**Unicom TIC Management System - Technical Documentation**

* **Purpose**

The Unicom TIC Management System aims to simplify academic administration in educational institutions.  
It allows role-based access for Admins, Staff, Lecturers, and Students.  
The system manages students, subjects, attendance, marks, and timetables efficiently.  
It ensures accuracy, centralizes data, and improves day-to-day operational workflow

* **Key Features Implemented**
* User authentication with role-based login (Admin, Staff, Lecturer, Student).
* Student, Lecturer, Subject, Course, Exam, and Timetable management with full CRUD operations.
* Marks entry and view restricted based on role (e.g., only lecturers can enter marks).
* Attendance tracking feature for students.
* Timetable assignment based on subjects and lecturers.
* Dynamic UI: Form elements visible/hidden based on logged-in role.

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| **Technology / Tool** | **Purpose / Use** |
| C# (WinForms) | Front-end UI development |
| .NET Framework | Application framework |
| System.Data.SQLite | Database provider in C# |
| SQLite | Backend database |
| ADO.NET (SQLite) | Database connectivity |
| Visual Studio | Development IDE |

**Technologies Used**

* + - Programming Language: C# (.NET Framework)
    - UI Framework: WinForms
    - Database: SQLite (unicomtic.db)
    - IDE: Visual Studio
    - Project Type: Windows Desktop Application

1. **Signup Module**

* Username, Password, Role, and Reference ID input
* Confirm Password match checking
* Password length validation (8 characters)
* Role dropdown (Admin / Staff / Lecturer / Student)
* Reference ID linkage with respective tables
* Duplicate username check

1. **Login Module**

* Username
* Password

1. **Student Module**

* Student ID
* Student Name
* Student Age
* Student Phone Number
* Course ID
* Group

1. **Lecturer Module**

* Lecturer details management
* Subject linkage

1. **Subject Module**

* Manage subject codes and names
* Linked with courses and lecturers

1. **Course Module**

* Course ID, Name, and Duration handling

1. **Timetable / Exam Module**

* Schedule exams/timetables for subjects

**Admin:** Can add, edit, delete, and view everything (courses, students, exams, timetables, Subject, Lecturer, Staff , Exam, Mark , Admin , Room).

**Staff:** add, edit, delete (Exam, Mark)

View (Student, Course , Subject , Lecturer, Timetable , Room )

**Student:** view (Student , Course , Subject , Exam , Mark , Timetable )

**Lecturer:** Add ,edit , delete ( Mark)

View ( Subject , Course , Exam ,Timetable )

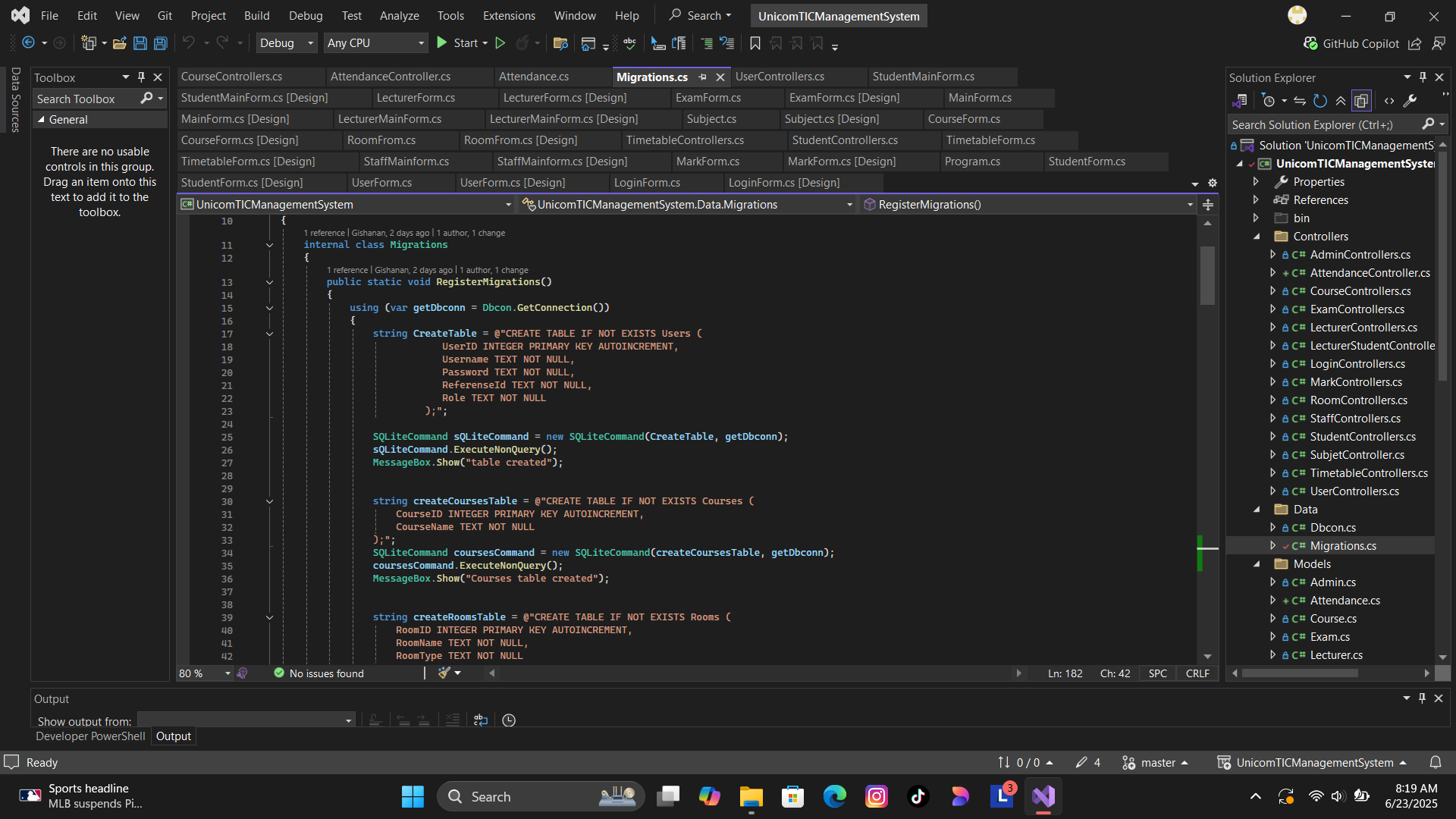
**Challenges :**

**Database Relationships (Many-to-Many)**

* Handling Lecturer–Student–Subject relations was tricky. Used join tables and a special form (LecturerStudentControllersForm) to display mappings.

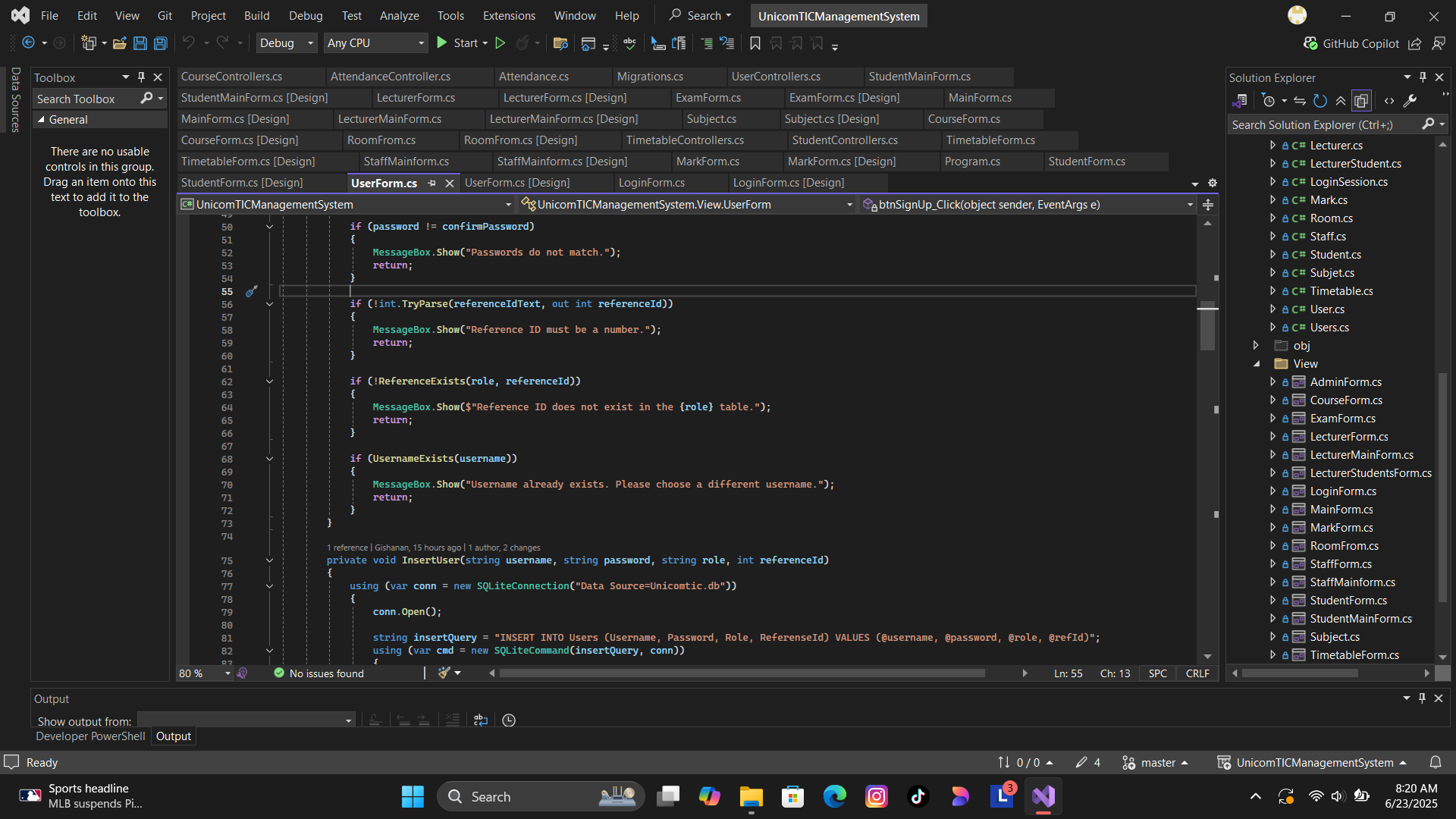
**Login Redirection with Reference ID**

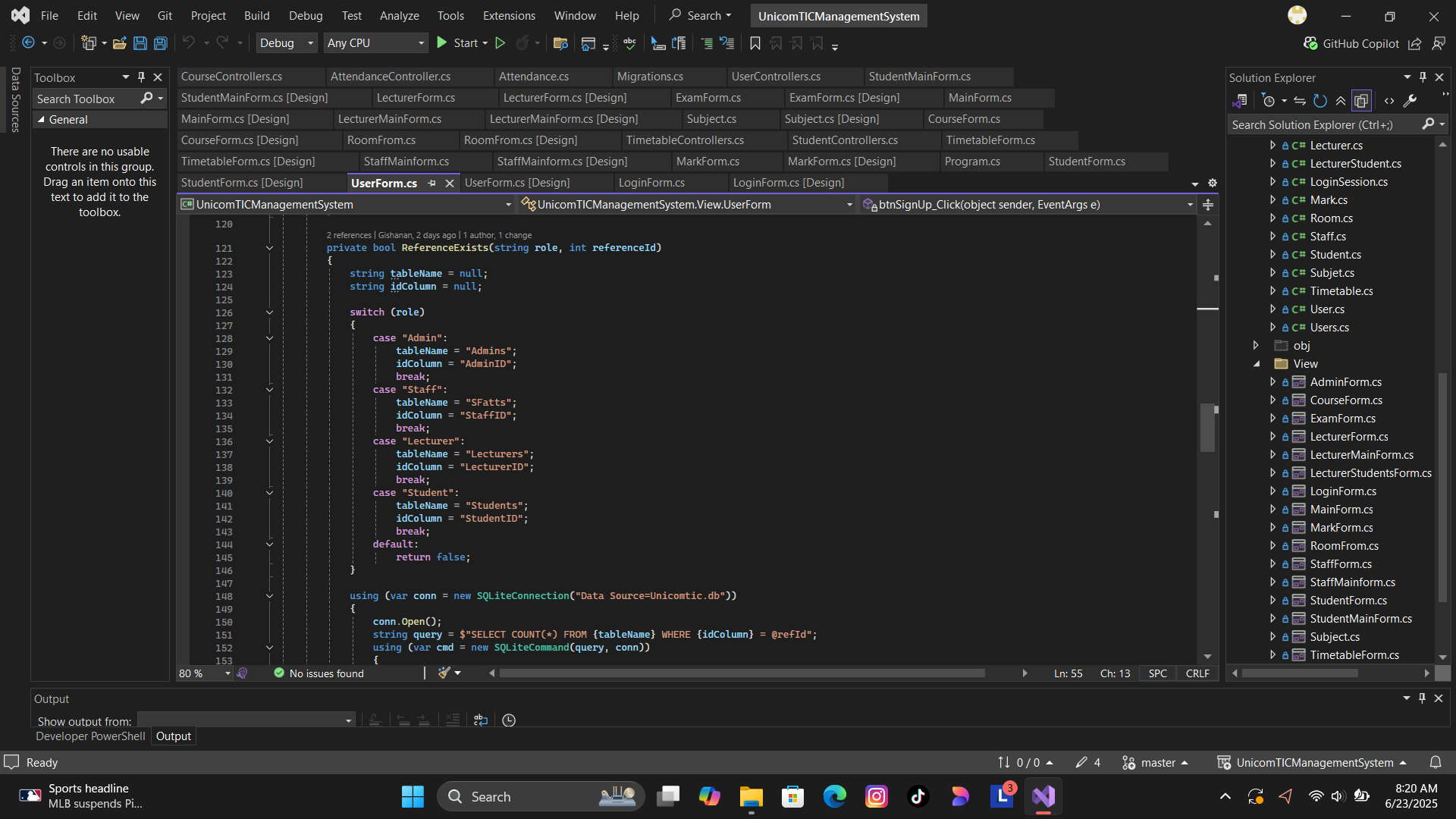
* Ensured each login correctly identifies the user and redirects based on their role using the ReferenceID.



A computer screen shot of a program

AI-generated content may be incorrect.





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