



Green University of Bangladesh

*Department of Computer Science and Engineering (CSE)
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Safe Dhaka - Tracking and Analyzing Traffic Accident

*Course Title: Database System Lab
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[For teachers use only: **Don't write anything inside this box**]

<u>Lab Project Status</u>	
Marks:	Signature:
Comments:	Date:

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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 Accident-cases
2		SELECT * from accidentcases	All Accident-cases
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.

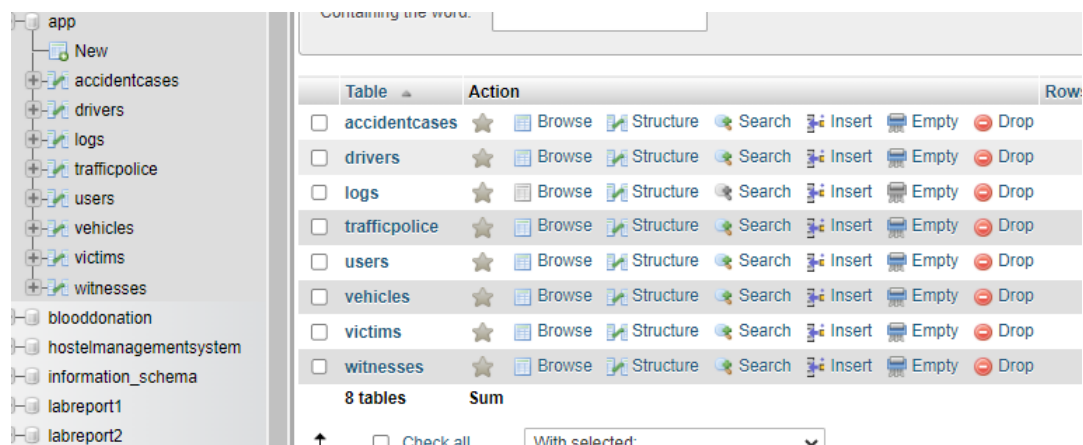


Figure 3.1: Database tables

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 .

The screenshot displays the 'Safe Dhaka - Tracking & Analyzing Traffic Accidents' web application. The header is dark blue with the title and a 'Home' link, and a 'Login' button on the right. The main content area is divided into two columns. The left column contains a 'Login' section with a text input for the username (containing 'rahim'), a password input (masked with dots), and a blue 'Login' button. The right column contains a 'Sign-up' section with three text inputs for 'FullName...', 'username...', and 'password...', followed by a 'Sign-up' button. At the bottom, a footer contains copyright information for 2023 Green University of Bangladesh and credits the development to Md. Abdur Rahim Sarkar (ID: 221902011).

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 find out 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

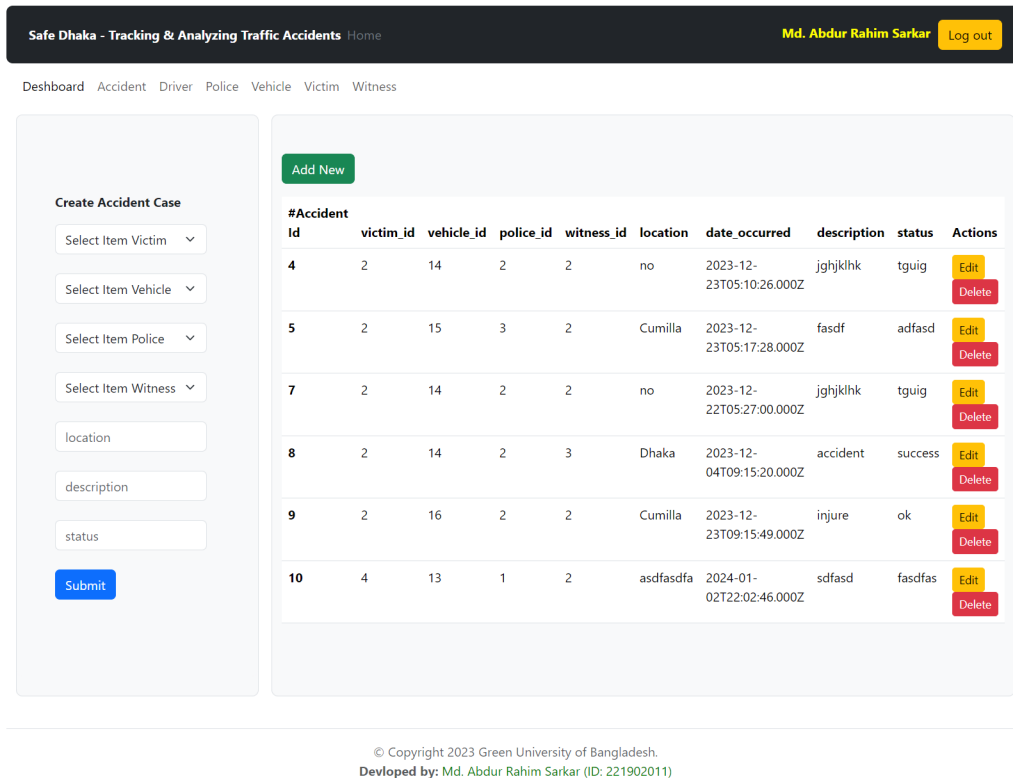


Figure 3.3: Accident

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.

Safe Dhaka - Tracking & Analyzing Traffic Accidents

Home

Md. Abdur Rahim Sarkar

Log out

Deshboard

Accident

Driver

Police

Vehicle

Victim

Witness

Create Driver

Driver Name

Select Item Vehicle

nid_number

license_number

contact_number

age

Submit

Add New

#Driver Id	vehicle_id	nid_number	license_number	contact_number	age	Actions
2	15	asdfasd	fasdfa	sdfa	8	<div>Edit</div> <div>Delete</div>
3	15	asdfasd	fasdfa	sdfa	8	<div>Edit</div> <div>Delete</div>

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Figure 3.4: Driver

Safe Dhaka - Tracking & Analyzing Traffic Accidents

Home

Md. Abdur Rahim Sarkar

Log out

Deshboard

Accident

Driver

Police

Vehicle

Victim

Witness

Create Police

Police Name

badge_number

contact_number

Submit

Add New

#Police Id	name	badge_number	contact_number	Actions
1	adsf	asdfa	sdfasd	<div>Edit</div> <div>Delete</div>
2	asdfa	asdfa	sdfasd	<div>Edit</div> <div>Delete</div>
3	afsd	fasdf	asdfsad	<div>Edit</div> <div>Delete</div>
4	adsf	asdfa	sdfasd	<div>Edit</div> <div>Delete</div>

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Figure 3.5: Police

Safe Dhaka - Tracking & Analyzing Traffic Accidents

Home

Md. Abdur Rahim Sarkar

Log out

Deshboard

Accident

Driver

Police

Vehicle

Victim

Witness

Create Vehicle

vehicle type...

mechanical_problem...

license number...

Submit

Add New

#Vehicle Id	Vehicle Type	Mechanicl Problem	License Number	Actions
13	sdf7	fsd7	fds7	<div>Edit</div> <div>Delete</div>
14	ratan	ratan	ratan	<div>Edit</div> <div>Delete</div>
15	roton	rotn	laksjdflla	<div>Edit</div> <div>Delete</div>
16	asddfasd	fasdfasd	fasdf	<div>Edit</div> <div>Delete</div>
17	sdfasdfasd	fasdfasdf	asdfasdf	<div>Edit</div> <div>Delete</div>
18	Car	Tier	09089989867565	<div>Edit</div> <div>Delete</div>
19	Toyota	engine	098989898769	<div>Edit</div> <div>Delete</div>

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Figure 3.6: Vehicle

Safe Dhaka - Tracking & Analyzing Traffic Accidents

Home

Md. Abdur Rahim Sarkar

Log out

Deshboard

Accident

Driver

Police

Vehicle

Victim

Witness

Create victim

victim Name

age

genderVictim

injury_type

Submit

Add New

#victim Id	name	age	gender	injury_type	Actions
2	asdfasdf	3	asdfa	sdfasd	<div>Edit</div> <div>Delete</div>
3	sfdgds	9	asdfa	dsfa	<div>Edit</div> <div>Delete</div>
4	Nurul Huda	25	Male	Hand	<div>Edit</div> <div>Delete</div>

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Figure 3.7: Victim

Safe Dhaka - Tracking & Analyzing Traffic Accidents

Home

Md. Abdur Rahim Sarkar

Log out

Dashboard

Accident

Driver

Police

Vehicle

Victim

Witness

Create Witness

Witness Name

contact_number

statement

Submit

Add New

#Witness Id	name	contact_number	statement	Actions
2	asdfas	dfas	dfasdf	<div>Edit</div> <div>Delete</div>
3	asdfas	dfas	dfasdf	<div>Edit</div> <div>Delete</div>

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Figure 3.8: Witness

Safe Dhaka - Tracking & Analyzing Traffic Accidents

Home

Md. Abdur Rahim Sarkar

Log out

Dashboard

Accident

Driver

Police

Vehicle

Victim

Witness

Today Injure

Yesterday Injure

This Month Injure

Total Injure

1

0

1

6

Accident List

Search

Search

#Accident Id	victim	vehicle	police	witness	location	date_occurred	description	status
8	asdfasdf	ratan	asdfa	asdfas	Dhaka	4-11-2023 15:15:20	accident	success
7	asdfasdf	ratan	asdfa	asdfas	no	22-11-2023 11:27:0	jghjklhk	tguig
4	asdfasdf	ratan	asdfa	asdfas	no	23-11-2023 11:10:26	jghjklhk	tguig
5	asdfasdf	roton	afsd	asdfas	Cumilla	23-11-2023 11:17:28	fasdf	adfasd
9	asdfasdf	asdffasd	asdfa	asdfas	Cumilla	23-11-2023 15:15:49	injure	ok
10	Nurul Huda	sdf7	adsf	asdfas	asdfsdfa	3-0-2024 4:2:46	sdfasd	fasdfas

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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>