The enhancement is a C++ program that implements the CRUD functionality for database management and changed to handle character and their stats. Each character has their own stat sheets with different information for weapons and abilities. This project is based on the original crud artifact from CS 340 Python CRUD program that connected to a MongoDB database for an animal shelter. The enhancement to C++ was completed to demonstrate advanced software engineering, algorithms, and data structure skills. This enhancement was chosen for my ePortfolio because it clearly demonstrates my ability to design and implement a structured robust software solution.

The project showcases multiple important skills and competencies in software development. First is the data structure implementation that has a database use a vector to store the Character objects. Each section also has error handling in the case of try catches and throwing exceptions to handle any issues and other errors gracefully. The software design principles used for the CharacterDatabase class encapsulates all operations to managing characters, maintaining clean separation of concerns and a cohesive design. This enhancement aligns successfully with the course outcomes, which include designing and evaluating computing solutions using appropriate data structures and algorithms, and demonstrating innovative techniques, skills, and tools in computing practices to implement solutions that deliver value.

Reflecting on the process the enhancement from the original python artifact to C++ provided valuable learning opportunities. It helped deepen my understanding of memory management, type safety, and structured error handling in C++. Implementing the comprehensive Character struct with multiple stats challenged me to design readable output and efficient CRUD operations. One key challenge was ensuring robust error handling while maintaining the clarity and performance. Overall this process reinforced the importance of thoughtful software design, testing, and documentation in building maintainable and forward thinking systems.