FAST NATIONAL UNIVERSITY OF COMPUTER AND EMERGING SCIENCE

DATABASE PROJECT REPORT

Group Members:

QASIM HASAN 21K-3210
TALHA SHAHID 21K-3355

Instructors:

MS. FIZZA AQEEL
SHAHEER AHMED KHAN

Section:

BCS-5J

Contents

1 Introduction

The Database Project Report focuses on designing and implementing a comprehensive database system for managing events, user accounts, and communication between leaders and administrators.

2 Achievements

In the project, we learned to use a proper database with a Flutter frontend. Successfully executing CRUD operations, including insert, update, and delete, along with transactions and triggers, was a significant achievement. Our exploration covered different areas in Flutter UI code, and we gained hands-on experience in SQL, both in MySQL and Oracle, comprehending every important concept.

3 Tools and Languages

3.1 Tools Used

3.2 Language Used

4 Description

The project involves creating tables for Admins, Leaders (User Accounts), Batches, Departments, Group Members, Events, User-Event Selections, and Messages. Admins have control over events chosen by the group members and can edit them. Leaders can participate in one event at a time. The system also supports communication between leaders and administrators through a one-message chat limited to 400 words. Admin Panel allows us to edit leaders' data, group members' data inputted by leaders or admins, and also delete an entire group. We have used strings to prevent SQL injections.

5 Frontend Implementation

The frontend of the system is developed using Flutter, a framework for building cross-platform applications. The UI components are designed to provide a seamless experience for both leaders and administrators, offering functionalities such as event selection, user registration, and admin controls. We've added animations and drop-down boxes to make it more user-friendly.

6 Backend Implementation

The backend of the system is powered by SQL, with tables structured to store and retrieve data efficiently. SQL queries handle user authentication, event registration, and communication between leaders and administrators. The backend ensures data consistency and security. The server used is MySQL Benchwork.

These components collectively contribute to a robust database system that enhances event management and user interaction within the academic institution. The utilization of Flutter for the frontend and SQL for the backend ensures a scalable and maintainable solution.

7 User Interface (UI)

The user interface is designed to be intuitive and user-friendly. It enables leaders to easily register, view events, and select events for participation. Admins have a dedicated interface for managing events, users, and communication. The UI is implemented using Flutter and Dart for a responsive and visually appealing experience.

8 Normalization

The database design follows normalization principles to minimize data redundancy and ensure data integrity. Tables are organized to reduce anomalies and maintain consistency in data storage. We have normalized the tables to 2NF, as there are no transitive dependencies requiring normalization to 3NF.

9 Entity-Relationship (ER) Diagram

The ER diagram illustrates the relationships between different entities in the database. It visually represents how tables are connected and helps understand the flow of information within the system.

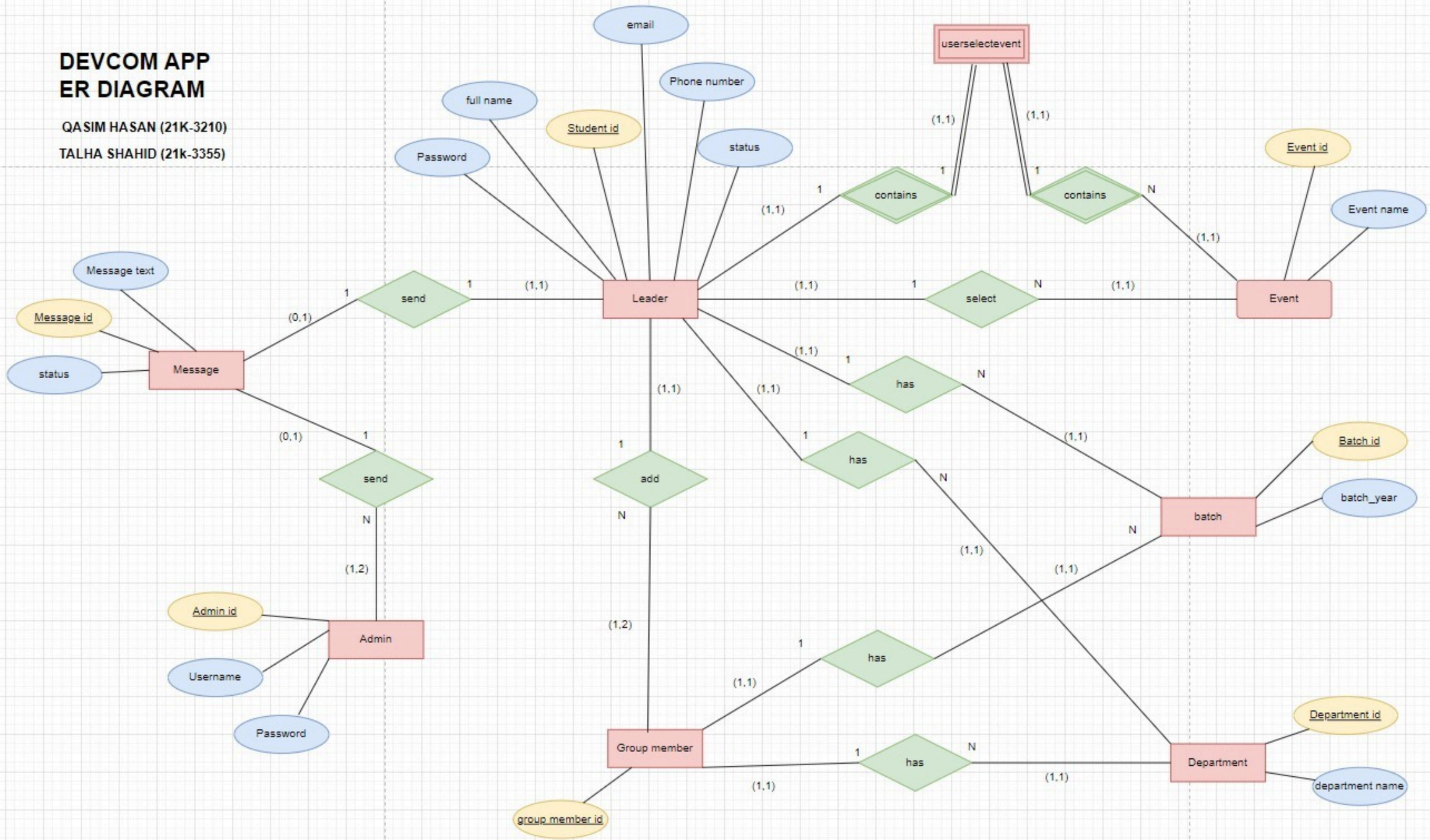
10 Conclusion

The Database Project Report concludes by summarizing the key features of the implemented system. It emphasizes the importance of a well-designed database in facilitating efficient data management, user interaction, and communication within an educational environment.

DEVCOM APP
ER DIAGRAM

QASIM HASAN (21K-3210)

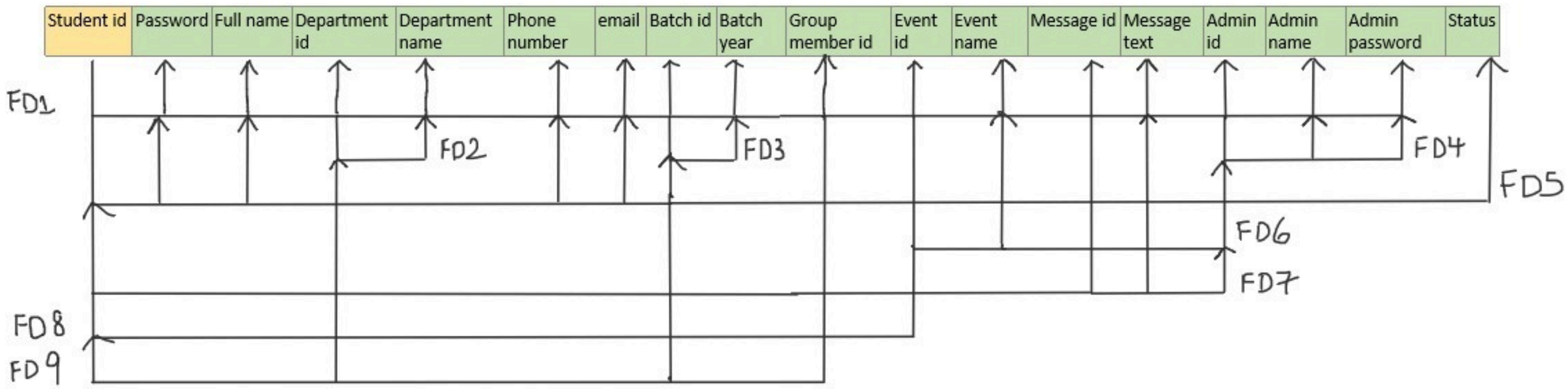
TALHA SHAHID (21k-3355)



Normalization App DEVCOM:

QASIM HASAN 21k-3210
TALHA SHAHID 21k-3355

Leader Table



1 NF:

Table all columns have atomic variables.

2 NF:

Tables After 2 NF

Leader Table

Student id	Password	Full name	Department	email	Phone number	Batch id	Department	Group member

Group member Table

Group member id	Student id	Department	Batch id

User Event Selection Table

{Student_id,event_id}	student_id	Event_id

Event Table

Event id	Event Name	Admin id

Message Table

Message id	Message Name	Admin id	Student id

Admin Table

Admin id	Admin Name	Admin password

Batch Table

Batch id	Batch Name

Department Table

Department id	Department Name

3 NF:

No transitive attributes in our database Normalization achieved at 2 NF