**Enhancement One: Software Design/Engineering**

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CS-499 Computer Science Capstone

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**Artifact Description**

The artifact used for the first enhancement category, software engineering and design, is the final project for IT145. This artifact was created using Java in February of 2023. This artifact is a program created for an animal search and rescue company, allowing them to intake new animals, reserve rescue animals, and print lists of animals based on animal type and reserved status. Once an animal is reserved, it can be sent out on rescue missions to save humans from dangerous, and potentially life-threatening, situations.

**Why This Artifact Was Selected**

This artifact was one of the first programs that I created. I have learned a lot about programming through my classes here at SNHU. Therefore, enhancing one of my first programs will be an excellent way to showcase my growth as a developer. While this program met the requirements for the class, I can see now that there are quite a few ways it could be enhanced.

**How This Artifact Was Improved and Skills This Showcases**

During the enhancement process, I first began by converting the program from Java to Python. In doing so, I have proven my mastery in both languages; I understood the functionality of the Java program and was able to convert the program to Python without losing any functionality. The original program also initially had no data validation and very minor error handling. The enhanced program now contains robust data validation and error handling, ensuring that if an incorrect input is entered, the program handles it accordingly. This showcases my ability to create a program that functions correctly and appropriately handles errors as they occur. Furthermore, I removed leftover methods used to test functionality and implemented comments that were much clearer and more concise than previously. This showcases my ability to create a program that is easy to understand and maintain, even by other developers.

**Course Outcomes Met**

By completing this enhancement, I have met the following course outcomes:

* Employ strategies for building collaborative environments that enable diverse audiences to support organizational decision-making in the field of computer science.
  + Python is a widely known language with easy to understand syntax. Converting the program to Python broadens its accessibility and promotes an inclusive, collaborative environment. Removing unnecessary comments and adding more descriptive ones instead also increases the readability of the code, making the program easier to understand.

**Reflecting on the Enhancement Process**

While enhancing this artifact, one challenge that I faced was remembering Python syntax. Throughout obtaining my degree, only two of my courses involved Python, with most focusing on either Java or C++. Due to this, I found myself having to reference previous work I have completed in Python to refamiliarize myself with proper syntax. Overall, though, I found the enhancement process to be relatively easy and quite enjoyable.