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CS499

Algorithms and Data Structures

The second enhancement focused on Algorithms and Data Structures. For this, I continued working with the same MongoDB Shelter Dashboard project from CS 340, but targeted the backend logic used to process and present data. The original version only handled very basic filtering and sorting, which didn’t make full use of what the dataset could offer in terms of insight and responsiveness.

In the enhanced version, I redesigned how the program processed data before displaying it on the dashboard. I introduced more advanced filtering logic, such as prioritizing animals based on how long they had been at the shelter or whether they had urgent needs. I used lists and dictionaries in more efficient ways, making it easier to manipulate the data dynamically. By optimizing these processes, I improved the performance and usability of the dashboard. This enhancement allowed me to practice designing algorithms with real-world data and making decisions about trade-offs between efficiency, complexity, and maintainability. It helped me reinforce skills I learned earlier in the program while applying them in a more practical, hands-on way.