Unicom TIC Management System - Project Report

1. Project Overview

The Unicom TIC Management System is a C# WinForms desktop application designed to manage a school's core operations such as courses, subjects, students, exams, marks, and timetable scheduling. It uses SQLite as the backend database and implements an MVC-style architecture.

2. Role-Based Access

Access is controlled by user roles:
- Admin: Full access to all modules
- Staff: Manage exams and marks
- Lecturer: Manage and view marks
- Student: View their marks and timetable

3. Forms (Views) Overview

LoginForm

Handles user login and redirects to the main dashboard based on user role.

MainForm / UserView

Main dashboard with navigation buttons to various modules.

CourseForm

Manage courses with fields like Course Name, and actions like Add/Edit/Delete.

SubjectForm

Manage subjects linked to courses. Includes ComboBox for course selection.

StudentForm

Manage students with fields: Name, Course. Uses ComboBox to choose course.

ExamForm

Manage exams with fields like Exam Name, Subject, Exam Date.

MarkForm

Used to assign or edit marks for students per exam. Requires Exam and Student selection.

TimetableForm

Schedules subjects to rooms (labs/halls) at specific time slots.

4. Database Architecture

The application uses SQLite. The database includes the following tables:
- Users(UserID, Username, Password, Role)
- Courses(CourseID, CourseName)
- Subjects(SubjectID, SubjectName, CourseID)
- Students(StudentID, Name, CourseID)
- Exams(ExamID, ExamName, SubjectID, ExamDate)
- Marks(MarkID, StudentID, ExamID, Score)
- Rooms(RoomID, RoomName, RoomType)
- Timetables(TimetableID, SubjectID, TimeSlot, RoomID)

5. Suggestions for Improvement

- Add input validation for all forms
- Implement password hashing for better security
- Use parameterized queries throughout
- Implement conflict checking in the timetable module
- Enhance user experience with confirmation dialogs and ComboBox data sources