I have been working as a software tester from last 4 years and my goal of taking the computer science program was to become a software engineer by learning systematic methods of development and new technologies. With growing trend of digital services (actually, it is accelerated with pandemic situation) across the industries, the importance of developing web and mobile applications continue to grow. Applying software engineering principles and following a systemic method for application development are key success factors to build the app effectively and efficiently which makes software engineer role to be more important than even and brings diverse career opportunities across the industries.

My overall career goal of becoming a software engineer is not changed by this computer science program but certainly broadened my expertise than expected and positioned me well to be successful in the role. The newer technologies learned including Java, MySQL, Python, Visual C++, HTML, and Android etc. significantly broadened my technical knowledge and engineering principles such “keep it simple” and “Modularity and Decomposition” etc. The assignments and final projects have helped in improving my confidence by allowing to practice the learned methods. Secure coding course really pushed me to think out of the box on standards to be followed in developing a secured software and testing of it. The last but not least, Android course positioned me well to develop mobile applications. With digital transformation at my own organization, I am watching very closely the journey of evolution and increased need of software engineers. Especially moving away from waterfall methodology and adopting to agile is also changing traditional roles such software developer to a software engineer. In addition to it, I have been going to job sites such as dice.com, careerbuilder.com and monster.com etc and constantly evaluating my decision. Based on the number of jobs available and increased opportunities, I feel confident on the career choice made.

**Part Two:** I have selected the artifacts for all three categories and started working with “software designing/engineering” category and please find latest status for all categories below.

**Software designing/engineering:** I am at the status checkpoint 3, submitted; awaiting instructor feedback. The enhancements include adding documentation to code, removing unused code and variables, re-designing “AddUser” component to allow user to create account only when username is not taken by anyone else. In addition, updated the code to create password length to be of minimum 6 chars.

**Algorithms and data structures:** I am at the status checkpoint 3 for this category of artifact, submitted; awaiting instructor feedback. The security template is enhanced to include three complex data structures secure coding standards – “Always initialize pointers values to nullptr”, “Do not use pointer arithmetic on polymorphic objects” and “Pair the memory allocation and deallocation functions correctly”. Data structures are complex in nature and prone to security vulnerabilities and following “secure coding standards” is only the way to prevent from security issues. The updates include compliance and non-compliance code example, security issues if not followed and the severity of vulnerabilities & remediation costs, and scanning tools to detect vulnerabilities in the code etc.

**Databases:** I am at the status checkpoint 2 for this category of artifact, working on the initial enhancements. I have planned to re-write MySQL inner join query with advanced joins such as outer join, left and right join. I have read through different join types but the challenge is getting to a virtual machine where MySQL is installed and accessed in the “DAD 220: Introduction to SQL” course (or) finding an online place to execute newly written SQL join queries.