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Professional Self-Assessment

Throughout completing my program I had a chance to work with a few different languages and technologies, which gave me a chance to see what I found interesting or not and shaped the path I want to follow in my career. Although what I have included in my ePortfolio is all in python, I worked extensively with C++ and Java as well. Courses like software development life cycle and software testing and quality assurance gave me an understanding on the way developers work together to collaborate in a team environment and communicate with project stakeholders in a professional environment. Other courses outside of the major also gave me good experiences with collaboration and communication by requiring me to work with other students and produce a wide range of media to share information quickly and effectively. I got to work with openGL which was informative but in a way disappointing – I learned that I hate graphics programming so a career in game development probably isn’t a good path for me. Most importantly I got to study SQL and databases a lot with 5 different database related courses completed, which is the path I will focus on going forward in my professional development. I currently work for a company known for their databases and have real world experience working with a variety of RDBMS platforms. Now that I also have an academic background to support my experiences I an poised to be a productive new member of a team working with them.

To showcase my skills in the data structures and algorithms category I took a simple athletics roster program from one of my first courses that was meant to showcase my usage of the python dict type and upgraded it to use a doubly linked list instead of a dict. That way I was able to have multiple data fields associated with each node by creating a class to represent player objects and embedding it in each node. I then implemented a few different sorting algorithms to sort the list by different fields.

For the software engineering and design category, databases, and security category I took the final from my most recent course, which was also my most advanced program at the time, and further improved upon it to produce the most complete, polished, and feature rich program I have written so far. The original artifact was a mess that met all the objectives of that assignment but wasn’t thoughtfully designed at all. The first step in improving it was to redesign it to meet software design standards, specifically to split the one large program in to two classes and two separate programs with their own functions. The first class is a basic database connection class that can be applied to any mongodb connection, the second class extends the first and contains functions specific to the market database being worked with. One of the programs is a ReST API to interact with the database, the other is a command line interface to interact with the database. After improving the design and re-engineering it, I worked on enhancing the security by adding in database access control. The database is now secured, the user the market interface class uses only has read/write access and only to that database. It has only the privileges it needs to perform its function and nothing more. Furthermore, I improved the program by increasing the error handling and validating user input before passing it to the database to prevent injection attacks.