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**CS-499 Computer Science Capstone**

**Spring 2025**

**Southern New Hampshire University**

**Personal Self-assessment**

My journey through the Computer Science program at Southern New Hampshire University

has been both demanding and incredibly fulfilling. Before enrolling, I had no background in

software engineering. Currently, I serve as a Project Manager at a healthcare company and

have previously worked as a software engineer. This transition marked a pivotal shift in my

career—one that required me to think creatively, problem-solve effectively, and adapt

quickly. It was this desire for growth that led me to pursue a Bachelor's degree in Computer

Science with a concentration in Software Engineering.

People often ask me why I made such a drastic change. My answer is simple: I have a deep

love for technology, and I’m driven to make a meaningful impact—not only through direct

patient care but now also by developing innovative medical software that improves lives.

With my background in healthcare and my new technical skills, I’m determined to

contribute to the creation of transformative tools for the industry. From the beginning, I

was prepared for the hard work and long nights. There were moments of self-doubt and

frustration—times when I struggled to grasp programming languages, solve coding

challenges, or even find guidance from someone with a computer science background.

Despite the obstacles, giving up was never an option. I’ve always welcomed challenges, and I

faced each course one step at a time. Now, as I reach the end of my program, I recognize that

learning never stops, and I remain committed to growing and evolving as a professional in

this field. Throughout the program, I worked with several programming languages and

technologies. Java became my primary language, and although I still have more to learn, I’ve

grown confident in my abilities and eager to improve further. I also explored MySQL, where

I rebuilt a messaging app originally created in Codio, using Sublime Text to enhance both its

structure and functionality. My journey began with Python, which felt intuitive, but C++

introduced new challenges. Then came Java, which offered the structure of C++ but with

concepts I found more approachable and easier to master.

**Repository Contents**

1. Code Review Video
2. Enhancement Narratives
3. Source Code
4. Professional Self-Assessment

**Code Review:**

An initial code review was performed on the artifact. The purpose of the code review was to

identify the enhancements that could be made to the code. The main enhancements that I

planned were:

Enhancing Java code and add functionality

Adding Pandas dataframe functionality instead of class management

Adding database functionality to store data before closing the application

Adding a main function to function as the application.

Software Design

The main enhancement for my software design was porting my code over to Python. To

implement this, I took my Java classes and created accompanying pseudocode. Then I

enhanced the source code in Java to add additional functionalities.

Algorithms and Data Structure

One addition I had to make was adding a main function to the application. This could then

perform the main logic for the application. I also implemented Pandas dataframe

structuring to handle my application data and search results.

Databases

The final addition was implementing a CRUD functionality for MongoDB database at the end

of the application. This allows the data to be added, deleted, updated and found. It takes the

dataframe and stores it as a database table.

**Github pages :**

https://mahalii.github.io/