The SNHU Computer Science program has developed my programming skills by providing a background in different programming languages and broad spectrum of tools and compilers to develop the code. The languages that we used were Python, Java, C++ and compilers were Eclipse, NetBeans, and MinGW. The program has taught me different types of data structures and algorithms that are common in a professional work environment. Some of the different data structures that were emphasized were linked lists, hash tables and binary trees. The data structures and algorithms were actively used to create programs that utilized software engineering principals and access of databases using SQL and Mongo.

The program gave us skills to query a database in SQL in a Linux environment and to use Mongo to create and access a database using document-oriented statements. The skills to do advanced queries and aggregation were taught and culminated with learning how to create a rest api to access a database.

The program has stressed a team collaboration environment and given us hands on learning using Eclipse with Maven to produce coding that was tracked with version control and published on bitbucket for other team members to view. In addition to using version control the program introduced us to Agile method for developing code which utilized team collaboration and peer reviews of code. The Agile method of team development outlined the way teams communicate with stakeholders and how team members would develop code to satisfy the stakeholders.

Fundamental to all aspects of the program was a continued requirement to program coding with a security point of view. This was accomplished by using best programming practices and testing. We got hands on learning to create coding with Junit test cases to test for bounds of arrays and indexes, correct output and correctness of imported data and input arguments. Code was also reviewed for correct memory deallocation, assignment of all output variables, correct data operated on in each statement, error traps, and file existence before opening.

The ePortfolio has given me the chance to showcase skills acquired in the program in data structures and algorithms, software engineering, and databases by publishing code in each area and providing enhancements of artifacts in each area. The enhancements further showcased the skills I acquired and provided a deeper understanding of the code to do the enhancements. The skills acquired in the program and the creation of the ePortfolio has paved the way to become employable in the computer science field.

The artifacts that I include in the ePortfolio are Authenticated User, Data Structures, and Stocks. The Authenticated User highlights the skills of software engineering and demonstrates mastery of having code in separate modules and calling the code in another source code module. It also demonstrates knowledge of using an MDS algorithm for hashing. Then enhancement was to convert the code to Python demonstrating the ability to understand advanced concepts in one language and to convert to another.

The Data Structure artifact is a collection of programs that are different data structures and algorithms. The data structures are linked lists, hash tables, and binary trees. The algorithms are different sort and search techniques. This artifact showcases the mastery of these subjects and the enhancement to this artifact was to combine all the separate programs into one and will allow the user to simply select which one to run to see the timing of different sort and search algorithms using different data structures. The enhancement also includes a more useful search in that searching for a name or name of a fund is implemented in conjunction of searching by ID.

The Stocks artifact is a rest api written in python to access a database using pymango. The rest api allows a user to access a database and perform the creation, update, get, and delete functions of documents in a mango data base. The enhancement is the rest api converted to java.

The artifacts demonstrate the skill set obtained in the program and demonstrate a well-rounded level of education in computer science that are directly applicable to the current computer science field.