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MissionLog R - Air Force Mission History Report Management System with Encryption & Database Integration

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The Problem

In today's digital landscape, data collection, security, and accuracy are driving factors in the workforce. Currently, in the Air Force, data about a mission are written on a form by a crewmember and then later “hand-jammed” into a Microsoft Excel sheet by someone else in a different department.

Hand-jamming forms by someone else can lead to issues like invalid data types, wrong information on original form, and information typed in wrong by the hand jammer.

Hand-jamming also takes up more time. First the crewmember has to write all the info down by hand, give it to someone in a different department, and then that person must take the time to manually input it all by themselves.

How can we ensure data is secure, accurate, and collected in a timely manner?

The Solution

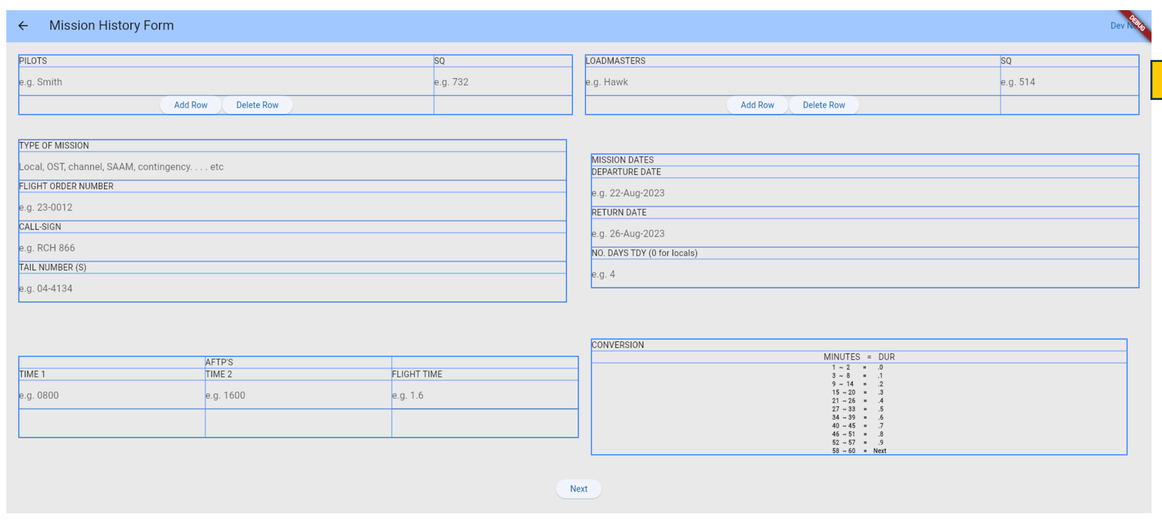
Every crewmember is issued a new iPad, so we created an iOS application paired with a web application for the creation, confirming, and finalizing of mission history reports.

First, a crewmember fills in each form on the mobile app. If the filing member does not have WiFi, they can export it to a JSON file, and then import it on the web app once they have connection. If they do have WiFi, it gets sent directly to the confirming database.

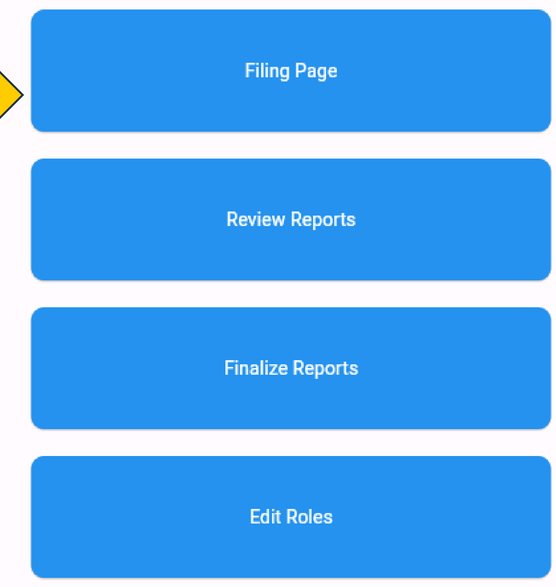
Then, on the web app, a confirming member must read over the report for accuracy and confirm it, sending it to the finalizing database.

Lastly, the finalizing member on the web app reads over the report one last time for accuracy, approves it, which sends it to the final permanent database. During every transaction, the data is encrypted while being sent between points, and decrypted when retrieved.

Mobile App



Web App



Future Expansion

In future versions of this project, both applications will be linked directly to the database used by the US Air Force. During development, their database was not functional, so we created a mock database to imitate theirs. Once connected to the Air Force database, the project is fully complete and operational.

What was Learned

Over the course of the semester, we learned various environments, languages, and methodologies such as Flutter/Dart, Node/Express, Azure, MS SQL, Firebase, and Agile Scrum.