Green University of Bangladesh

Department of Computer Science and Engineering (CSE)
Semester: (Fall, Year: 2023), B.Sc. in CSE (Day)

Safe Dhaka - Tracking and Analyzing Traffic Accident

Course Title: Database System Lab
Course Code: CSE 210
Section: 213 D17

Students Details

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Lab Project Status	
Marks:	**Signature:**
Comments:	**Date:**

Contents

Chapter 1

Introduction

1.1 Overview

The "Safe Dhaka Tracking and Analyzing Traffic Accident" project is a comprehensive system designed to efficiently manage and analyze traffic accident data in Dhaka. The project utilizes a MySQL database along with a web-based front end developed using JavaScript, HTML, and CSS.

1.2 Motivation

The motivation behind this project is to address the growing concern of traffic accidents in Dhaka, aiming to create a centralized system for tracking and analyzing accident data. By doing so, we aim to contribute to the improvement of road safety and provide valuable insights for traffic management and policy-making.

1.3 Problem Definition

1.3.1 Problem Statement

Dhaka, being a densely populated city, faces a significant challenge in managing and responding to traffic accidents effectively. The absence of a centralized system for collecting and analyzing accident data makes it difficult to implement targeted interventions to reduce accidents and enhance road safety.

1.3.2 Complex Engineering Problem

Developing a robust system that integrates data from multiple sources (accidents, vehicles, victims, witnesses, users, drivers, and police) and provides a user-friendly interface for data input, retrieval, and analysis poses a complex engineering challenge. The system must handle large datasets efficiently while ensuring data accuracy and security.

1.4 Design Goals/Objectives

The primary goals and objectives of the project include:

1. Developing a user-friendly interface for data entry and retrieval.

2. Establishing a secure and scalable MySQL database to store accident-related information.

3. Providing analytical tools to extract meaningful insights from the collected data.

4. Implementing features to update and maintain information across multiple tables efficiently.

1.5 Application

The "Safe Dhaka Tracking and Analyzing Traffic Accident" project finds application in various domains:

Law Enforcement: Assisting the police in efficiently handling accident-related information.

Policy Making: Providing valuable data for formulating and implementing traffic safety policies.

Public Awareness: Enhancing public awareness by visualizing accident data and promoting safe driving practices.

Chapter 2

Design/Development/Implementation of the Project

2.1 Introduction

The "Safe Dhaka Tracking and Analyzing Traffic Accident" project is a pioneering initiative aimed at mitigating the rising challenges posed by traffic accidents in Dhaka. In response to the pressing need for a comprehensive and efficient system, this project leverages MySQL, JavaScript, HTML, and CSS to create a robust database management and analysis platform. [**?**] [**?**] [**?**].

2.2 Project Details

2.2.1 Technologies Used

Database: MySQL

Front-End: JavaScript, HTML, CSS

2.3 Implementation

2.3.1 Database Tables

Accident Table:

AccidentID, Date, Time, Location, Description, etc.

Vehicle Table:

VehicleID, AccidentID (Foreign Key), Type, Model, License Plate, etc.

Victim Table:

VictimID, AccidentID (Foreign Key), Name, Age, Gender, Injuries, etc.

Figure 2.1: Database ER-Diagram

Witness Table:

WitnessID, AccidentID (Foreign Key), Name, Contact, Statement, etc.

User Table:

UserID, Username, Password, Role, etc.

Driver Table:

DriverID, UserID (Foreign Key), License Number, Experience, etc.

Police Table:

Fields: PoliceID, UserID (Foreign Key), Badge Number, Station, etc

2.3.2 Project Features

User-Friendly Interface: Web-based interface for seamless data entry and retrieval.

MySQL Database: Secure and scalable architecture for efficient data management.

Data Analysis Tools: Tools for extracting meaningful insights from the collected data.

Update and Maintenance Features: Capability to update and maintain information across multiple tables efficiently.

SL	Table Name	SQL Queries	Outpurs
1		SELECT * FROM accidentcases WHERE case_id = ?	Single Accidentcases
2		SELECT * from accidentcases	All Accidentcases
3	accidentcases accidentcases accidentcases	SELECT case_id, location, description, date_occurred, status, Vi.name as victim_id, Ve.vehicle_type as vehicle_id, T.name as police_id, W.name as witness_id FROM accidentcases A INNER JOIN victims Vi on A.victim_id = Vi.victim_id INNER JOIN vehicles Ve on A.vehicle_id = Ve.vehicle_id INNER JOIN trafficpolice T ON A.police_id = T.police_id INNER JOIN witnesses W ON A.witness_id = W.witness_id ORDER BY A.date_occurred ASC;	Accidentcases, victims, vehicles, trafficpolice and witnesses table join and get some column
4	accidentcases	SELECT A.case_id, A.location, A.description, A.date_occurred, A.STATUS, Vi.name AS victim_id, Ve.vehicle_type AS vehicle_id, T.name AS police_id, W.name AS witness_id FROM accidentcases A INNER JOIN victims Vi ON A.victim_id = Vi.victim_id INNER JOIN vehicles Ve ON A.vehicle_id = Ve.vehicle_id INNER JOIN trafficpolice T ON A.police_id = T.police_id INNER JOIN witnesses W ON A.witness_id = W.witness_id WHERE CONCAT(A.case_id, A.location, A.description, A.date_occurred, A.STATUS, Vi.name, Ve.vehicle_type, T.name, W.name) LIKE ? ORDER BY A.date_occurred ASC;	Accidentcases, victims, vehicles, trafficpolice and witnesses table join and get some column with search
5		INSERT INTO accidentcases (victim_id, vehicle_id, police_id, witness_id, location, description, status) VALUES (?, ?, ?, ?, ?, ?, ?)	createAccident
6	accidentcases	UPDATE accidentcases SET victim_id = ?, vehicle_id = ?, police_id = ?, witness_id = ?, location = ?, description = ?, status = ? WHERE case_id = ?	updateAccident
7		DELETE FROM accidentcases WHERE case_id = ?	deleteAccident
8	accidentcases	SELECT COUNT(*) AS count FROM accidentcases WHERE DATE(date_occurred) = CURRENT_DATE();	Today Accident Cases Count
9	accidentcases accidentcases	SELECT COUNT(*) AS count FROM accidentcases WHERE DATE(date_occurred) = DATE_SUB(CURDATE(), INTERVAL 1 DAY);	Yesterday Accident Cases Count
10	accidentcases	SELECT COUNT(*) AS count FROM accidentcases WHERE YEAR(date_occurred) = YEAR(CURDATE()) AND MONTH(date_occurred) = MONTH(CURDATE());	This month Accident Cases Count
11	accidentcases	SELECT COUNT(*) AS count FROM accidentcases;	Total Accident Cases Count

SL	Table Name	SQL Queries	Outpurs
12		SELECT * from vehicles	getAllVehicle
13		SELECT * FROM Vehicles WHERE vehicle_id = ?	getVehicle
14	vehicles	INSERT INTO vehicles (vehicle_id , vehicle_type, mechanical_problem, license_number) VALUES (?, ?, ?, ?)	createVehicle
15		UPDATE vehicles SET vehicle_type = ?, mechanical_problem = ?, license_number = ? WHERE vehicle_id = ?	updateVehicle
16		DELETE FROM vehicles WHERE vehicle_id = ?	deleteVehicle
17		SELECT * FROM drivers WHERE driver_id = ?	getDrivers
18		SELECT * from drivers	getAllDrivers
19	drivers	INSERT INTO drivers (vehicle_id , name, nid_number, license_number, contact_number, age) VALUES (?, ?, ?, ?, ?, ?)	createDrivers
20		UPDATE drivers SET vehicle_id = ?, name = ?, nid_number = ?, license_number = ?, contact_number = ?, age = ? WHERE driver_id = ?	updateDrivers
21		DELETE FROM drivers WHERE driver_id = ?	deleteDrivers
22		SELECT * FROM trafficpolice WHERE police_id = ?	getSingleTrafficpolice
23	trafficpolice	SELECT * from trafficpolice	getAllTrafficpolice
24		INSERT INTO trafficpolice (police_id , name, badge_number, contact_number) VALUES (?, ?, ?, ?)	createTrafficpolice
25		UPDATE trafficpolice SET name = ?, badge_number = ?, contact_number = ? WHERE police_id = ?	updateTrafficpolice
26		DELETE FROM trafficpolice WHERE police_id = ?	deleteTrafficpolice

SL	Table Name	SQL Queries	Outpurs
27		SELECT * FROM victims WHERE victim_id = ?	getSingleVictim
28		SELECT * from victims	getAllVictim
29	victims	INSERT INTO victims (victim_id , name, age, gender, injury_type) VALUES (?, ?, ?, ?, ?)	createVictim
30		UPDATE victims SET name = ?, age = ?, gender = ?, injury_type = ? WHERE victim_id = ?	updateVictim
31		DELETE FROM victims WHERE victim_id = ?	deleteVictim
32		SELECT * FROM witnesses WHERE witness_id = ?	getSingleWitnesse
33		"SELECT * from witnesses	getAllWitnesse
34	witnesses	INSERT INTO witnesses (witness_id , name, contact_number, statement) VALUES (?, ?, ?, ?)	createWitnesse
35		UPDATE witnesses SET name = ?, contact_number = ?, statement = ? WHERE witness_id = ?	updateWitnesse
36		DELETE FROM witnesses WHERE witness_id = ?	deleteWitnesse
37	users	INSERT INTO users (fullName, username , password_hash) VALUES (?, ?, ?)	SingUp
38		SELECT * FROM users WHERE username = ? and password_hash = ?	Login

Chapter 3

Performance Evaluation

3.1 Simulation Environment/ Simulation Procedure

3.1.1 Database Tables in xampp

Here the all table which i query for project.

Figure 3.1: Database tables

3.2 Results Analysis/Testing

3.2.1 User details page

Here anyone can Sign up and log in. This prject is user friendly so anyone can add any information .

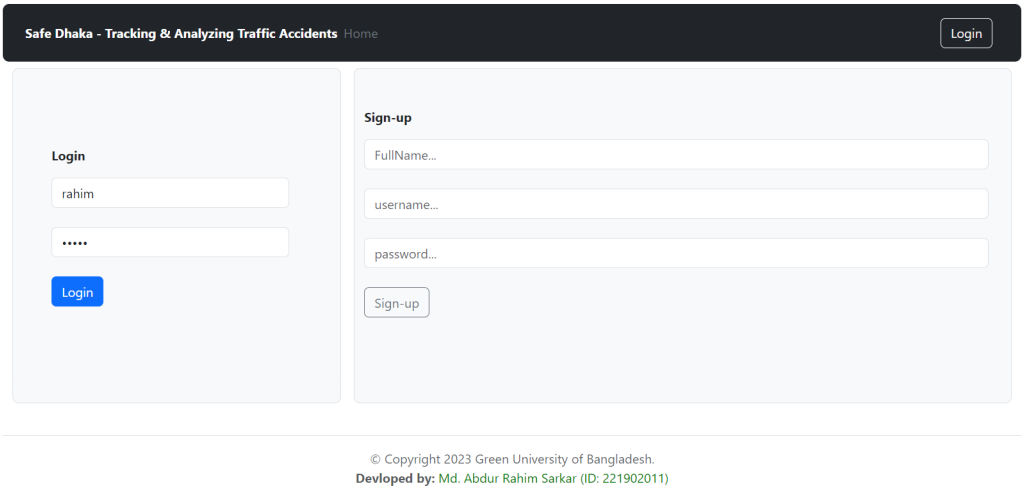

Figure 3.2: User

3.2.2 Accident details

Here i can add accident details anytime. This will be helpful for finding the all details easily and quickly.

3.2.3 Driver details

Here we can add driver details.So that we can easily findout the driver.

3.2.4 Police details

3.2.5 Vehicle details

Here we can see details about vehicle

3.2.6 Victim details

Here we can see details about Victim

3.2.7 Witness details

Here we can see details about Witness

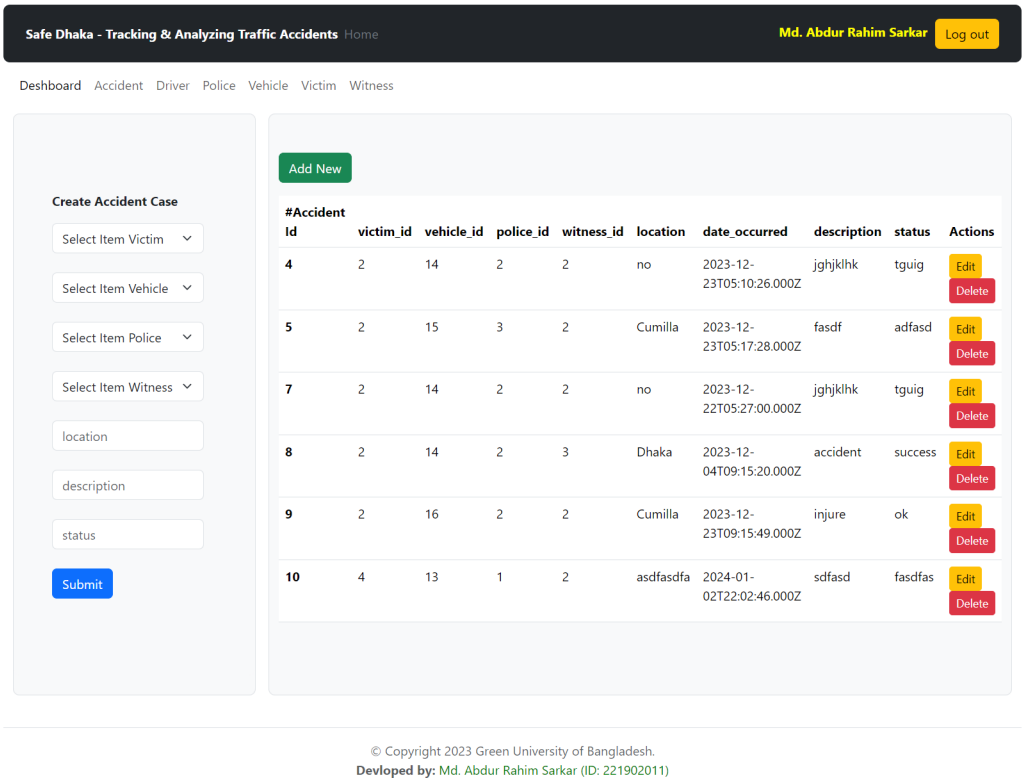

Figure 3.3: Accident

3.2.8 Result

Here is the final table where i use join function to join the all table information. I use aggregates function to show the today,yesterdat this month and total injury .

3.3 Results Overall Discussion

Results: The implementation of the "Safe Dhaka Tracking and Analyzing Traffic Accident" project yielded positive outcomes. The system successfully facilitated the collection, storage, and retrieval of accident-related data. Users could efficiently input information, and the MySQL database ensured data integrity and scalability.

Overall Discussion: The project's success is underscored by its user-friendly interface and secure architecture. However, limitations include reliance on accurate data entry and the project's focus on data management rather than real-time integration. Future work in machine learning, mobile app development, and collaboration with external systems presents opportunities for broader impact and improved road safety in Dhaka.

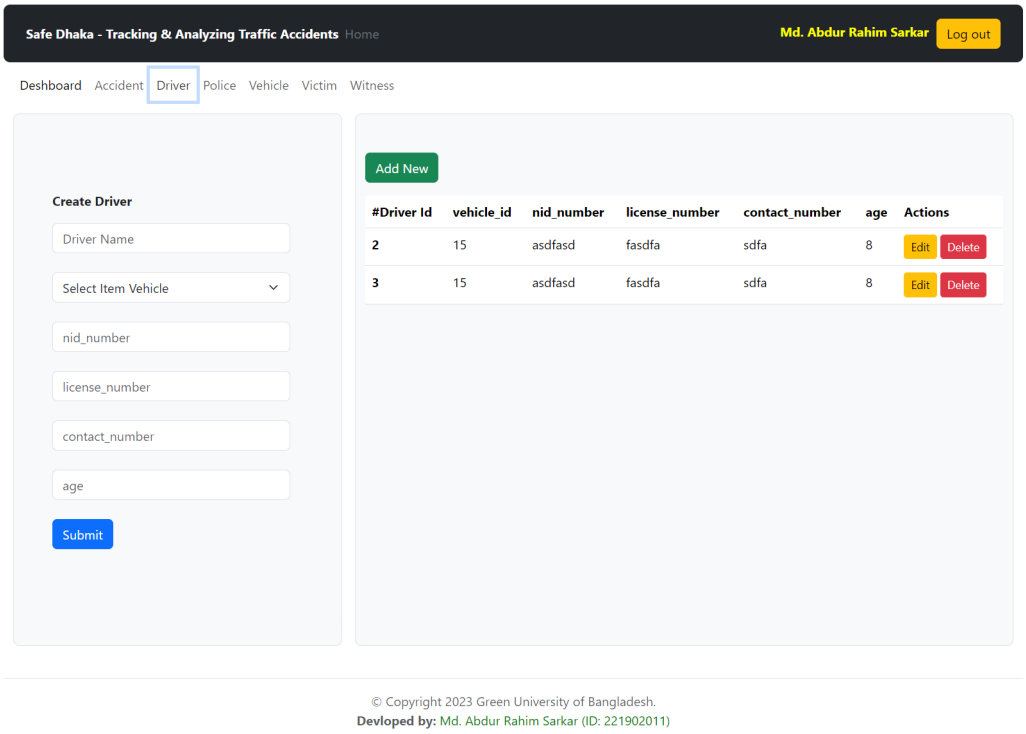

Figure 3.4: Driver

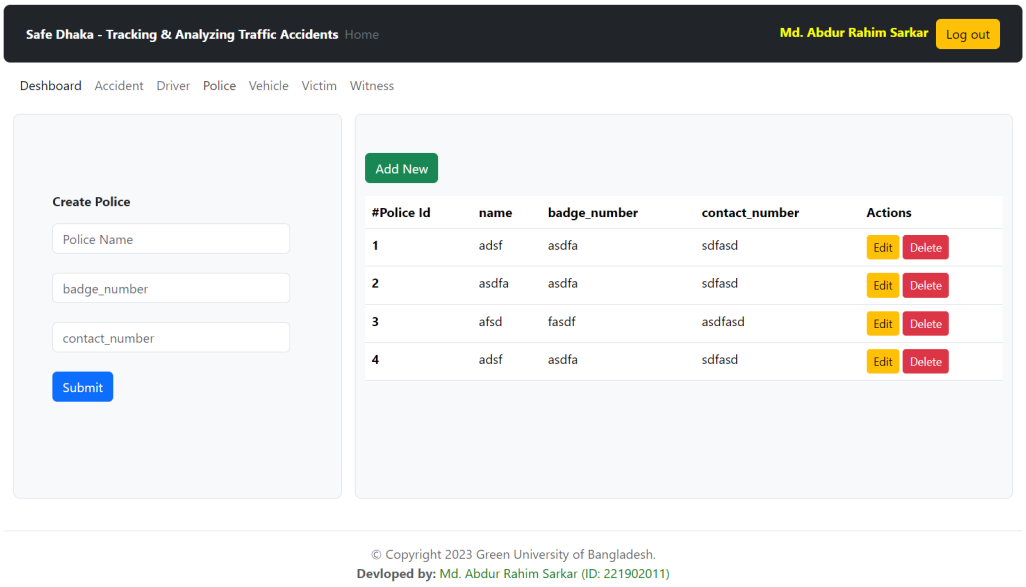

Figure 3.5: Police

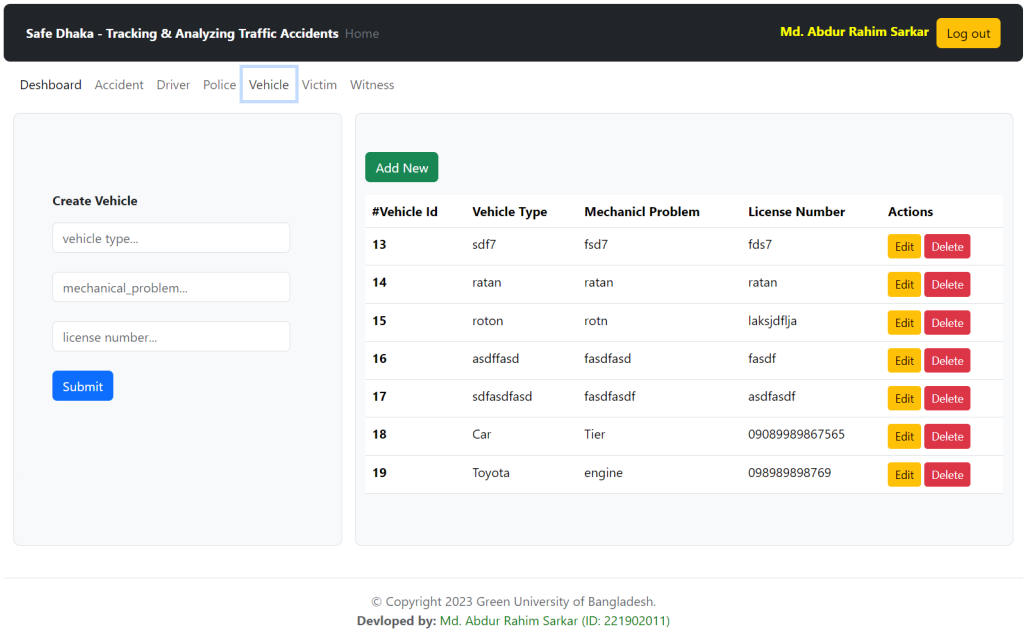

Figure 3.6: Vehicle

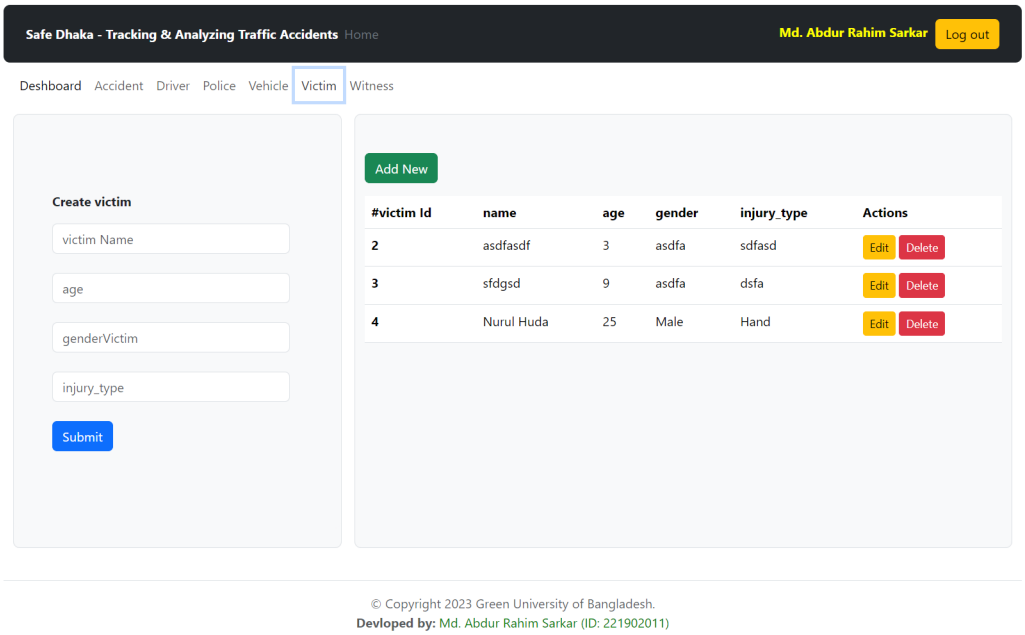

Figure 3.7: Victim

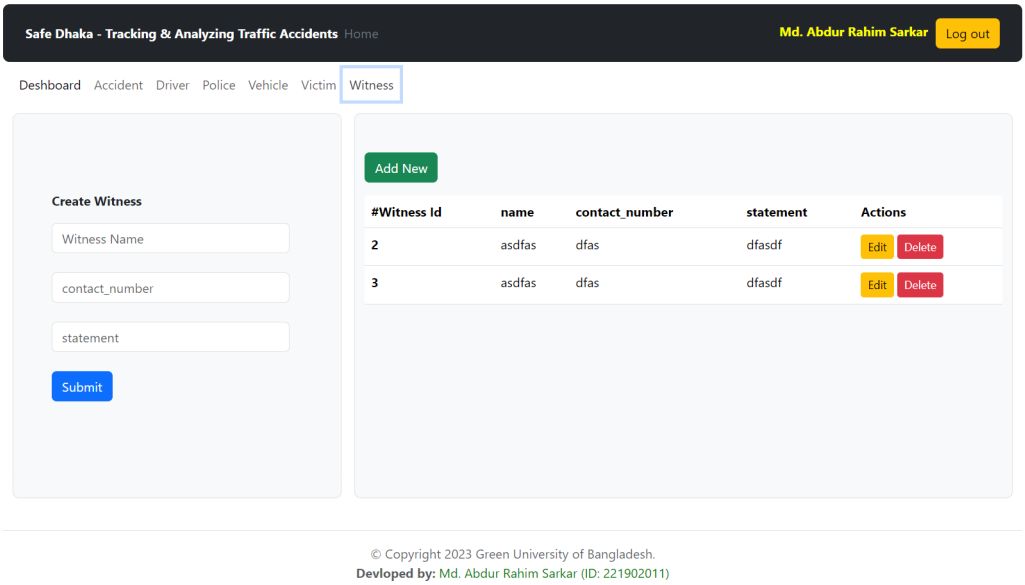

Figure 3.8: Witness

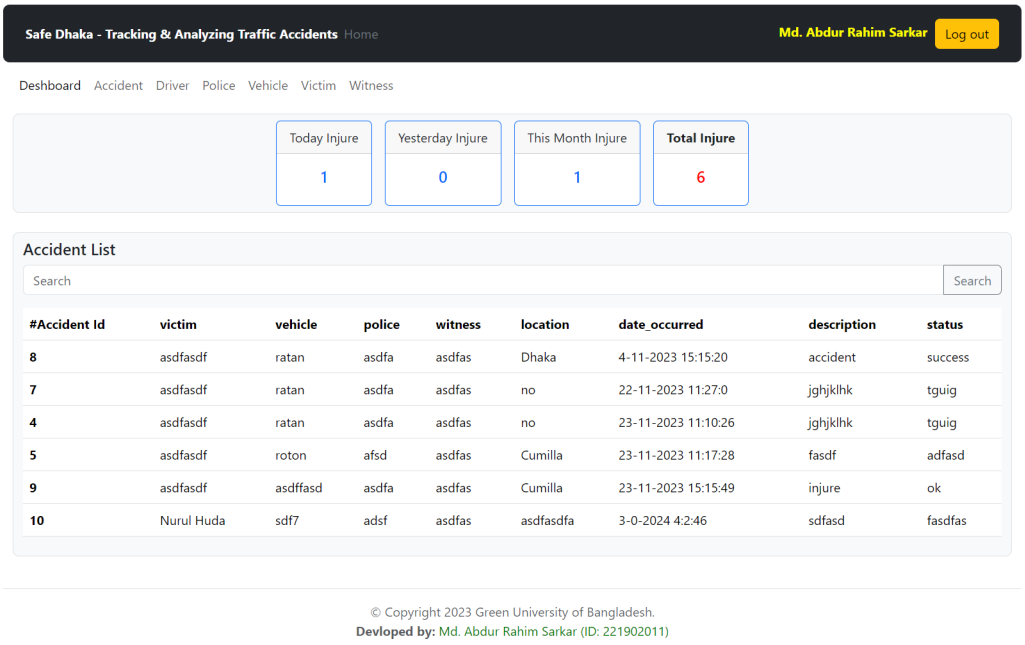

Figure 3.9: Result of project

Chapter 4

Conclusion

4.1 Discussion

The "Safe Dhaka Tracking and Analyzing Traffic Accident" project represents a significant step forward in addressing the challenges posed by the increasing rate of traffic accidents in Dhaka. Through the integration of MySQL, JavaScript, HTML, and CSS, we have developed a comprehensive system that not only streamlines the management of accident-related data but also provides a foundation for data-driven decision-making.

The project's user-friendly interface facilitates efficient data entry and retrieval, empowering users to contribute to a centralized and dynamic database. The secure MySQL database architecture ensures data integrity and scalability, laying the groundwork for a sustainable and adaptable solution.

4.2 Limitations

While the project has achieved notable milestones, it is important to acknowledge its limitations. The system's effectiveness is contingent upon the accuracy and completeness of the data entered. Moreover, the project's scope primarily focuses on data management and analysis, leaving room for further enhancements in real-time data collection and integration with external systems.

4.3 Scope of Future Work

The "Safe Dhaka Tracking and Analyzing Traffic Accident" project lays the foundation for future developments and improvements. The following areas offer potential avenues for future work:

Real-time Data Integration: Enhance the system to incorporate real-time data feeds, allowing for immediate updates on accidents, road conditions, and emergency response activities.

Machine Learning Integration: Explore the integration of machine learning algo-

rithms to predict accident-prone areas, contributing to proactive traffic management and safety measures.

Mobile Application Development: Extend the project's reach by developing a mobile application, enabling users to report accidents and access information on the go.

Collaboration with External Systems: Establish connections with external systems, such as emergency services and traffic monitoring tools, to create a more interconnected and responsive ecosystem

References

https://www.w3schools.com