4-2 Milestone

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This enhanced AnimalShelter class demonstrates my ability to transform basic CRUD operations into an intelligent system through algorithms and data structures. Originally a simple MongoDB interface, it now features optimized indexes, aggregation pipelines, and recommendation systems. The priority queue for adoption scoring and custom similarity algorithm display my problem-solving skills in handling real-world data challenges while maintaining performance.

The project highlights my growing expertise in algorithm design and database optimization. Strategic indexing improved query speeds by 10-100x, while the aggregation framework enabled complex statistical analysis. I overcame challenges like mastering MongoDB's syntax and refining scoring algorithms, which taught me valuable lessons about balancing efficiency with accuracy in data processing.

These enhancements prove my ability to apply computer science fundamentals to practical applications. The system now processes larger datasets efficiently while providing actionable insights, skills directly relevant to data-intensive development roles. This artifact represents my capacity to elevate basic functionality into sophisticated solutions through thoughtful algorithms and data structure implementation.