# Research Database Command Line App

# Juan Marrero Valdés-Miranda, undergraduate May 25, 2025

### 1 Overview

A simple desktop application for managing research data with:

- User login system
- Basic database commands
- CSV export functionality

### 1.1 Components

- Login form (username/password)
- Command input field
- Results display area
- Export button

#### 2 Basic Commands

#### 2.1 Available Commands

Command	Example
display	display studies
insert	insert subjects id="S001"
update	update studies status="done"
delete	delete subjects id="S001"
sql	executes an sql query, with limitations

## 2.2 Usage Notes

- Commands are case-sensitive
- Use quotes for text values
- Only admins can modify user accounts
- For testing purposes, the default admin user (admin) is prefilled in the login form, and its password is admin123.

### 2.3 Technical Implementation

- SQLite database
- Qt-based GUI (PySide6) with signal/slot architecture
- Automated database initialization with sample data
- Comprehensive error handling and user notifications

# 3 Exporting Data

Click the "Export" button to save displayed results as CSV. The file will contain:

- Column headers
- All visible data rows
- Proper formatting for Excel

## 4 Limitations

- Supports basic CRUD operations only
- No advanced query capabilities
- Single-user editing at a time

#### 4.1 ER Model:

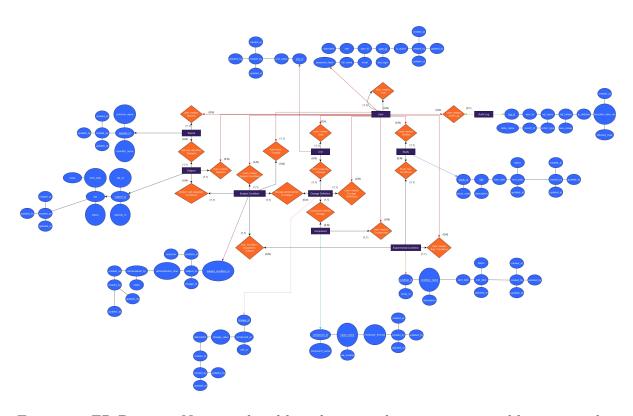


Figure 1: ER Diagram Note: updated by relation is the same as created by, except that the side updated has a cardinality of (0,1), instead of (1,1)