Artifact Description

The artifact is an Android weight tracker app that was originally developed for an android app development course, with a local SQLite database and local authentication. I transformed it to use a noSQL Firebase DB as well as Firebase Authentication service, that is encrypted as well as online. Additionally, I created a web interface that allows users to see the top weight losers as well interact with the data by data, and see weight trends.

Justification for Inclusion

I selected this enhanced Android weight tracker app for my ePortfolio because it demonstrates my ability to modernize an application database and make it suitable for scale.

- Cloud Integration: Migrating from a local SQLite database to Firebase Cloud Firestore.
- NoSQL Database Design: changing the data structure for a NoSQL environment as well as setting up the project database for scale, since NoSQL databases tend to be more suitable for that out of the box.
- Security Implementation: Utilizing Firebase's security features to ensure data privacy and that data is encrypted in flight as well as in store.
- real-time database: implemented functionality to improve collaboration among developers.
- Web Interface: Developed a web dashboard that allows users to visualize and interact with weight data across different dates and users

Course Outcomes

This enhanced artifact shows my ability to meet course outcomes that were not met before:

- Creating real-world, user-centered solutions that consider modern industry requirements like scalability, security, and collaboration.
- Illustrating practical problem-solving abilities in managing data structures and database design choices.
- Applying industry best practices to deliver a product that meets user needs effectively and securely.
- Demonstrating the ability to create interfaces for the data, which is always a plus for user experience.

Reflection

I learned several valuable lessons:

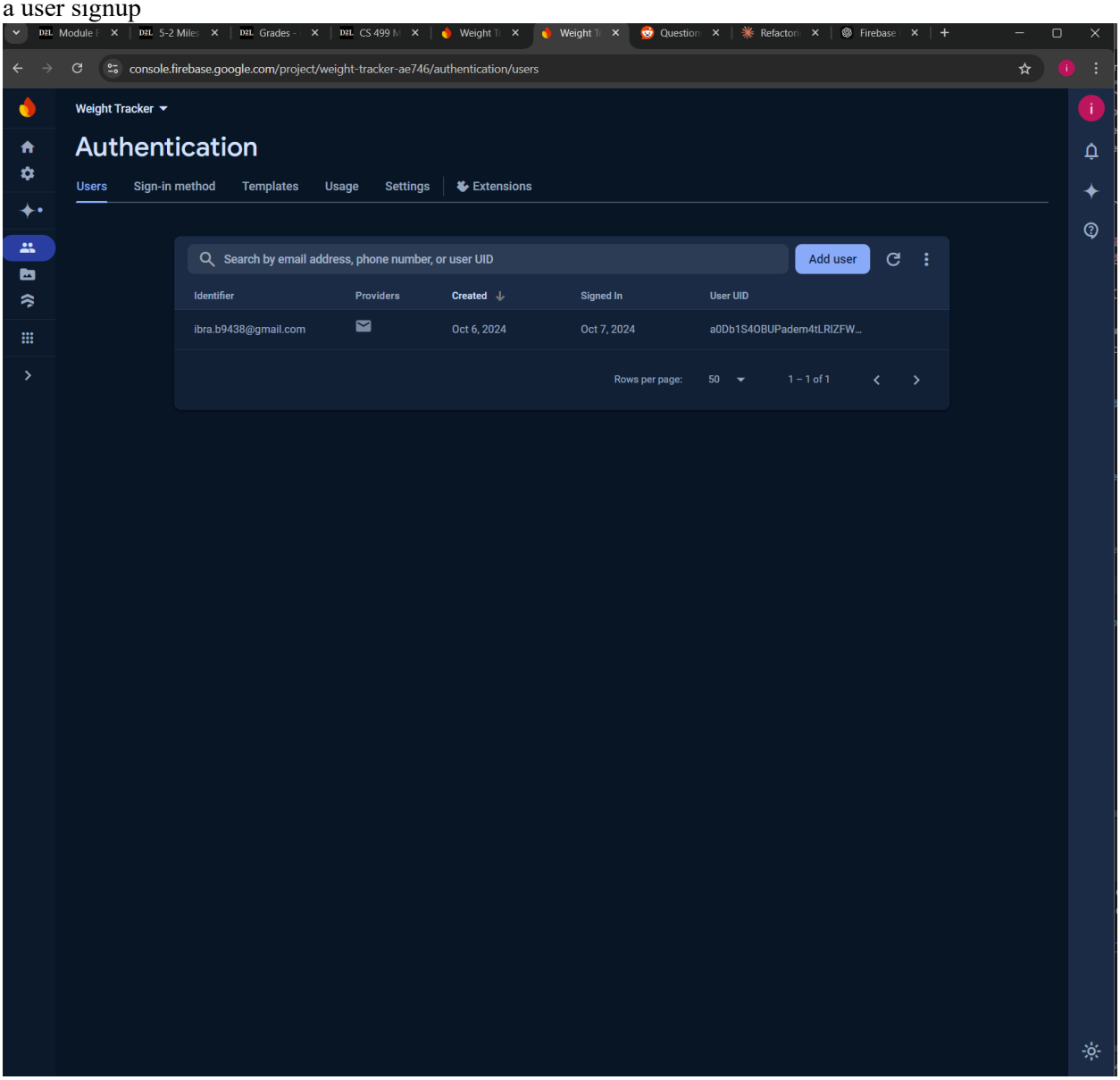
- Cloud Integration: I gained practical experience in migrating a local database to a cloud-based solution
- NoSQL Database: I learned how to adapt data structures for a NoSQL environment, which was my first introduction to NoSQL, a completely different paradigm.
- Scalability: I learned how does database design and scalability are related.
- Data Visualization: Creating the web interface taught me how to visualize time-series data and provide interactive elements for data exploration

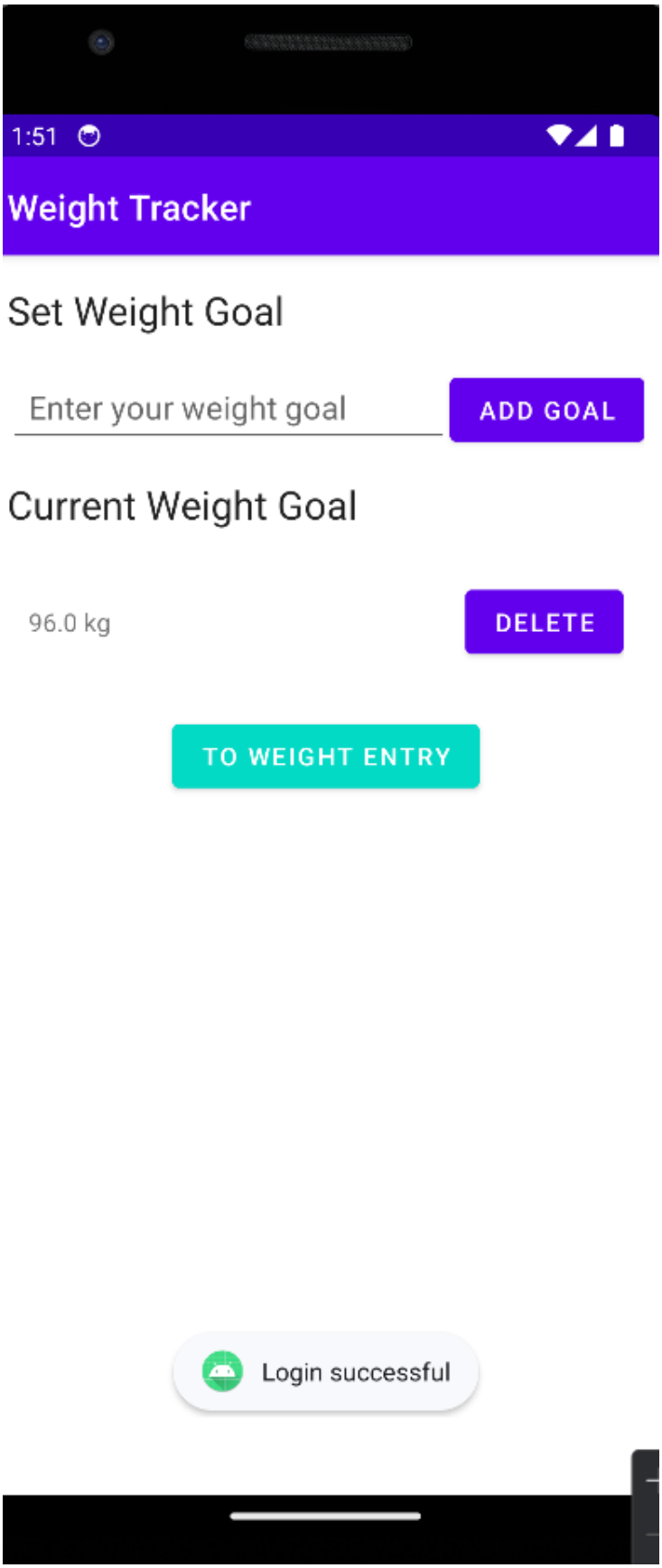
Challenges faced during the enhancement process:

- Data Migration: Transferring data from SQLite to Firestore while maintaining data integrity, also required me to create a new design for my data.
- Security Implementation: Ensuring proper security rules were in place to protect user data in the cloud environment storage.
- Web Development: Integrating the Firebase database with a web framework and creating interactive data visualization components

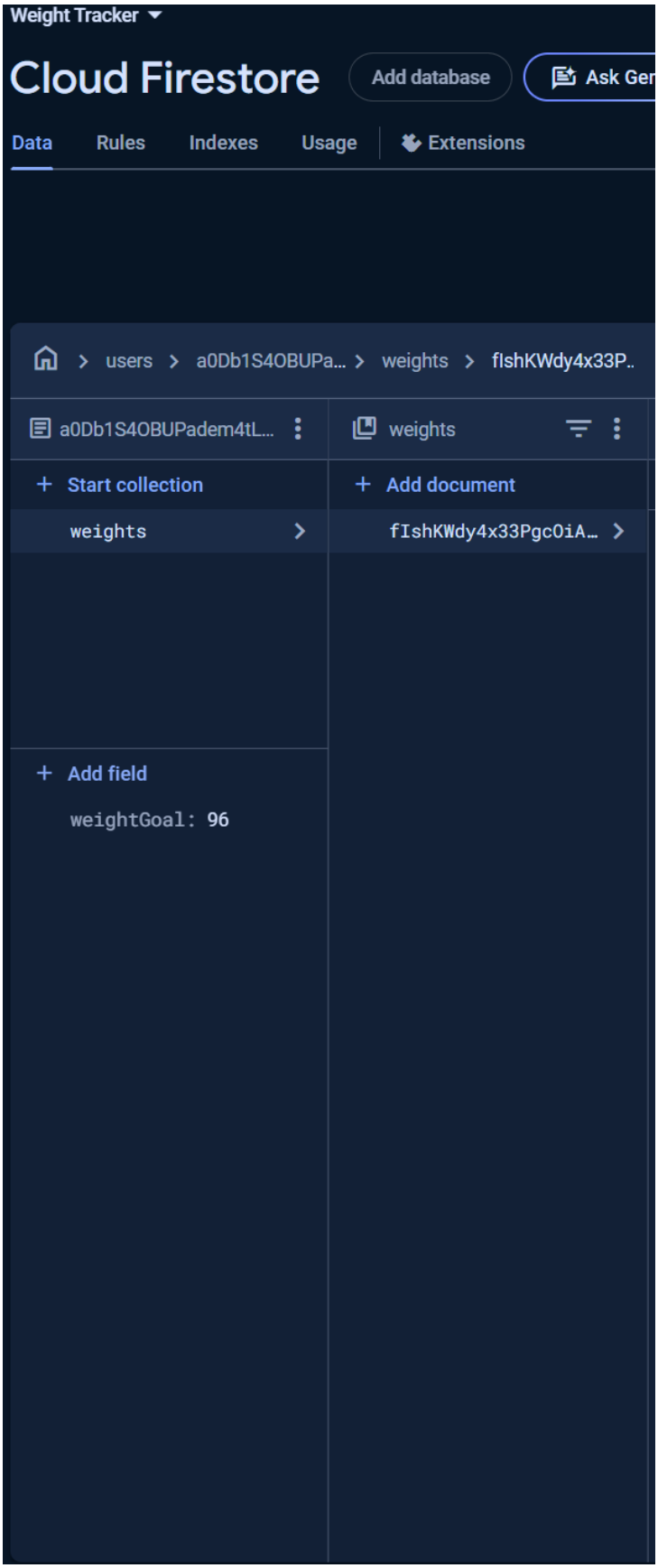
This enhancement process has improved my understanding of modern mobile app development practices. Cloud definitely felt like a truly modern way of managing the backend. I also learned about scalability in databases in relation to architecture.

a user signup





a successful login attempt.



a picture of the database, with an autoID

related to the user account, their current weight goal. The app supports multiple users.