

# VaultVizier

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**Submitted By:**

Fadil Faisal (24K-0635)

Ahmed Rashdi (24K-0709)

Zain-ul-Abideen Ahmad (24K-0818)

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**Lecturer:** Sir Shafique Rahman

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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