**5-2 Milestone Four: Enhancement Three: Databases**

**Artifact Description**:

This artifact focusses on database driven project that I developed in a prior course. I have done SQL based database system. It is database-driven application that is highly manages structured data. I created this project during a course in the computer science program. To demonstrate proficiency in database management and optimization as it incorporates SQL-based queries and database interactions.

**Justification for Inclusion**:

It highlights my skill to work with databases which is critical skill for software development. This artifact shows my ability to:

* Implemented integrity constraints and data validation
* Through indexing and queries optimization, optimized database performance
* For data retrieval and manipulation write a complex SQL query
* Implement and design a relational database structure

It clearly shows my growth in database design and my capacity to turns ability into real world.

**Course Outcomes Alignment:**

* Able to design and evaluate computing solutions which helps to solve problem using algorithmic principles and other computer science practices
* Excellence in database design to implement computing solutions and in software engineering that deliver industry value.

**Reflection on the Enhancement Process:**

* Knowing potential security vulnerabilities in SQL queries andhighly implement measures to mitigate SQL injection risks.
* Clearly understanding that indexing can help in improving query performance
* Focusing on the importance of data normalization as it prevents in redundancy and helps to maintain data integrity.

**Challenges Faced:**

The major challenges were not to affect functionalities of application while optimize SQL queries. As the next part was to restructure some queries to enhance performance to make sure they still returned the expected outcome. While debugging and testing all these changes required a methodical approach to verify efficiency and correctness.

**Conclusion:**

These artifacts show my ability to work with databases more particularly and effectively. As, it reflects my growth in applying database management reinforces my competency in SQL development and principles.