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CS-499

**Enhancement 1 Narrative**

The artifact that I chose for Enhancement 1: Software Design/Engineering is a Python file from CS-340 Client/Server Development. The Python file created a connection to a MongoDB database and used CRUD operations to work within the database. The database held different animal profiles used for a rescue project, so the database needed to be updated frequently to work with the changing information. The Python file was created in May-June of 2024.

The reason why this artifact was chosen for the Software Design/Engineering category is due to the fact that it had 4 clear functionalities that interacted with the database. Without the CRUD operations, the database would not have worked effectively, as the database would have stayed the same throughout the project. This artifact showed how I created and designed functions that would complete the operations needed to have a successfully working database. The enhancement that I made to this artifact is converting it from a Python file to a Java file, while still connecting to MongoDB and using CRUD operations. This shows skills and abilities in software design by having knowledge of two different coding languages, as well as the ability to make the file usable in a different language. I was able to find and use matching functions and methods to what I originally created in the Python file to create an equal file in Java.

The course outcomes that I planned to meet with this enhancement were: Employ strategies for building collaborative environments that enable diverse audiences to support organizational decision-making in the field of computer science and demonstrate an ability to use well-founded and innovative techniques, skills, and tools in computing practices for the purpose of implementing computer solutions that deliver value and accomplish industry-specific goals. I showed that I met those course outcomes by converting the file successfully. Specifically, by showing knowledge in two coding languages it proves I have strategies for building collaborative environments for diverse audiences as I can adapt projects to what is needed and can support different teams by either converting or explaining how a project should function. Additionally, by converting the file I showed well-founded and innovative techniques and skills for delivering industry-specific goals. As of now, the original plan that I created for outcome coverage stays the same.

While I was enhancing the artifact, I learned about more methods that are used in Java. Specifically, the findIterable<> method in Java that works with MongoDB to help query the database. This was a method that I was not familiar with before researching for the conversion. This helped me to see that while you may already know some information and possess skills in a certain coding language, there is always more to learn to advance your skillset. Additionally, the challenges I faced when converting the Python file to Java were with the imports. The imports in the original document were done for me as part of the course, so I did not have to figure out what needed to be imported into the file to make it work correctly. However, while creating the Java file, I had to do research to figure out what imports were needed and how to import them in Java. I found a helpful page on the MongoDB website that explained how to set up a project with Java and MongoDB that included which imports were necessary when working with a database and collections.