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CS 499

Module Five

Milestone Four: Databases

Briefly describe the artifact. What is it? When was it created?

This document presents my assessment and improvements made to a project from the CS 340 course, completed in October 2024. The project focuses on creating a CRUD (Create, Read, Update, Delete) application tailored for managing data at an animal shelter, using MongoDB as the database. The application supports essential functions such as adding new animals and deleting records when needed. By implementing this system, users can effectively manage and maintain information, enhancing the management process and significantly improving operational practices related to animal care and shelter administration.

Justify the inclusion of the artifact in your ePortfolio. Why did you select this item? What specific components of the artifact showcase your skills and abilities in software development? How was the artifact improved?

I chose this as my third artifact due to the challenges I faced at the time, prompting me to revisit it with a new perspective. While the current system operates effectively, there is room for improvement in its database capabilities and data retrieval methods. My plan includes leveraging MongoDB's advanced features, using aggregation pipelines for complex queries regarding status; establishing a robust user authentication system for managing access to sensitive information; and developing a web interface with HTML and JavaScript to enhance interaction. These upgrades create a more efficient database system that adapts to the needs of the shelter.

Did you meet the course outcomes you planned to meet with this enhancement in Module One? Do you have any updates to your outcome-coverage plans?

I believe I have addressed all critical requirements related to the course objectives for this milestone. My primary focus has been on improving the User Authentication and Role-Based Access Control systems, which are essential for establishing a framework that clearly distinguishes between different user roles,. This system guarantees that access to sensitive information and the ability to execute Create, Read, Update, and Delete (CRUD) actions are regulated according to the specific roles assigned.

Additionally, the Frontend Integration aspect involves creating a user-friendly and interactive web interface using HTML and JavaScript. This method allows users to interact with the database through their web browsers, greatly enhancing user experience. This promotes an empowering user interaction while maintaining high security standards throughout the process. At this time, I don't think I have anything to share with you concerning outcome coverage plans.

Reflect on the process of enhancing and modifying the artifact. What did you learn as you were creating it and improving it? What challenges did you face?

I have greatly improved this artifact by gaining insights into enhancing database features and data access methods. Utilizing the advanced capabilities of MongoDB, I implemented several important upgrades, including the addition of indexes to speed up searches. I added aggregation pipelines to manage complex queries related to age, breed, and adoption status. These enhancements highlight my results.

I faced difficulties mainly in creating a code that would do what was expected. The end result not only meets the course criteria but can have an opportunity for future improvements. This experience has been challenging as I explored different ways to enhance my project.