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CS 499

3-2 Milestone Two: Narrative

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**Enhancement One: Software Design and Engineering Narrative**

**Brief Description of the Artifact:**

The AnimalShelter.py (CRUD Functions) artifact is a Python script designed to handle the Create, Read, Update, and Delete (CRUD) operations for an animal shelter's database. This project was initially created in 2020 as part of a course project in Found in App Development. The script serves a significant role in managing shelter operations by ensuring efficient data handling and storage for the animals in the shelter.

**Justification for Inclusion in ePortfolio:**

I selected the AnimalShelter.py (CRUD Functions) artifact for inclusion in my ePortfolio because it exemplifies a comprehensive application of software development skills, particularly in database management and Python programming. The following specific components are highlighted:

* Efficient Database Operations: The script integrates with a database system to effectively handle data related to animals, showcasing proficiency in database connectivity and operations.
* Functionality and Scalability: Each CRUD operation is efficiently coded to be scalable, demonstrating the ability to write clear, maintainable, and reusable code.
* Error Handling and Validation: The script includes robust error handling and data validation mechanisms, ensuring the reliability and integrity of the operations.

The artifact was further improved by optimizing database queries, enhancing code readability, and incorporating additional validation checks. Each enhancement demonstrates growth in my problem-solving and software optimization skills.

**Meeting Course Outcomes:**

Through the enhancements made in Category One, I successfully met the planned course outcomes related to effective database management, coding best practices, and problem-solving in software development. These enhancements solidified my understanding of CRUD operations, error handling, and efficient database interactions. Currently, I have no updates to my outcome-coverage plans, as I believe the artifact comprehensively covers the intended learning outcomes.

**Reflection on the Enhancement Process:**

During the process of enhancing and modifying the AnimalShelter.py artifact, I learned several valuable lessons:

* Iterative Development and Testing: The importance of iterative development became evident as I repeatedly tested and refined the CRUD functions to improve performance and reliability.
* Challenges and Solutions: I encountered challenges related to optimizing database queries to reduce execution time. Through research and practical application, I learned advanced data indexing techniques and efficient query structuring.
* Leadership in Collaboration: By documenting the enhancement process and creating comprehensive instructional materials, I developed leadership skills that will enable me to guide others through similar enhancement processes. This includes breaking down complex tasks into manageable steps and effectively communicating technical improvements.

In conclusion, my narrative highlights the relevancy and value of including the AnimalShelter.py (CRUD Functions) artifact in my ePortfolio. The process not only reinforced my technical skills in software development but also provided essential insights for teaching and leading others in this domain.