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CS-499

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4-2 Narrative

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

The artifact is a Pet Hotel Management program, originally created in my IT-145 course. It was first written in Java and later refactored into C++ as part of my enhancements. The program manages pet check-ins, tracking their information such as type, age, length of stay, and optional grooming services.

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 algorithms and data structure? How was the artifact improved?

I chose this artifact because it demonstrates practical use of algorithms and data structures in a real-world style program. The improved version uses a hash map for fast pet lookups and a vector with sorting algorithms to organize pets by age or days staying. These enhancements show my ability to choose and apply the right data structures and algorithms to improve efficiency and usability.

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?

Yes, I met the outcomes related to designing and evaluating computing solutions with algorithmic principles. The artifact clearly demonstrates both the selection of efficient data structures and the use of sorting/searching algorithms. No changes are needed to my 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 learned how to balance usability with efficiency by combining unordered\_map for quick searches and vector for sorting. The main challenge was handling memory management in C++ while making sure pets were stored in both structures without leaks. Another challenge was designing the menu system so users could interactively add, search, and sort pets in a clean way. These improvements helped me better understand the tradeoffs and benefits of different data structures.