Professional Self-Assessment

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In this document, the author will provide an analysis of their growth throughout both the SNHU computer science program and CS-499 capstone course. This analysis will demonstrate that the author has achieved all goals for Computer Science course outcomes. This paper will also serve as an introduction to the portfolio and as a vehicle for highlighting the author’s strengths.

## Examples of Growth Throughout the Course

Throughout the arc of the author’s journey through the SNHU computer science program, the author was exposed to many technologies and skills that helped shape them into an ideal junior candidate. During the git class, the author learned to collaborate with other programmers in a team environment, specifically through Slack, by writing branches and creating pull requests that needed to be able to merge and play nice with the code written by other developers. Over the course of developing this project, the author gained experience communicating with stakeholders in the form of the reviews that accompanied each submission of the artifact; additionally, the author gained experience in communicating to stakeholders during the original build of the mongodb backend, as communicating with the clients of the scenario about work done was part of the assignment. The author has grown and demonstrated competency in data structures and algorithms by demonstrating the use of sorting when returning information from db, implementing custom data structures using schemas and models; additionally, the author learned about binary search trees and hashing (which the author has used in their workplace via a python dictionary to speed up an xml parser by several orders of magnitude) from the data structures and algorithms class. The author has demonstrated competency and experience in software engineering and database design through multiple classes, including a database design class and a class utilizing a modern stack with a mongo database; additionally, the provided artifact demonstrates competency through the use of a postgres backend, demonstrable improvement over the MongoDB artifact, and the use of sqlalchemy models to create tables and communicate with the database. The author demonstrates experience and competence in software engineering inside the artifact through the use of self-explanatory naming conventions, the use of comments and other documentation, and the use of unit testing. The author demonstrates security in the artifact through the use of passwords and password checking in the artifact, abstracting secret keys and DB passwords into local environment variables, as well as the implementation of permission-checking for different API endpoints, although permission-checking had to be disabled to permit initial setup for people cloning the project (different endpoints required different levels of permission; a get required a level of read only, where a delete required full permissions).

## Summarizing the Artifact

The artifact submitted here demonstrates competencies in all three categories: Software engineering, data structures and algorithms, and database. These three categories exist together in the artifact and demonstrate competence. On calling the right API endpoint, a call is made to the CRUD layer to create an object using the schema data structure to pass the values to a model which is then used to construct an object in the database. On calling the get for an endpoint, the CRUD layer get is activated, which uses the schema and model to pull data from db and return it to the endpoint user in the form of a json-type data structure, all while being able to sort returned objects. This artifact also demonstrates strong software engineering principles with the use of unit testing, plain-language naming conventions, judicious selection of data structures and logic, and thorough documentation. The author feels that in light of this analysis, this artifact is reflective of the expectations for an entry level software engineer.