution's effectiveness.

Undergraduate Research

My research project started in the summer of 2023 when ODU offered an REU or Research Experience for Undergraduates. They assigned a mentor to help with the project, which lasted about ten weeks. In the first week, we were tasked with attending an HPC workshop. This allowed us to gain insight into utilizing High-Performance Computing, which was necessary since most of the project deals with Artificial Intelligence. My mentor tasked me with basic Python programming and started a GitHub repository called yolov5. Yolov5 is a state-of-the-art model with active communities and is easy to use. Executing Python code was difficult because I had only recently learned it. I utilize print statements to debug my codes. However, as the program progressed, I could use the debug feature of an IDE called PyCharm. Regardless, starting from nothing was the hardest part.

In the next following weeks. I learned the fundamentals of machine learning. This was the most critical and challenging part of the experience, as the content was heavy on mathematics. I enjoy learning about math, but the gap between what I know and where I need to be is huge. Some of the concepts are linear algebra. Regardless, I studied each concept slowly through internet searches, videos, and practices. This allowed me to gain a skill in research, analytical thinking, and adaptability. The adaptability comes from the issues regarding software-related problems. For example, some of the errors I got were about library compatibility. Some of the software used in the project requires a balance of versions. However, these problems became fun when rewarded with satisfaction.

The final bit is putting it all together. The idea of completing a huge project feels rewarding when visualizing the outcome. There are no awards for the experience, but it was a nice experience for me as I learned new things. I continue the project by tidying up the overall result and improving the accuracy of the trained model. The final paper has yet to be completed.

Beyond this project, I plan to continue learning about machine learning as it will be part of our lives in the future. Starting from nothing to having the fundamental knowledge, this experience tested my limits to the bounds. This allows me to set expectations in future projects.

Beyond Academia

I've gone above and beyond academia by doing side projects. These side projects extend my knowledge through hands-on practice. Sadly, such artifacts are complex to generate since some are in a Virtual Machine, a computer inside a computer. Furthermore, there's no documentation of their existence as they are personal projects. The remaining ones are public, such as my Github repository or a website I created for a high school specialty program (http://lcse.epizy.com/).

My Github repository contains various unfinished web development codes. I learned HTML, CSS, JS, and PHP in high school. I was a self-taught programmer who aspired to become an engineer. Furthermore, my starting point was a video about making a CRUD application, or Create, Read, Update, and Delete. These became my foundation for college technical courses. My goal was to apply new features to a web application, as I recently started learning. I would overcome challenges through extensive research in forums and documentation that I didn't know I was gaining a skill. The side projects' outcomes were not for naught; they simply became a starting point for my current self.

The most significant side project I've created is a website for a specialty program. This project resulted from side projects because I integrated features from side projects to develop the website. I faced challenges such as time constraints and design. The project started towards the end of my junior year of high school. Class projects and finals were coming up, so my stress level was over the place. I would do essential assignments that are heavily graded. These allowed me to organize priorities and manage my time. The following year, my senior year, I finished the website. Everything but the application forms works. The director was delighted with the outcome. However, it's not used as the need for a domain name requires money. Additionally, SSL costs were not included. Thus leaving the website as HTTP.

Conclusion

I attained such skills because I persevered through the meticulous courses regardless of whether the teacher affected my learning. After all, it's up to students to study at their own pace. These are my current foundation. I still have room to grow and a lot to learn. Even after college, I hope to pick up valuable, rigid, or soft skills. Each individual will contribute to the company's

growth. I hope to become an ideal employee who perseveres no matter the challenge. My current skill may be lacking, but my journey has yet to end.