**Professional Self-Assessment and Narratives**

1. **Discuss how completing your coursework throughout the program and developing the ePortfolio has helped showcased your strengths and shape your professional goals and values and prepared you to either enter or become more employable in the computer science field.**

When working on any project you should always make it people friendly no matter what it is you do. While working on my artifacts I made sure to leave comments on any changes I made and left my initials as well so anyone looking at it in the future would know what was done. Programming isn’t a solo job; you should always expect others to at one point view your code for whatever reason. Most of my commented code involved sections of the programs that either needed more explanation for stakeholders to understand the processes, or for programmers to understand where they are at. The programs run as desired, but it is always good practice to give some English to the code. When I think of data structures, I think about how to make the data and algorithms flow as smoothly as possible. Throughout my time here at Southern New Hampshire University I always made it a point to create a program that’s easy to read and follow the same pattern. By keeping to the same data structure and algorithms I can easily notice any bugs or defects caused by coding issues, as I did in my data structures artifact. Working with software and databases has been a rewarding experience, and my ePortfolio showcases my method of going about it. I always aim for code that is easy to understand yet reliable. My dream career path is in cyber security, and my ePortfolio just goes to show how seriously I take security as I have run each program through various testing methods to check for errors, bugs, or defects. I see myself as a detective solving crimes while working with code, while I should be aware of the good, I should also be aware of the bad.

1. **Summarize/introduce how your artifacts fit together and inform the portfolio as a whole; this will help demonstrate the full range of your computer science talents and abilities?**

Software Design Artifact started off my works by letting me demonstrate how I like a program to look. Along with adding commented code to clearly explain what each section did I also made the format easier for future programmers to look at, or even testers who need to test the program. Software does not need to be complicated, and by keeping it simple you can easily avoid making serious mistakes down the line. In the end I can say I improved the program to do what is desired, along with making the code more reliable and secure by keeping the format in line and checking for any security issues.

Algorithms and Data Structures Artifact was a final project from my secure coding class and was riddled with various security issues and formatting issues. My goal for this particular artifact was to improve efficiency. Through meticulous effort of finding security issues by visual inspection, compiler inspection, and static analysis tool I have clearly shown with associated comments and new code that efficiency has been improved. This artifact was more than just a project to get done for my final class, it was a way for me to review my work and understand secure coding better. While working on this artifact I noticed new errors I had missed in my previous class and through research I found ways to work around them or fix them. Research is an important skill of any programmer, no one knows everything, and you need to be able to go out there and find what you need.

Databases Artifact was an interesting artifact for me to do, as it felt like a culmination of the previous two artifacts. While creating an interface with JavaScript for the artifact I needed to go out and research the proper way to code with JavaScript and apply what I knew about software design, algorithms and data structures. I had previously created an interface coded with Python to work with, yet I still needed to work through the new interface step by step. From researching how to code with JavaScript to creating the structure of the interface and following a proper format I managed to create a finished artifact for my assignment.

**Artifact 1**

**A. Briefly describe the artifact. What is it? When was it created?**

The artifact is code for a practice coding game called “The Bridge” at codingame.com. I found the source code on GitHub and made some modifications to help improve it. The code was created August 5th, 2016.

**B. Justify the inclusion of the artifact in your ePortfolio. Why did you select this item? What specific components of the artifact showcase your skills and abilities in software development? How was the artifact improved?**

I chose this artifact because I could actually watch the changes, I made affect the outcome of the program and could work more freely. The downside to using this code is that there weren’t many places to improve the code, and my main changes were making it easier to read. By easier to read what I mean is that anyone can look at the code and not have any issue following the steps (format) and by reading the comments they can understand what is going on. Besides comment and making sure the spacing doesn’t cause any errors, I changed the naming of some variables to easily understand the process. After I made my changes, I went through the process of reviewing the code, checking it visually, checking compiler warnings, and then running it through a static analysis tool and found no errors. The program runs as desired.

**C. Did you meet the course objectives you planned to meet with this enhancement in Module One? Do you have any updates to your outcome-coverage plans?**

Does the student demonstrate the ability to program solutions to solve logic problems in software? I am not sure I met the requirements for this section. What I mainly did was change the format to make the code more visually acceptable, and to allow for any errors to be easily spotted. Adjustments will be made based off feedback I receive from the professor after this assignment.

**D. Reflect on the process of enhancing and/or modifying the artifact. What did you learn as you were creating it and improving it? What challenges did you face?**

What I learned while working with the code was how it wasn’t easily understood. There were some vague comments in the code, but they did not help to explain what was going on. After reviewing the code, making comments, and changing the format for the better I now understand what each section does and how to change it if need be. I feel like I have changed the code for the better by allowing other programmers to look at the code and know what is going on and allow for modifications when necessary.

**Artifact 2**

**A. Briefly describe the artifact. What is it? When was it created?**

The artifact is from my final assignment for my Secure Coding class, and it tested to see if we could spot and fix errors involving the security and integrity of the program. From what I know of the program it is a program to sign into a user’s account and pay a bill. Looking back, I wish I had asked more questions to my professor at the time. I am unsure of when the program was created.

**B. Justify the inclusion of the artifact in your ePortfolio. Why did you select this item? What specific components of the artifact showcase your skills and abilities in algorithms and data structure? How was the artifact improved?**I selected the chosen artifact because it contained numerous errors ranging from simple to requiring a bit more thought. The artifact contains enough work to be done to easily meet the “improve efficiency” that is required. From finding simple spelling errors, to actually changing an entire line of code, the artifact goes to showcase my testing and reviewing skills, along with how to structure a program. There were a lot of constructor warnings in the program and these needed to be solved to get the program running as desired. The constructor required me to go to various files to get the code to work correctly. The artifact was improved by removing any and all errors within the program, and also correcting statements so the program made sense. The hardest problems to solve are the ones you don’t know about.

**C. Did you meet the course objectives you planned to meet with this enhancement in Module One? Do you have any updates to your outcome-coverage plans?**

I believe I have met the course objectives by walking through the program and improving the efficiency throughout the program. There were numerous errors and compiler warnings that needed to be addressed to improve the program and, while I haven’t solved them all I have worked through most of them and will continue to get rid of all the errors.

**D. Reflect on the process of enhancing and/or modifying the artifact. What did you learn as you were creating it and improving it? What challenges did you face?**

My main challenge was not asking my last professor more questions. Even though this project was from my secure coding class there were some issues which were not completely answered by me or my professor, so I had to delve deeper into correcting them. I learned a lot about secure programming as I went along, and how to properly manage memory. I like being faced with challenges and I am glad I reviewed this assignment again as it helped me understand where I can improve.

**Artifact 3**

**A. Briefly describe the artifact. What is it? When was it created?**

The artifact I chose was a MongoDB interface that was created with python, and for my assignment I wrote it using JavaScript. The interface has some similarities between the two, but JavaScript had its own set of rules to follow for inserting, deleting, and finding. The artifact was created 11/15/2019.

**B. Justify the inclusion of the artifact in your ePortfolio. Why did you select this item? What specific components of the artifact showcase your skills and abilities in software development? How was the artifact improved?**

I selected this artifact because I had just learned about advanced programming concepts in a previous course and wanted to try out a different method from what I have already done. The commands from python to the new JavaScript interface are pretty much the same but required adjustment to be used in JavaScript. Not everything is written in one code and programmers need to be able to understand how to switch from one to another. The artifact wasn’t much improved as it was created successfully using the previous python interface as reference.

**C. Did you meet the course objectives you planned to meet with this enhancement in Module One? Do you have any updates to your outcome-coverage plans?**

I believe I have met the course objectives as I have written a MongoDB interface using JavaScript. Using my previous project as a reference I made sure to have the program flow just the same as my last assignment, and I also made sure to understand what the differences are between the two. If I am missing anything required, I feel confident in my understanding of the JavaScript interface to add what is required.

**D. Reflect on the process of enhancing and/or modifying the artifact. What did you learn as you were creating it and improving it? What challenges did you face?**

I actually learned a lot by creating the new interface using JavaScript. There are clear instructions online that help you along with creating a simple interface, and with my understanding from my advanced programming concepts I could easily follow along with the changes needed to be done. I even went and checked out how to create an interface with HTML, and the general creation is the same, just with differences associated with the code. I didn’t really face any challenges besides finding time to research creating MongoDB interfaces after working 10 hours on my feet, if there is anything else that needs to be done, I will gladly jump on the chance to improve my knowledge.