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CS499: Computer Science Capstone

Southern New Hampshire University

26 May 2024

**CS499 Enhancement I Narrative**

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

My first artifact for enhancement is the Animal Shelter project from IT145, which was written in Java. The program runs in a console window with a menu that allows a user to view and edit a list of rescue animals, which consists of dogs and monkeys. This project was created over two years ago in April 2022.

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 included this artifact because it reflects some of my earliest work and left a lot of room for improvement, although the original project was completed satisfactorily to fulfill the IT145 project requirements. This artifact contains multiple classes to adhere to the principle of object-oriented programming, as well as multiple array lists and a long list of custom methods used to access, read from, and write to the array lists within the program. These classes and methods make this program more than just a simple console application because they show that I have a grasp on more advanced and industry best practice principles of programming.

I have improved this artifact by re-doing it from Java into Python, which not only made the program’s syntax much simpler but also reduced the amount of code required. The new program is cleaner, more concise, and generally a more professional product. This improvement also sets the stage for a later enhancement in the Databases category since Python is generally easier to use for database integration than Java, at least in my experience.

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 effectively meets the outcomes I originally intended for it because it required quite a bit of research and redesign to properly translate it from one language to another, especially given that Java and Python do not share any common syntax, even in commenting the code. This meant that I had to manage the trade-offs between one language and the other, so a few major aspects of the program’s structure have changed accordingly. This enhancement also demonstrates the use of well-founded techniques, skills, and tools to accomplish industry-specific goals, because I had to start the Python program from scratch and design each class and method in accordance with everything I’ve learned in the past two years since the artifact was originally created. I feel that this properly displays my programming skills because even with an existing program to use as an outline, every single method and object in the code had to change for the new language.

I do not have any updates to my outcome coverage plans yet, although I would argue that this enhancement also created a more professional product that would be more valuable in a collaborative environment since it is so much cleaner and well-commented. The original Java project would not have stood up in a collaborative and team-based environment, but the new program in Python would be much easier for someone else to read and understand, then add to or edit the code.

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?

The biggest thing that I learned during this creation and improvement process is that I am better at programming and code design than I thought I was. I spent the first four or five days of working on this project in the design stage alone, re-learning a lot of Python and trying to understand the Python alternatives to all the tools and syntax in the Java code. In this process, I learned that Python contains enough built-in functions and libraries that I did not need any of the libraries that were being imported into the Java program. I also learned that when translating from one language to another, there is no way to copy-paste or directly translate these programs, necessitating a full redesign and rebuild.

One of the biggest challenges in this enhancement was ensuring that the menu logic worked – it took several iterations and a couple of sessions with SNHU tutoring services to completely grasp class inheritance in Python, for example, making the subclass options visible to the parent and driver class by using “super().” in front of the object attributes. Another challenge that took time to overcome was initializing everything with Python’s “init” statements in the class constructors as well as the main menu code. I feel that these challenges were overcome, and through a lot of design and trial and error, this enhancement fulfills at least the two original outcomes I had planned for it, if not also the collaboration-focused outcome for the reasons detailed in the previous section.