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CS499: Computer Science Capstone

Southern New Hampshire University

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**CS499 Enhancement II Narrative**

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

Once again, this is my Rescue Animal (Shelter) project from IT145. The original artifact was created in 2022 but has already been enhanced by the first and third enhancement categories. Re-done in from Java into Python and having a full database and relevant functions added to it, this project now includes algorithms used to search, sort, and manage the data and data structures in the program.

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 selected this artifact for this enhancement because once the program was re-done in another language and contained a database and data operators, it was perfectly primed for more improvement in usability and utility. This artifact demonstrates not only an understanding of the SQL and im-memory data structures needed to operate a program like this, but also a comprehension of the algorithmic structure required to adjust, sort, and organize the data contained in this program’s database.

I improved this artifact by implementing multiple algorithms that affect the structure and organization of the database as well as the utility of the menu options.

Enhancement list:

* A new, complex algorithm was implemented that determines the training stage of each animal listed in the database and updates them accordingly based on how long it has been since the animal’s original intake date.
* Another function was added to the menu options to print a list of the animals in the database sorted by age.
* A third algorithm was added that allows a user to delete entries from the database based on their ID; for example, a user could retrieve a list of animals and their IDs by selecting the menu option to print a list of all animals sorted by age, then use that list to find the ID of the animal they want to delete. I did not use the animal’s name for this function in case multiple animals have the same name.

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

I feel that this enhancement meets the intended course outcomes by demonstrating that I can use industry standard tools to create a useful application with relevant functions, and that I can use best practices and design tools to make sure that the program adequately and accurately fulfills its purpose.

I do not have any updates to my outcome coverage since this algorithm implementation was successful.

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?

This enhancement was the hardest one yet, more so than translating from one language to another. My biggest challenge was learning and understanding how to implement the algorithm required to automatically update the animal’s training status based on intake time and date, as it required learning how to use the datetime libraries in Python and run calculations accordingly. However, I learned that moving a program’s data from in-memory arrays to a permanent database does not always solve an issue completely – understanding how a database operates and ensuring that you have the correct algorithms and functions implemented to use it is very important.