

Medical Journey Log: A Family Care Tracker

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CST-451 Capstone Project Proposal

Grand Canyon University

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Revision: 1

5/25/2025

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Abstract

The *Medical Journey Log: A Family Care Tracker* is a personal-use application designed to help families manage and document the medical experiences of a loved one undergoing long-term treatment. Inspired by real-world challenges, this project offers a simple, intuitive platform for logging symptoms, appointments, milestones, and reflections in a structured and meaningful way. Built using Visual Studio for Mac and MySQL Workbench, the system prioritizes usability, local data storage, and emotional value. This capstone project demonstrates a balance of technical design and compassionate purpose while honoring the developer's family experience.

Project Overview and Project Objectives

State the Problem and Background

Families facing ongoing medical treatment, especially for a child with a serious condition like an Optic Glioma tumor, often struggle to keep track of symptoms, treatments, progress notes, and emotional reflections. Between appointments, therapies, and daily responsibilities, it's easy for important observations or milestones to get lost. This project is being developed to create a centralized place where a family or caregiver can document these experiences in a simple, organized format. It is designed as a personal tool that could support memory, communication with doctors, or simply offer space for reflection.

Christian Worldview

Approaching this project through a Christian worldview emphasizes the importance of compassion, stewardship, and care for one's family. This application is not just a technical project—it represents a commitment to honoring and supporting loved ones through difficult seasons. Developing something to bring peace, order, and meaning to a family's medical journey reflects the values of love, service, and perseverance.

Project Objectives

- Allow users to create, edit, and delete medical log entries
- Categorize entries (e.g., “Symptom,” “Milestone,” “Appointment”)
- Provide basic search or filtering by date or category
- Enable formatted export of the logs (PDF or CSV)
- Store data in a structured MySQL database with a clean, minimal interface

Challenges

- Learning to develop in a macOS environment using Visual Studio

- Balancing functionality and time management with family and work responsibilities
- Ensuring a smooth and intuitive user experience

Benefits and Opportunities

- Offers a practical, usable tool for any family managing ongoing medical care
- Acts as a tribute to the developer's own family journey
- Strengthens real-world software planning, design, and documentation skills
- Allows for potential future enhancements or wider use by other families

Project Scope

This project involves developing a lightweight, personal-use application designed to help families manage and document the ongoing medical journey of a loved one. The application will focus on simplicity and usability, providing an easy-to-navigate interface for logging daily notes, symptoms, milestones, and appointments. Data will be stored in a MySQL database and managed through a C# backend using Visual Studio on macOS.

The core scope of the project includes:

- A user interface to input, view, edit, and delete medical log entries
- Categorization of entries by type (e.g., symptoms, milestones, appointments)
- Basic search or filtering by category and date
- Export functionality to generate a printable or savable version of the log
- Backend logic for secure, structured data storage using MySQL

Out of Scope:

- Cloud-based storage or user authentication
- Mobile deployment or app store publishing
- Real-time notifications or automated reminders
- Shared multi-user access

Stakeholders

Stakeholder Name	Role(s)	Responsibilities
Alex Frear	Developer	Project design, development, and testing

Work Breakdown Structure (WBS)

ID	Task	Dependencies	Status	Effort Hours	Start Date	Planned Completion	Resource
1	Finalize project requirements	None	Planned	3	5/22/2025	5/24/2025	Alex Frear
2	Design UI mockups	Task 1	Planned	4	5/25/2025	5/27/2025	Alex Frear
3	Build MySQL database schema	Task 1	Planned	4	5/25/2025	5/27/2025	Alex Frear
4	Develop backend logic (CRUD)	Task 3	Planned	6	5/28/2025	6/2/2025	Alex Frear
5	Implement search/filter logic	Task 4	Planned	4	6/3/2025	6/5/2025	Alex Frear
6	Create export feature (CSV)	Task 4	Planned	4	6/6/2025	6/7/2025	Alex Frear
7	Final testing & polish	Tasks 4–6	Planned	4	6/8/2025	6/10/2025	Alex Frear

Project Success Measures

The success of the Medical Journey Log/Tracker project will be determined by its ability to meet the core functionality requirements, operate reliably, and serve as a meaningful and manageable tool for documenting a family's medical journey. Success is not solely measured by technical complexity but by thoughtful design, usability, and completion within the timeline and scope defined.

Project Completion Criteria

#	Completion Criteria
1	The application allows users to create, view, edit, and delete log entries
2	Entries can be categorized (e.g., symptom, milestone, appointment)
3	Users can search or filter entries by date and category
4	Export functionality works correctly (CSV or similar format)
5	The application runs without critical errors and performs as expected
6	All deliverables are submitted according to milestone deadlines
7	Proper documentation is completed (requirements, design, test plan, etc.)

Assumptions and Constraints

ID	Description	Comments	Type	Status	Date Entered
1	The project will be developed entirely by one individual	All tasks managed by Alex Frear	Assumption	Confirmed	5/22/2025
2	Development will occur on macOS using Visual Studio and MySQL Workbench	First-time using Mac for development	Constraint	Acknowledged	5/22/2025
3	No advanced features like real-time syncing or notifications will be implemented	Kept out of scope for simplicity and timeline management	Constraint	Accepted	5/22/2025
4	The app is designed for local use only and will not include user authentication or cloud sync	Simplifies architecture, reduces complexity	Assumption	Confirmed	5/22/2025
5	Time available for development is limited due to full-time work and family obligations	Planning and scope must be realistic	Constraint	Active	5/22/2025

Project High-Level Solution

Introduction

This project addresses the ongoing challenge many families face when managing long-term medical conditions—specifically, the difficulty of organizing, tracking, and reflecting on daily experiences during treatment. In this case, the project is inspired by the medical journey of a child with an Optic Glioma tumor and the impact it has on the entire family.

The goal is to create a centralized, easy-to-use application where a caregiver can record and review medical notes, symptoms, milestones, and personal reflections. The app will serve both practical and emotional purposes, helping with memory, communication, and coping during challenging times. The target user is a parent or caregiver managing multiple appointments and treatment cycles.

Assumptions:

- The app will be used on a personal computer with no need for multi-user access.
- All data will be stored and accessed locally through a MySQL database.
- Functionality will remain simple and focused.

Solution

The application will be developed using **Visual Studio** on macOS with **C#** as the primary language and **MySQL Workbench** for database design and data handling.

Key Components

- **Entry Logging Interface**

A form-based page that allows users to enter notes categorized by type (Symptom, Appointment, Milestone, Reflection).

- **Data Storage and Retrieval**

Entries will be stored in a structured MySQL database with fields for:

- Entry ID
- Date
- Category
- Notes

- **Search and Filter Logic**

Users can filter by category or date range to quickly locate past entries.

- **Export Functionality**

Users will be able to generate a CSV or formatted view of their entries for printing or digital sharing.

- **Clean UI Layout**

The front end will prioritize readability and ease of use, particularly for busy caregivers.

Architecture Diagram

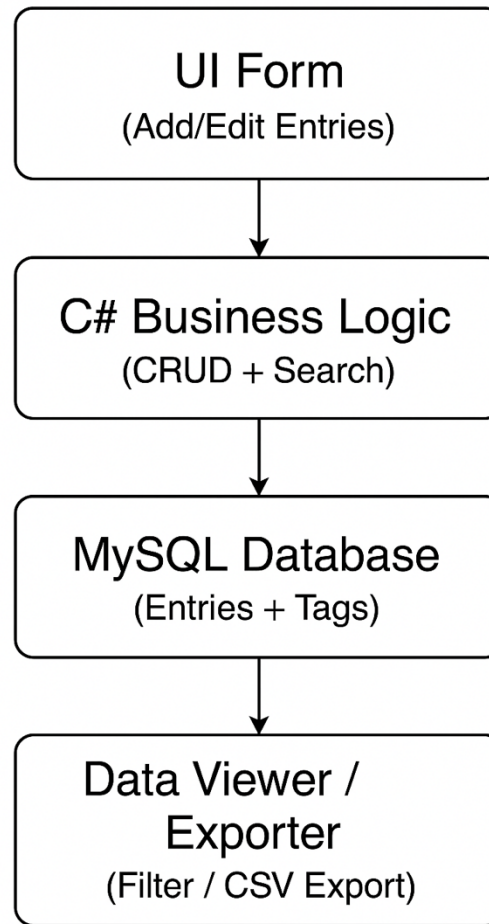


Figure 1 This diagram illustrates the overall architecture, including the UI, backend logic, database, and data viewer/exporter components.

Project Controls

Risk Management

Event Risk	Probability	Impact	Risk Mitigation	Contingency Plan
Time constraints due to work/family	High	High	Stick to a realistic weekly development schedule	Scale back non-essential features if time becomes limited
Learning curve for macOS development	Medium	Medium	Seek guidance when needed, use documentation, ask professor for clarification	Allocate extra time during setup and early development
Issues connecting to MySQL from Visual Studio	Medium	Medium	Test DB connectivity early and often	Switch to local SQLite if persistent connection issues arise
Burnout or project fatigue	Medium	High	Break the project into small, manageable tasks	Allow buffer time before milestone deadlines
System error or data loss during testing	Low	High	Backup work regularly, use GitHub or Time Machine backups	Rebuild from latest backup; ensure frequent save points

Issues Log

ID	Description	Project Impact	Action Plan/Resolution	Owner	Importance	Date Entered	Date to Review	Date Resolved
1	Learning new keyboard shortcuts on Mac	Slower initial development workflow	Create a cheat sheet for common commands	Alex Frear	Medium	5/22/2025	5/27/2025	—

2	Inconsistent available time each week	Impacts scheduling and momentum	Use late nights/weekends to stay flexible	Alex Frear	High	5/22/2025	6/1/2025	—
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Change Control Log

ID	Change Description	Priority	Originator	Date Entered	Evaluator	Status	Date of Decision	Included in Rev. #
1	Consider adding “Reflection” as a new log type	Medium	Alex Frear	5/23/2025	Self	Open	—	—

Roles and Responsibilities

Name	Team	Project Role	Responsibility
Alex Frear	Developer	Everything	Design, develop, test, and document the entire system

Project Cost and Schedule

Project Cost

This project does not require any paid software, external development services, or specialized hardware. All development will take place on a personally owned 2018 MacBook Pro using the following free or already-licensed tools:

- **Visual Studio for Mac (Community Edition)** – Free IDE for C# development
- **MySQL Workbench** – Free database design and management tool
- **Local development server** – Built-in through Visual Studio tooling
- **Optional cloud storage or backup** – Time Machine or GitHub (free tier)

Estimated Total Cost: \$0.00

Project Schedule

The project will follow a phased approach aligned with CST-451 milestone due dates. Here's a tentative weekly timeline:

Week	Task Description	Target Completion
Week 1	Finalize proposal and scope	May 25, 2025
Week 2–3	Complete requirements documentation and UI sketches	June 8, 2025
Week 4–5	Finalize architecture and database design	June 22, 2025
Week 6	Complete technical design documentation	June 29, 2025
Week 7–8	Begin coding core features (create/view entries)	July 13, 2025
Week 9–10	Add filtering/export functionality + polish	July 27, 2025

Appendix A – References

Grand Canyon University. (n.d.). *GCU Statement on the Integration of Faith and Work*. <https://www.gcu.edu/>

MySQL. (n.d.). *MySQL Documentation*. <https://dev.mysql.com/doc/>

Microsoft. (n.d.). *Visual Studio Documentation*. <https://learn.microsoft.com/en-us/visualstudio/>

Appendix B – Copyright Compliance

All tools and frameworks used in this project are free and open-source or properly licensed for individual use:

- **Visual Studio for Mac (Community Edition)** is used under Microsoft's free developer license.
- **MySQL Workbench** is open-source software used in compliance with the GNU General Public License.
- No external code libraries, frameworks, or templates were used without appropriate attribution. All code was written by the developer unless otherwise noted.

Should any third-party code or components be added during CST-452, documentation and usage will be reviewed and approved per instructor guidance.