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

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MissionLog R - Air Force Mission History Report Management System with Encryption & Database Integration Sam Jeffery, Matthew Bachrach, Michael Lim, Joe Johnston, Jack Healy, Andrew Siciliano Faculty Advisor: Jack Myers

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		
← Mission History Form			Dev New		Filing Dogo	
PILOTS e.g. Smith Add Row Delete Row	sQ e.g. 732	LOADMASTERS e.g. Hawk Add Row Delete Row	e.g. 514		Filing Page	
TYPE OF MISSION						
Local, OST, channel, SAAM, contingency etc FLIGHT ORDER NUMBER		MISSION DATES DEPARTURE DATE e.g. 22-Aug-2023			Daview Departs	
e.g. 23-0012 CALL-SIGN e.g. RCH 866		e.g. 26-Aug-2023			Review Reports	
TAIL NUMBER (S)		NO. DAYS TDY (0 for locals)				

TIME 1 TIME 2 FLIGHT TIME e.g. 0800 e.g. 1600 e.g. 1.6	
e.g. 0800 e.g. 1600 e.g. 1.6 15 ~ 20 = .3 21 ~ 26 = .4 27 ~ 33 = .5	
$34 \sim 39 = .6$ $40 \sim 45 = .7$ $46 \sim 51 = .8$	
$52 \sim 57 = .9$ $58 \sim 60 = Next$	

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. Finalize Reports

Edit Roles