VaultVizier

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# 1. Executive Summary

## Project Overview:

This project presents a terminal-based interactive healthcare support system using FTXUI in C++. It features a login-authenticated environment for doctors and users, patient record management, and a request system allowing users to send medical equipment requests to doctors. Doctors can digitally sign these requests by accepting or rejecting them, and the signed requests are saved in a transcript for accountability. A light mode was also experimentally introduced for improved readability.

# 2. Introduction

## Background:

Most healthcare request systems are GUI or web-based, lacking lightweight terminal solutions for constrained environments. Our project addresses this by providing a TUI-based request management system using FTXUI.

## Objectives of the Project:

- Implement login authentication for users and doctors.  
- Enable create and edit operations for patient records.  
- Design a structured request system from user to doctor.  
- Add digital signature support for request validation.  
- Save all signed requests in a transcript system.  
- Explore usability improvements through light mode.

# 3. System Description

## Original Concept:

The traditional healthcare systems rely on server-heavy architectures and GUIs. Terminal-based solutions are often ignored.

## Innovations and Modifications:

- FTXUI-based graphical TUI interface.  
- Doctor-user role separation with authentication.  
- Editable patient database.  
- Request dispatch and decision workflow.  
- Transcript log for signed requests.  
- Experimental light mode UI theme.

# 4. System Mechanics and Rules

## Modified Rules:

- Only doctors can approve/reject requests.  
- Only authenticated users can add/view patients or send requests.

# 5. Implementation and Development

## Development Process:

The system was developed in C++ using the FTXUI library for terminal UI. Key development steps included user flow design, data handling logic, and interface styling.

## Programming Languages and Tools:

- Language: C++  
- Library: FTXUI  
- Tools: Git for version control, g++ for compilation

## Challenges Encountered:

- Handling nested UI components in FTXUI  
- Ensuring clean request-validation workflows  
- Implementing file-based transcripts in a consistent format

# 6. Team Contributions

Fadil Faisal: Integrated FTXUI for user interface

Ahmed Rashdi: Integrated csv file-handling

Zain-ul-Abideen Ahmad: Created base OOP classes

# 7. Results and Discussion

## System Performance:

- Smooth TUI interactions achieved with FTXUI.  
- Secure login authentication tested with sample data.  
- Doctors correctly receive and sign requests.  
- Transcript system records request history reliably.  
- Light mode is experimental which renders well under specific terminals.

# 8. References

- FTXUI GitHub Repository: https://github.com/ArthurSonzogni/FTXUI  
- C++ documentation  
- Stack Overflow discussions