Capstone Self Assessment

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ePortfolio Self-Assessment:

Over the course of my degree, I have gained many new skills and honed some I already had. In my time at SNHU I have learned all the skills needed to succeed in the industry and work toward my own career goals in system administration.

Collaboration and communication:

Collaboration and communication are major parts of being effective in a team development environment. To prepare myself for this part of the field I have taken courses on many of the common practices and systems used to collaborate on projects. I have extensive knowledge of the main development methodologies AGILE, and SCRUM, including the iterative design processes they entail. I have worked to gain crucial skills used within the software development life cycle including UML and git. I have also prepared myself to work alongside other developers by learning how to handle code reviews and commits while making my own code readable and maintainable for anyone who works on it. Communication with stakeholders is another important topic I have studied extensively. While learning agile I gained the skills needed to interact with and understand the needs of stakeholders and clients alike. I learned to effectively communicate both with them, and with my team, to produce a product that meets and exceeds the original design.

Data Structures and algorithms:

Data structures and algorithms are crucial in my specific focus of system administration. I have prepared myself by learning how to create fast and effective algorithms covering a wide variety of applications. I have learned how to create binary tree and linear search algorithms, hashing algorithms, and made extensive use of various common algorithm libraries throughout my projects. I also gained extensive experience with memory management and the handling of complex data structures using pointers.

Software engineering:

Software engineering is a part of the field I have spent extensive time on. I have developed software to handle a variety of tasks including full database management, complex algorithms, user interactivity and interfaces, and front-end HTML. I have learned a variety of coding languages including C++, Java, Python, HTML, and Lua. Throughout my courses I have learned how to take a project from design document to final implementation following all the needed steps and taking industry best practices into account. My goal is always to produce a product that meets the clients standards and leaves no feature underdeveloped.

Databases and security:

Most companies will require databases to track and upkeep data. Those databases are often created and maintained by the system administrators. In order to prepare myself for this I have learned SQL, SQLite, MongoDB, and Pymongo. This knowledge covers most of the databases currently used within the industry and will allow me to create and upkeep systems for almost any company.

Artifact Summary:

I chose three artifacts for my project. The first is my final project from my course on data structures and algorithms. This artifact is a binary tree search algorithm that I had initially struggled with when I took the course. I took this as an opportunity to show how I have improved and overcome the problems I originally had. This artifact allowed me to demonstrate my skills in algorithm creation, complex coding structures such as pointers, nested loops, and structs. I also used this artifact as a showcase to demonstrate the difference between various search algorithms and the efficiency that can be gained through using binary tree searching.

The second artifact I chose was a set of two pieces of software I wrote near the beginning of my degree. The first handles inputs from the user and processes text in order to translate the common abbreviations seen in text messages. The second is a monitoring system for a zoo. This code accesses a file and allows the user to parse through it via menu navigation. It also can alert the user of any potential issues with the animals or habitats. For these I worked to refactor them from java to C++. This was a good way to showcase my knowledge of multiple languages and ability to refactor code from one to the other with no loss in functionality.

Lastly is another piece of simple code from the same course. It asks the user how many apples and oranges they have, how many they need, and then calculates how many they should buy. I saw this as a perfect opportunity to implement a database. Working from what was originally a very simple piece of software I created a full database management application using SQLite complete with all CRUD functionality

All code was produced following industry standard best practices and with complete and in depth commenting for all features. I worked to ensure that all my code was implemented in a way that was easy to maintain, readable, and expandable for future implementations.