CS-499 Professional Self-Assessment

Samuel Hemond

Hello, my name is Samuel Hemond and I am currently a computer science major at Southern New Hampshire University (SNHU). Previously I have completed computer science classes at both Great Bay Community College (GBCC) and the University of New Hampshire (UNH). Through these classes, I have had experiences with the following programming languages, technologies, and frameworks. In no particular order, I have worked with C, C++, Java, XML, Android, React Native, Open-GL, JavaScript, Python, HTML, CSS, MySQL, SQLite, MongoDB, Google's Firebase Realtime Database, GDScript, Leg Architecture, Assembly, Microchip programming with MPLAB X IDE, TensorFlow with Keras, as well as the MEAN stack using MongoDB, Express JS, Angular, and Nodejs.

Through this ePortfolio, I will be focusing on an Android project using primarily Java and XML. This project also covers the topics of design focusing on UI and overall design, algorithms, and security in terms of implementing an SHA-256 hashed password, and databases using both SQLite and Firebase Realtime databases to store data. I have worked with Java and Android Studio before in a team setting at UNH where we created a 2d tank game and utilized both an SQLite database and a server connection for multiplayer with the server code written in Python.

I have also worked with full-stack development at SNHU using the MEAN stack creating a sample website for a travel company capable of displaying trips to a user with a single-page application for the staff to log into and change available packages. This project included aspects working with the entire stack from the front end containing HTML and CSS to the back end

written in JavaScript and a MongoDB database. At SNHU I also learned about and worked on developing test-driven and security-conscious code and working with MySQL databases. At SNHU I also gained experience working with AI in particular using TensorFlow with Keras using Python to identify handwriting and to solve for the best path in a maze.

I also have experience programming microcontrollers ranging from using Leg microarchitecture and assembly to program Motorola Microcontrollers to using C and the MPLAB X IDE with a PIC18F4550 microcontroller and programming the more common Arduino and Raspberry Pi boards. These applications have ranged from simple bit addition and shifting to working with light sensors, temperature sensors, motors, lights, switches, etc.

Old version

Hello, my name is Samuel Hemond and I am currently a computer science major at Southern New Hampshire University (SNHU). I started taking computer science classes during my Associate of liberal arts at Great Bay Community College which I completed in 2017. From there I transferred to the University of New Hampshire where I pursued my Bachelor's in computer science from 2018 to 2021 when I withdrew during the start of COVID-19. I worked at a machine shop until I transferred my credits to SNHU at the end of 2022 to complete my degree and am set to complete my classwork at the end of June 2024.

During my time at Great Bay Community College (GBCC), I took several computer science classes. I took entry-level C++ and Java classes serving to teach the basics of object-oriented programming and programming language fundamentals. I also took a class on the basics of Linux which has helped immensely in this field. At the end of my time at GBCC I took a final

class covering the fundamentals of mobile application design for Android Studio as well as an introduction to version control systems with bit bucket.

From here I started as a Computer Science student at the University of New Hampshire (UNH). In my time at UNH, I mostly worked with C, C++, Java, SQLite, and Python with some work in SQL, JavaScript, HTML, CSS, XML, LEG instructions, and assembly. Many of my classes during my time at UNH covered lower-level topics such as data structures, algorithms, machine organization, operating systems operations, and microprocessor programming.

At UNH I also learned topics such as agile design principles which was taught alongside designing and developing a basic 2d Android tank game with a team involving both an app, SQLite database, and a server for multiple players. I also learn about the topic of cyber security from the view of an IT professional. I also learned the basics of HTML, CSS, and JavaScript with a basic website sending queries to a public API.

From here I started at SNHU and worked mainly with JavaScript, Python, C++, Java, MySQL, SQLite, Goggle Firebase Realtime Database, TensorFlow with Keras, MongoDB, Express JS, Angular, and Node. During my time at SNHU, I also learned much more about designing software and relevant documentation, designing security-conscious software, and developing effective tests for programs. My classes also covered AI topics working with TensorFlow through Keras on identifying handwriting and solving the best path problem for a pirate to reach a goal. I also worked with Android again integrating SQLite with Android persistent room library. Finally, I implemented the MEAN full stack consisting of MongoDB, Express JS, Angular, and Node to develop a simple website using both standard web pages and single-page applications.

Outside of classwork I have worked with JavaScript, CSS, and HTML on my own to work on some simple web games and am learning GDScript to continue coding games as a hobby in my free time. I have also set up simple React Native projects but have not had time to progress far with them at this point.