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CS-499

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Milestone Four: Enhancement Three: Databases

The artifact that I chose to enhance with a focus on its database is my project from CS-360. The project is a mobile app that wasn’t finished, and it lacked functionality in almost all categories. The app is intended to allow users the opportunity to create an account and log in, and once signed in, they can set a goal weight they want to reach and track their weight by making entries. I created this mobile app in August of 2025, and I selected this artifact because I was disappointed with the outcome of the app. I also thought it was a great assignment for the database portion of this capstone project, it uses SQL, which I have loved using since my DAD-220 class here at SNHU, and it is perfect to demonstrate my abilities with both front-end and back-end features. I am happy to say that after making several enhancements, the mobile app is now fully functional. The improvements I made had security as a priority, with input validation. Specifically, adding strict limitations on inputs for usernames and passwords, they are now required to be 4-20 characters in length. This will increase safety for the app by limiting the length of usernames and passwords stored in the database. I also addressed the issues with the database not storing any data and users being able to login with any username and password regardless of whether it was a created account or not, things that were supposed to be functional in the app to begin with. I also added CRUD methods to the database, and the database functions as expected. The SMS screen now pops up for the user the first time they open the app and if accepted, notifies them when they reach their goal weight. All the enhancements made from the original demonstrate my abilities with databases and as a developer.

I successfully met the course outcomes that I selected in module one. My goal was to demonstrate my ability to use industry-standard techniques, skills, and tools to complete the enhancement. I additionally chose to focus on security and consider potential exploits. I successfully made enhancements using my skills and industry-standard techniques to implement an improved and secure application. Adding input validation and setting a limit of 4-20 characters is an improvement to security, and adding CRUD to the database is industry-standard, and something that I have done to NoSQL databases in the past, but this was my first time implementing it into a SQL database for the mobile app. I followed the plan completely and have no updates to my outcome-coverage plan.

Enhancing this artifact was definitely a fun challenge, and I desperately wanted to succeed this time. I love all things databases, and SQL databases specifically, so I really enjoyed this assignment, it was great practice. When I first attempted this assignment, things didn't go as planned, and this time with the extra time I had, I was able to finally complete it. While completing the enhancement, I learned the importance of input validation and extensive testing. I spent a lot of time just debugging and testing each feature to ensure that it functioned as intended. After fixing my previous mistakes and making the assignment functional, the hardest and most enjoyable part of this enhancement was the database. I thoroughly enjoyed watching the data stored and edited in real-time. I enjoyed the challenge of adding/fixing the database to the app and then adding CRUD functionality. Overall, this enhancement was a fun challenge, and I got my second chance to fix it. I learned a lot about how changing database logic can affect the entire app (this time in a positive way). I also learned how to think and consider security and validation risks. It was really fun, and I learned a lot that I hope to apply to future projects, professional or not.