Information Systems and Data Modeling – IT1090

Assignment

Title: Bus Scheduling and Booking System	
Batch Number: Y1S2_2023_MTR	Group Number: Y1S2_2023_MTR_G10

Declaration:

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We hereby certify that no part of this assignment has been copied from any other group's work or from any other source. No part of this assignment has been written / produced for our group by another person except where such collaboration has been authorized by the subject lecturer/tutor concerned.

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Submitted on: <04/06/2023>

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1. Introduction

The goal of this project is to provide an online system for purchasing bus tickets. It offers a platform for online bus ticket reservations for passengers. The user receives the ticket information through email.

Numerous technologies need to be investigated and understood in order to create an online bus ticket booking system. Multi-tiered design, server-side and client-side scripting methods, JSP implementation technologies, programming languages like Java, JavaScript, and HTML, and relational databases like MySQL Access are some of these. The goal of this project is to create a basic online ticket booking system that offers customers a very user-friendly setting in which to order tickets immediately. This website enables potential customers to purchase bus tickets directly from it and book them.

Potential customers can self-book and make payments on the Bus Scheduling and Ticket Booking System website. The dashboard on the website will show the booked tickets. The website's bus timetable includes a list of all routes. Additionally, both booked, and available seats will be included in the booking information section. The passenger will be prompted to choose the card type and provide further details at the time of booking the ticket.

Passenger must then request an OTP in order to finish the payment. The passenger would be able to successfully finish the ticket-buying process after providing the specified OTP.

2. Hypothetical Scenario

The Bus Scheduling and Booking System is an online platform that helps passengers easily search, book and pay for bus tickets from the comfort of their homes. This system allows passengers to search for available buses based on their departure and arrival cities, travel dates, and times. It provides a range of options, such as types of buses, fares, seats available, and travel durations. Once the passenger selects a suitable option, they can book their tickets.

Unregistered customer is required to produce their NIC, first name, last name, address, email, and contact number during the registration process, and NIC is unique for the unregistered customer. An unregistered customer can only register once, but registration can hold many unregistered customers simultaneously. They get a unique registration ID according to the registered date and are able to create a profile with a profile ID. Registration creates each and every one of these unregistered customer's profile. All the profiles are managed by an Admin. An Admin has a first name, last name, ID, password, address, email, and contact number. Admin can be specified by his ID. Admin has more than one contact number.

Registered customers have a first name, last name, ID, password, NIC, contact number, date of birth, email, address, and age. The age depends on the date of birth. Each registered customer will own a unique ID. They can have more than one contact number. Registered customers can check and select the route. Each registered customer can select one route, and the route to locations can be selected by many registered customers. Customers can buy tickets for the selected route. A customer can book many tickets at a time. A route can be booked with many tickets. Route has a unique ID and a route name. The customer makes the payment. Payment has an ID, payment amount, date, and type. Payment ID is unique for the payment. Every ticket has a payment. The payment is verified by the manager. The manager has a unique ID, password, name, and contact number. Manager can have more than one contact number. The ticket has a unique ID and price. A customer can buy more than one ticket.
Registered customers can give one or more feedbacks about their experiences. Feedback has a unique ID, and it depends on the customer.

After booking the ticket successfully, the customer needs to get the bus according to the route. Every bus has a route. Bus has an ID, arrival time, departure time, and bus number. Every bus has a unique ID. A driver with driver ID, driver name, and contact number drives the bus. Each driver can be specified with their ID.

Manager, registered customer, driver, and admin can log in to the system. Login has a unique login number. Each of these users can log in to the system more than one time. At the end of the day, the admin generates the report with a unique report ID and number.

3. Requirement Analysis

3.1 Main Requirements

1. The user creates a guest account on the system.
2. Verify the accuracy of the user registration information.
3. Browse bus timetables.
4. Searching routes.
5. Verify seat availability.
6. Verify your membership.
7. The user logs into the website as a registered user.
8. Use OTP to confirm user registration.
9. The user has the ability to edit their account.
10. Verify the accuracy of the modified information.
11. Purchase a ticket.

12 Pick a payment option.

13. Provide payment information.
14. Inquire about the payment method's OTP.
15. Check the payment is valid.

16 Email and text message the reserved ticket to the phone.

17. The system receives feedback from registered users.
18. Request the cancellation of your ticket.
19. Log in as the main admin with System Admin.
20. Verify the admin login's legitimacy.
21. Verify the legitimacy of the admin logins.
22. Create the bus schedule.

23. Create system reports.

24. Responds to user feedback.

25. Control user accounts.

26. User and administrator accounts can be edited or seen.

27. A system administrator verifies user requests to cancel tickets.

28. Admin reviews the passenger's questions at number.

29. Answer the passenger's questions.

30. Maintain a database.

31. Maintaining an updated website.

32 Verify the recently modified information.

33. Update bus schedules.

34. Modify the website's visual appearance.

35. User and admin communication.

36. View the reports.

To register as a user, a visitor user must create a new user account. The system validates the accuracy of the user registration information. Visitors can examine bus routes and schedules, but only registered users can check the seats that are available and make reservations. The User ID and Password are generated by the system. Using his User ID and User Password, the user can access the website. The system then confirms membership, and the user then modifies user account information. The seats and routes that are available are then displayed by the system. He or she needs to submit a payment method and payment information. The system then verifies the payment information. The user will thereafter have the opportunity to use this website to book tickets. The admin then verifies the payment information and emails the user the pertinent ticket information. System Admin logs in as the primary administrator. The admin login is verified by the system. The system administrator creates system reports. Additionally, logged-in users can provide feedback to the system. The system administrator responds to user comments. Users' requests to cancel tickets are verified by the system administrator. The system administrator also controls user accounts. The user profile is editable by both the user and the admin. By changing user accounts, the system administrator updates the system database. The administrator needs to review the inquiries and update the database. Additionally, the website's admin modifies the design, routes, and timetable in addition to

applying security fixes. Users and system administrators can exchange messages. The admin then views the Report.

3.2 Data Requirements

Admin

Admin ID (Admin_ID)
First Name (F_Name)
Last Name (L_Name)
Address (Address)
Email (Email)
Admin Password (A_Password)

Profile

Profile ID (Profile_ID)

Registration

Registration ID (Registration_ID)
Registration Date (R_Date)

Unregistered Customer

National Identity Number (NIC)
First Name (F_Name)
Last Name (L_Name)
Address (Address)
Email (Email)

Route

Route ID (Route_ID)
Route Name (Route_Name)

Driver

Driver ID (Driver_ID)
Driver Name (Driver_Name)

Registered Customer

Customer ID (Customer_ID)
First Name (F_Name)
Last Name (L_Name)

Feedback

Feedback No (Feedback_No)
Feedback Message (Message)

Manager

Manager ID (Manager_ID)
Manager_Name (Manager_Name)
Manager Password (M_Password)

Payment

Payment ID (Payment_ID)
Payment Type (Payment_Type)
Payment Date (Payment_Date)
Payment Amount (Payment_Amount)

Ticket

Ticket ID (Ticket_ID)
Ticket Quantity (Quantity)
Ticket Price (Ticket_Price)

Bus

Bus ID (Bus_ID)
Bus Number (Bus_No)
Bus Arrival Time (Arrival_Time)
Bus Departure Time (Departure_Time)

Login

Login Number (Login_No)

Report

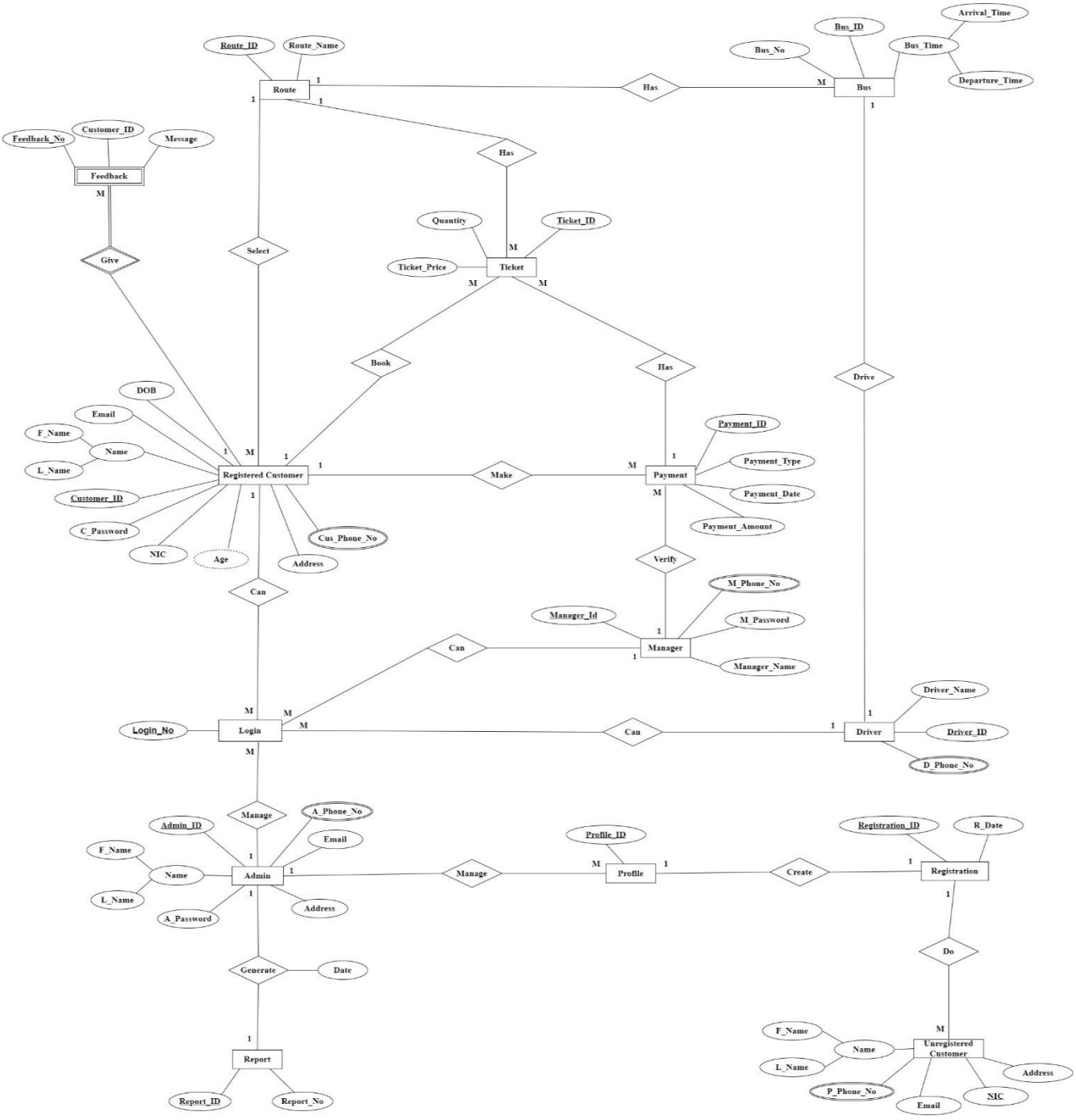
Report ID (Report_ID)
Report Number (Report_No)

3.3 Non-Functional Requirements

Non-functional requirements are referred to as quality attributes. Aspects of the system's user visibility that aren't directly connected to a given feature are described. They act as limitations or restrictions on how the system is designed for the various backlogs. A failure to comply with even one of them may give rise to serious legal problems.

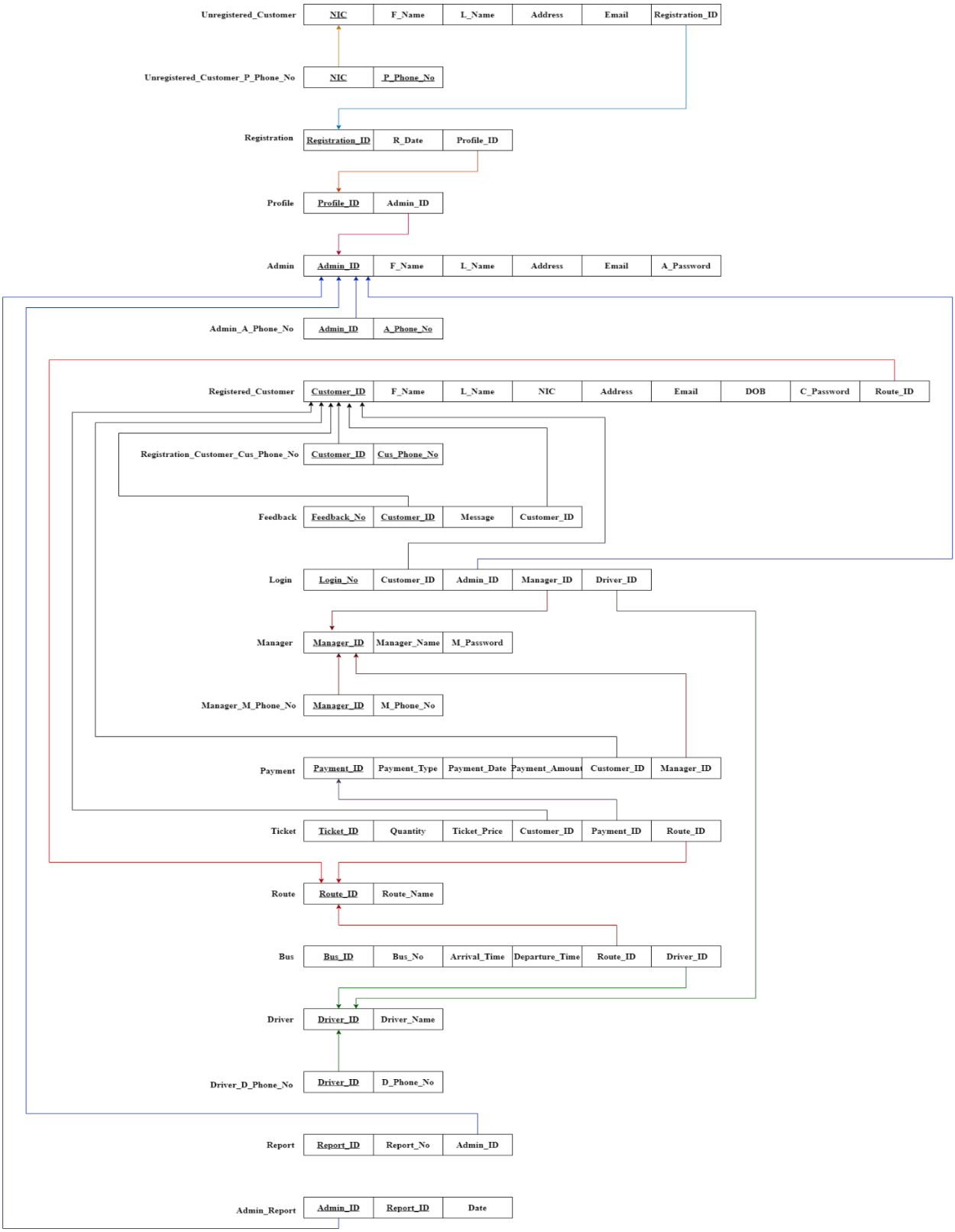
- **Availability** – Availability will be provided 24 X 7.
- **Security** – Prevent illegal access to the system. Additionally, the system database is only directly accessible by the administrator. Furthermore, no one else will be able to access the system using the user ID and password you provide because they are unique.
- **User-friendly** – Even newly registered customers can utilize the system without hesitating because of how user-friendly it is.
- **Reliability** – The system's mean time to failure and reliability will both be incredibly low.
- **Performance** – The system may be accessible by an infinite number of users simultaneously, and it will react to user requests very quickly.
- **System changes** – The administrator is the only person who can make changes to the system. Additionally, real-time updates will be made to the system, bringing it up to date.

4. ER-Diagram


Route_ID
Route_Name
Route
Has
Bus_ID
Arrival_Time
Bus_No
Bus_Time
Bus
Departure_Time
Feedback_No
Customer_ID
Message
Feedback
Has
Select
Give
Quantity
Ticket_ID
Ticket_Price
Ticket
Book
Has
Drive
DOB
Email
F_Name
Name
L_Name
Customer_ID
C_Password
NIC
Age
Registered Customer
Cus_Phone_No
Address
Make
Payment_ID
Payment_Type
Payment_Date
Payment_Amount
Payment
Verify
Can
M_Phone_No
Manager_Id
M_Password
Manager_Name
Manager
Can
Driver_Name
Driver_ID
D_Phone_No
Driver
Login_No
Login
Can
Manage
A_Phone_No
Admin_ID
Email
F_Name
Name
L_Name
Admin
Address
A_Password
Manage
Profile_ID
Profile
Create
Registration_ID
R_Date
Registration
Do
Generate
Date
Report
Report_ID
Report_No
F_Name
Name
L_Name
Unregistered Customer
Address
P_Phone_No
Email
NIC

5. Schema of Database

URL - [Relational Diagram.drawio]



6. SQL Queries

```
CREATE DATABASE BUS_SHEDULING__AND_BOOKING_SYSTEM;
USE [BUS_SHEDULING__AND_BOOKING_SYSTEM]

---------- Create Tables ----------

--- Admin Table ---

CREATE TABLE Admin (
        Admin_ID int NOT NULL,
        F_Name varchar(20) NOT NULL,
        L_Name varchar(20) NOT NULL,
        Address varchar(50),
        Email varchar(25) NOT NULL,
        A_Password varchar(12) NOT NULL,

        CONSTRAINT  Admin_PK PRIMARY KEY (Admin_ID),
);

--- Profile Table ---

CREATE TABLE Profile (
        Profile_ID varchar(10) NOT NULL,

        Admin_ID int,

        CONSTRAINT   Profile_PK PRIMARY KEY (Profile_ID),
        CONSTRAINT   Profile_Admin_FK FOREIGN KEY (Admin_ID) REFERENCES Admin (Admin_ID),
);




--- Registration Table ---

CREATE TABLE Registration (
        Registration_ID varchar(10) NOT NULL,
        R_Date date,

        Profile_ID varchar(10),

        CONSTRAINT  Registration_PK PRIMARY KEY (Registration_ID),
        CONSTRAINT  Registration_Profile_FK FOREIGN KEY (Profile_ID) REFERENCES Profile (Profile_ID),
);

--- Unregistered_Customer Table ---

CREATE TABLE Unregistered_Customer (
        NIC varchar(10) NOT NULL,
        F_Name varchar(20) NOT NULL,
        L_Name varchar(20) NOT NULL,
        Address varchar(50),
        Email varchar(25) NOT NULL,

        Registration_ID varchar(10),

        CONSTRAINT  Unregistered_Customer_PK PRIMARY KEY (NIC),
        CONSTRAINT  Unregistered_Customer_Registration_FK FOREIGN KEY (Registration_ID) REFERENCES Registration (Registration_ID),
        CONSTRAINT  Unregistered_Customer_CHK CHECK (NIC LIKE '[0-9][0-9][0-9][0-9][0-9][0-9][0-9][0-9][0-9][0-9][vV]'),
);




--- Route Table ---

CREATE TABLE Route (
        Route_ID varchar(10) NOT NULL,
        Route_Name varchar(20),

        CONSTRAINT   Route_PK PRIMARY KEY (Route_ID),
);

--- Driver Table ---

CREATE TABLE Driver (
        Driver_ID varchar(10) NOT NULL,
        Driver_Name varchar(20),

        CONSTRAINT  Driver_PK PRIMARY KEY (Driver_ID),
);

--- Registered_Customer Table ---

CREATE TABLE Registered_Customer (
        Customer_ID varchar(10) NOT NULL,
        F_Name varchar(20) NOT NULL,
        L_Name varchar(20) NOT NULL,
        NIC varchar(10) NOT NULL,
        Address varchar(50),
        Email varchar(25) NOT NULL,
        DOB date,
        C_Password varchar(12) NOT NULL,

        Route_ID varchar(10),

        CONSTRAINT  Customer_PK PRIMARY KEY (Customer_ID),
        CONSTRAINT  Customer_Route_FK FOREIGN KEY (Route_ID) REFERENCES Route (Route_ID),
        CONSTRAINT  Registered_Customer_CHK CHECK (NIC LIKE '[0-9][0-9][0-9][0-9][0-9][0-9][0-9][0-9][0-9][0-9][vV]'),
);
```

```
--- Feedback Table ---

CREATE TABLE Feedback (
        Feedback_No int NOT NULL,
        Message text,

        Customer_ID varchar(10),

        CONSTRAINT   Feedback_PK PRIMARY KEY (Feedback_No),
        CONSTRAINT   Feedback_Registered_Customer_FK FOREIGN KEY (Customer_ID) REFERENCES Registered_Customer (Customer_ID),
);

--- Manager Table ---

CREATE TABLE Manager (
        Manager_ID varchar(10) NOT NULL,
        Manager_Name varchar(20) NOT NULL,
        M_Password varchar(12) NOT NULL,

        CONSTRAINT   Manager_PK PRIMARY KEY (Manager_ID),
);




--- Payment Table ---

CREATE TABLE Payment (
        Payment_ID varchar(10) NOT NULL,
        Payment_Type varchar(25) NOT NULL,
        Payment_Date date,
        Payment_Amount varchar(15) NOT NULL,

        Customer_ID varchar(10),
        Manager_ID varchar(10),

        CONSTRAINT   Payment_PK PRIMARY KEY (Payment_ID),
        CONSTRAINT   Payment_Registered_Customer_FK FOREIGN KEY (Customer_ID) REFERENCES Registered_Customer (Customer_ID),
        CONSTRAINT   Payment_Manager_FK FOREIGN KEY (Manager_ID) REFERENCES Manager (Manager_ID),
);

--- Ticket Table ---

CREATE TABLE Ticket (
        Ticket_ID varchar(10) NOT NULL,
        Quantity int NOT NULL,
        Ticket_Price varchar(25) NOT NULL,

        Payment_ID varchar(10),
        Customer_ID varchar(10),
        Route_ID varchar(10),

        CONSTRAINT   Ticket_PK PRIMARY KEY (Ticket_ID),
        CONSTRAINT   Ticket_Payment_FK FOREIGN KEY (Payment_ID) REFERENCES Payment (Payment_ID),
        CONSTRAINT   Ticket_Registered_Customer_FK FOREIGN KEY (Customer_ID) REFERENCES Registered_Customer (Customer_ID),
        CONSTRAINT   Ticket_Route_FK FOREIGN KEY (Route_ID) REFERENCES Route (Route_ID),
);




--- Bus Table ---

CREATE TABLE Bus (
        Bus_ID varchar(10) NOT NULL,
        Bus_No int,
        Arrival_Time time,
        Departure_Time time,

        Route_ID varchar(10),
        Driver_ID varchar(10),

        CONSTRAINT   Bus_PK PRIMARY KEY (Bus_ID),
        CONSTRAINT   Bus_Route_FK FOREIGN KEY (Route_ID) REFERENCES Route (Route_ID),
        CONSTRAINT   Bus_Driver_FK FOREIGN KEY (Driver_ID) REFERENCES Driver (Driver_ID),
);

--- Login Table ---

CREATE TABLE Login (
        Login_No varchar(4) NOT NULL,

        Admin_ID int,
        Customer_ID varchar(10),
        Manager_ID varchar(10),
        Driver_ID varchar(10),

        CONSTRAINT   Login_PK PRIMARY KEY (Login_No),
        CONSTRAINT   Login_Admin_FK FOREIGN KEY (Admin_ID) REFERENCES Admin (Admin_ID),
        CONSTRAINT   Login_Regis_Customer_FK FOREIGN KEY (Customer_ID) REFERENCES Registered_Customer (Customer_ID),
        CONSTRAINT   Login_Manager_FK FOREIGN KEY (Manager_ID) REFERENCES Manager (Manager_ID),
        CONSTRAINT   Login_Driver_FK FOREIGN KEY (Driver_ID) REFERENCES Driver (Driver_ID),
        CONSTRAINT   Login_CHK CHECK (Login_No LIKE '[lL][0-9][0-9][0-9]'),
);
```

```sql
--- Report Table ---

CREATE TABLE Report (
        Report_ID varchar(25) NOT NULL,
        Report_No int,

        Admin_ID int,

        CONSTRAINT   Report_PK PRIMARY KEY (Report_ID),
        CONSTRAINT   Report_Admin_FK FOREIGN KEY (Admin_ID) REFERENCES Admin (Admin_ID),
);

--- Admin_Report Table ---

CREATE TABLE Admin_Report (
        Admin_ID int,
        Report_ID varchar(10),
        Date date,

        CONSTRAINT   Admin_Report_PK PRIMARY KEY (Admin_ID, Report_ID),
);

--- Admin_A_Phone_No Table ---

CREATE TABLE Admin_A_Phone_No (
        Admin_ID int,
        A_Phone_No int NOT NULL,

        CONSTRAINT  Admin_Phone_No_PK PRIMARY KEY (A_Phone_No),
        CONSTRAINT  Admin_Phone_No_FK FOREIGN KEY (Admin_ID) REFERENCES Admin (Admin_ID),
);




--- Unregistered_Customer_P_Phone_No Table ---

CREATE TABLE Unregistered_Customer_P_Phone_No (
        NIC varchar(10),
        P_Phone_No int NOT NULL,

        CONSTRAINT  Unregistered_Customer_Phone_No_PK PRIMARY KEY (P_Phone_No),
        CONSTRAINT  Unregis_Customer_Phone_No_FK FOREIGN KEY (NIC) REFERENCES Unregistered_Customer (NIC),
);

--- Driver_D_Phone_No Table ---

CREATE TABLE Driver_D_Phone_No (
        Driver_ID varchar(10) NOT NULL,
        D_Phone_No int NOT NULL,

        CONSTRAINT  Driver_Phone_No_PK PRIMARY KEY (D_Phone_No),
        CONSTRAINT  Driver_Phone_No_FK FOREIGN KEY (Driver_ID) REFERENCES Driver (Driver_ID),
);

--- Registered_Customer_Cus_Phone_No Table ---

CREATE TABLE Registered_Customer_Cus_Phone_No (
        Customer_ID varchar(10),
        Cus_Phone_No int NOT NULL,

        CONSTRAINT  Registered_Customer_Phone_No_PK PRIMARY KEY (Cus_Phone_No),
        CONSTRAINT  Regis_Customer_Phone_No_FK FOREIGN KEY (Customer_ID) REFERENCES Registered_Customer (Customer_ID),
);




--- Manager_M_Phone_No Table ---

CREATE TABLE Manager_M_Phone_No (
        Manager_ID varchar(10),
        M_Phone_No int NOT NULL,

        CONSTRAINT   Manager_Phone_No_PK PRIMARY KEY (M_Phone_No),
        CONSTRAINT   Manager_Phone_No_FK FOREIGN KEY (Manager_ID) REFERENCES Manager (Manager_ID),
);
```

```
---------- Insert Data ----------

--- Insert values for Admin Table ---

INSERT INTO Admin VALUES (1001, 'Hashini', 'Amarasekara', 'No.121, Kinigama, Kandy', 'hashini@gmail.com', 'has@123');
INSERT INTO Admin VALUES (1002, 'Nadeesh', 'Ruwanpathirana', 'No.185, Jyasooriya Mawatha, Nupe, Matara', 'nadeesh@gmail.com', 'nadee$45');
INSERT INTO Admin VALUES (1003, 'Amanda', 'Senarathne', 'No.501, Welegoda, Kurunagala', 'amanda@gmail.com', 'amanda#77');
INSERT INTO Admin VALUES (1004, 'Maleesha', 'Rnasinghe', 'No.181, Hiththatiya road, Colombo', 'maleesha7@gmail.com', 'malee#@12');
INSERT INTO Admin VALUES (1005, 'Nadun', 'Hettiarachchi', 'No.202, Nelumgama, Galle', 'nadun12@gmail.com', 'Nadun3@3');

--- Insert values for Profile Table ---

INSERT INTO Profile VALUES ('2001', 1001);
INSERT INTO Profile VALUES ('2002', 1002);
INSERT INTO Profile VALUES ('2003', 1003);
INSERT INTO Profile VALUES ('2004', 1004);
INSERT INTO Profile VALUES ('2005', 1005);

--- Insert values for Registration Table ---

INSERT INTO Registration VALUES ('R001', '2023-01-23', '2001');
INSERT INTO Registration VALUES ('R002', '2023-05-25', '2002');
INSERT INTO Registration VALUES ('R003', '2023-09-23', '2003');
INSERT INTO Registration VALUES ('R004', '2023-02-13', '2004');
INSERT INTO Registration VALUES ('R005', '2023-01-18', '2005');

--- Insert values for Unregistered_Customer Table ---

INSERT INTO Unregistered_Customer VALUES ('985632415v', 'Hashini', 'Amarasekara', 'No.121, Kinigama, Kandy', 'hashini@gmail.com', 'R001');
INSERT INTO Unregistered_Customer VALUES ('975542375v', 'Nadeesh', 'Ruwanpathirana', 'No.185, Jyasooriya Mawatha, Nupe, Matara', 'nadeesh@gmail.com', 'R002');
INSERT INTO Unregistered_Customer VALUES ('960234546v', 'Amanda', 'Senarathne', 'No.501, Welegoda, Kurunagala', 'amanda@gmail.com', 'R003');
INSERT INTO Unregistered_Customer VALUES ('920156727v', 'Maleesha', 'Rnasinghe', 'No.181, Hiththatiya road, Colombo', 'maleesha7@gmail.com', 'R004');
INSERT INTO Unregistered_Customer VALUES ('925632415v', 'Nadun', 'Hettiarachchi', 'No.202, Nelumgama, Galle', 'nadun12@gmail.com', 'R005');




--- Insert values for Route Table ---

INSERT INTO Route VALUES ('R001', 'Matara-colombo');
INSERT INTO Route VALUES ('R002', 'Galle-Ampara');
INSERT INTO Route VALUES ('R003', 'Badulla-Kandy');
INSERT INTO Route VALUES ('R004', 'Colombo-Kataragama');
INSERT INTO Route VALUES ('R005', 'Aluthgama-Panadura');

--- Insert values for Driver Table ---

INSERT INTO Driver VALUES ('D001', 'K.Jayadewa');
INSERT INTO Driver VALUES ('D002', 'R.Nadeeka');
INSERT INTO Driver VALUES ('D003', 'L.Dias');
INSERT INTO Driver VALUES ('D004', 'H.K.Naleen');
INSERT INTO Driver VALUES ('D005', 'K.Sugath');

--- Insert values for Registerd_Customer Table ---

INSERT INTO Registered_Customer VALUES ('C001', 'Dilumi', 'Yapa', '985634415v', 'No.124,Siyabalagoda,Deniyaya', 'dilumi@gmail.com', '1998-12-16', 'Dilumi@123', 'R001');
INSERT INTO Registered_Customer VALUES ('C002', 'Kusum', 'Gamage', '975632415v', 'N0.108,Nilwalagoda,Rathnapura', 'kusum@gmail.com', '1997-05-10', 'Kasu@#123', 'R002');
INSERT INTO Registered_Customer VALUES ('C003', 'Osada', 'Pathirana', '945634815v','No.204,Malimbada,Matara', 'osada1@gmail.com', '1994-06-10', 'osada&12', 'R003');
INSERT INTO Registered_Customer VALUES ('C004', 'Ashini', 'Basnayaka', '995632815v', 'No.200,Pitabaddara,Akurassa', 'ashini77@gmail.com', '1999-02-11', 'ashi#%123', 'R004');
INSERT INTO Registered_Customer VALUES ('C005', 'Nisansala', 'Senarathne', '904632345v', 'No.101,Maharagama,colombo', 'nisan7@gmail.com', '1990-03-15', 'nisA@125*', 'R005');

--- Insert values for Feedback Table ---

INSERT INTO Feedback VALUES (00001, 'Game-changer,making it effortless to plan and book my bus journeys', 'C001');
INSERT INTO Feedback VALUES (00002, 'Time server,allowing me to quickly secure my seats without standing in long queues', 'C002');
INSERT INTO Feedback VALUES (00003, 'user friendly experience provided by the online bus ticket booking system', 'C003');
INSERT INTO Feedback VALUES (00004, 'With real-time updates and accurate information,the online bus ticket booking system ensures a stress-free booking process', 'C004');
INSERT INTO Feedback VALUES (00005, 'I can conveniently manage my travel plans and have peace of mind', 'C005');




--- Insert values for Manager Table ---

INSERT INTO Manager VALUES ('M0001', 'K.D.Nadun', 'm@123');
INSERT INTO Manager VALUES ('M0002', 'A.Vishva', 'ivish@134');
INSERT INTO Manager VALUES ('M0003', 'Pathumi', 'pathu23@');
INSERT INTO Manager VALUES ('M0004', 'A.Dahanayake', '123@WE&2');
INSERT INTO Manager VALUES ('M0005', 'P.Tharanga', 'tHARAN@34#');

--- Insert values for Payment Table ---

INSERT INTO Payment VALUES ('P001', 'Credit cards', '2022-12-07', 'Rs. 1200', 'C001', 'M0001');
INSERT INTO Payment VALUES ('P002', 'Cash', '2022-12-07', 'Rs. 600', 'C002','M0002');
INSERT INTO Payment VALUES ('P003', 'Mobile payment', '2023-03-05', 'Rs. 1800', 'C002', 'M0003');
INSERT INTO Payment VALUES ('P004', 'Debit card', '2023-04-14', 'Rs. 1500', 'C003', 'M0004');
INSERT INTO Payment VALUES ('P005', 'Cash', '2022-03-03', 'Rs. 1200', 'C004', 'M0005');

--- Insert values for Ticket Table ---

INSERT INTO Ticket VALUES ('T001', 2,'600/=','P001','C001','R001');
INSERT INTO Ticket VALUES ('T002',1,'600/=', 'P002', 'C002', 'R002');
INSERT INTO Ticket VALUES ('T003', 5, '450/=', 'P003', 'C003', 'R003');
INSERT INTO Ticket VALUES ('T004', 1, '1500/=', 'P004', 'C004', 'R004');
INSERT INTO Ticket VALUES ('T005', 2, '600/=', 'P005', 'C005', 'R005');

--- Insert values for Bus Table ---

INSERT INTO Bus VALUES ('B001', 1001, '06:00', '07:00', 'R001', 'D001');
INSERT INTO Bus VALUES ('B002', 1002, '08:00', '10:00', 'R002', 'D002');
INSERT INTO Bus VALUES ('B003', 1003, '03:00', '03:30', 'R003', 'D003');
INSERT INTO Bus VALUES ('B004', 1004, '14:00', '16:00', 'R004', 'D004');
INSERT INTO Bus VALUES ('B005', 1005, '07:30', '09:00', 'R005', 'D005');
```

```sql
--- Insert values for Login Table ---

INSERT INTO Login VALUES ('L001', 1001, 'C001', 'M0001', 'D001');
INSERT INTO Login VALUES ('L002', 1002, 'C002', 'M0002', 'D002');
INSERT INTO Login VALUES ('L003', 1003, 'C003', 'M0003', 'D003');
INSERT INTO Login VALUES ('L004', 1004, 'C004', 'M0004', 'D004');
INSERT INTO Login VALUES ('L005', 1005, 'C005', 'M0005', 'D005');

--- Insert values for Report Table ---

INSERT INTO Report VALUES ('R001', 301, 1001);
INSERT INTO Report VALUES ('R002', 302, 1002);
INSERT INTO Report VALUES ('R003', 303, 1003);
INSERT INTO Report VALUES ('R004', 304, 1004);
INSERT INTO Report VALUES ('R005', 305, 1005);

--- Insert values for Admin_Report Table ---

INSERT INTO Admin_Report VALUES (1001, 'R001', '2023-02-12');
INSERT INTO Admin_Report VALUES (1002, 'R002', '2022-05-16');
INSERT INTO Admin_Report VALUES (1003, 'R003', '2023-03-10');
INSERT INTO Admin_Report VALUES (1004, 'R004', '2022-12-17');
INSERT INTO Admin_Report VALUES (1005, 'R005', '2023-03-18');

--- Insert values for Admin_A_Phone_No Table ---

INSERT INTO Admin_A_Phone_No VALUES (1001, 0712545125);
INSERT INTO Admin_A_Phone_No VALUES (1002, 0774325678);
INSERT INTO Admin_A_Phone_No VALUES (1003, 0706754231);
INSERT INTO Admin_A_Phone_No VALUES (1004, 0782123980);
INSERT INTO Admin_A_Phone_No VALUES (1005, 0756723452);



--- Insert values for Unregistered_Customer_P_Phone_No Table ---

INSERT INTO Unregistered_Customer_P_Phone_No VALUES ('985632415v', 0785645876);
INSERT INTO Unregistered_Customer_P_Phone_No VALUES ('975542375v', 0713467896);
INSERT INTO Unregistered_Customer_P_Phone_No VALUES ('960234546v', 0789675456);
INSERT INTO Unregistered_Customer_P_Phone_No VALUES ('920156727v', 0721345678);
INSERT INTO Unregistered_Customer_P_Phone_No VALUES ('925632415v', 0745632781);

--- Insert values for Driver_D_Phone_No Table ---

INSERT INTO Driver_D_Phone_No  VALUES ('D001', 0772341567);
INSERT INTO Driver_D_Phone_No  VALUES ('D002', 0782341678);
INSERT INTO Driver_D_Phone_No  VALUES ('D003', 0762365456);
INSERT INTO Driver_D_Phone_No  VALUES ('D004', 0753423158);
INSERT INTO Driver_D_Phone_No  VALUES ('D005', 0702898670);

--- Insert values for Registered_Customer_Cus_Phone_No Table ---

INSERT INTO  Registered_Customer_Cus_Phone_No VALUES ('C001', 0714352678);
INSERT INTO  Registered_Customer_Cus_Phone_No VALUES ('C002', 0703421567);
INSERT INTO  Registered_Customer_Cus_Phone_No VALUES ('C003', 0747865342);
INSERT INTO  Registered_Customer_Cus_Phone_No VALUES ('C004', 0478734567);
INSERT INTO  Registered_Customer_Cus_Phone_No VALUES ('C005', 0785643260);

--- Insert values for Manager_M_Phone_No Table ---

INSERT INTO Manager_M_Phone_No VALUES ('M0001', 0704534236);
INSERT INTO Manager_M_Phone_No VALUES ('M0002', 0115634276);
INSERT INTO Manager_M_Phone_No VALUES ('M0003', 0726573893);
INSERT INTO Manager_M_Phone_No VALUES ('M0004', 0762345901);
INSERT INTO Manager_M_Phone_No VALUES ('M0005', 0781278325);



SELECT *FROM Admin
SELECT *FROM Profile
SELECT *FROM Registration
SELECT *FROM Unregistered_Customer
SELECT *FROM Route
SELECT *FROM Driver
SELECT *FROM Registered_Customer
SELECT *FROM Feedback
SELECT *FROM Manager
SELECT *FROM Payment
SELECT *FROM Ticket
SELECT *FROM Bus
SELECT *FROM Login
SELECT *FROM Report
SELECT *FROM Admin_Report
SELECT *FROM Admin_A_Phone_No
SELECT *FROM Unregistered_Customer_P_Phone_No
SELECT *FROM Driver_D_Phone_No
SELECT *FROM Registered_Customer_Cus_Phone_No
SELECT *FROM Manager_M_Phone_No
```

URL - SQL Query.txt

Results | Messages

	Admin_ID	F_Name	L_Name	Address	Email	A_Password
1	1001	Hashini	Amarasekara	No.121, Kinigama, Kandy	hashini@gmail.com	has@123
2	1002	Nadeesh	Ruwanpathirana	No.185, Jyasooriya Mawatha, Nupe, Matara	nadeesh@gmail.com	nadee$45
3	1003	Amanda	Senarathne	No.501, Welegoda, Kurunagala	amanda@gmail.com	amanda#77
4	1004	Maleesha	Rnasinghe	No.181, Hiththatiya road, Colombo	maleesha7@gmail.com	malee#@12
5	1005	Nadun	Hettiarachchi	No.202, Nelumgama, Galle	nadun12@gmail.com	Nadun3@3

	Profile_ID	Admin_ID
1	2001	1001
2	2002	1002
3	2003	1003
4	2004	1004
5	2005	1005

	Registration_ID	R_Date	Profile_ID
1	R001	2023-01-23	2001
2	R002	2023-05-25	2002
3	R003	2023-09-23	2003
4	R004	2023-02-13	2004
5	R005	2023-01-18	2005

	NIC	F_Name	L_Name	Address	Email	Registration_ID
1	920156727v	Maleesha	Rnasinghe	No.181, Hiththatiya road, Colombo	maleesha7@gmail.com	R004
2	925632415v	Nadun	Hettiarachchi	No.202, Nelumgama, Galle	nadun12@gmail.com	R005
3	960234546v	Amanda	Senarathne	No.501, Welegoda, Kurunagala	amanda@gmail.com	R003
4	975542375v	Nadeesh	Ruwanpath...	No.185, Jyasooriya Mawatha, N...	nadeesh@gmail.com	R002
5	985632415v	Hashini	Amarasekara	No.121, Kinigama, Kandy	hashini@gmail.com	R001

	Route_ID	Route_Name
1	R001	Matara-colombo
2	R002	Galle-Ampara
3	R003	Badulla-Kandy
4	R004	Colombo-Kata...
5	R005	Aluthgama-Pa...

	Driver_ID	Driver_Name
1	D001	K.Jayadewa
2	D002	R.Nadeeka
3	D003	L.Dias
4	D004	H.K.Naleen
5	D005	K.Sugath

	Customer_ID	F_Name	L_Name	NIC	Address	Email	DOB	C_Password	Route_ID
1	C001	Dilumi	Yapa	985634415v	No.124,Siyabalagoda,Deniyaya	dilumi@gmail.com	1998-12-16	Dilumi@123	R001
2	C002	Kusum	Gamage	975632415v	N0.108,Nilwalagoda,Rathnapura	kusum@gmail.com	1997-05-10	Kasu@#123	R002
3	C003	Osada	Pathir...	945634815v	No.204,Malimbada,Matara	osada1@gmail.c...	1994-06-10	osada&12	R003
4	C004	Ashini	Basna...	995632815v	No.200,Pitabaddara,Akurassa	ashini77@gmail....	1999-02-11	ashi#%123	R004
5	C005	Nisans...	Senar...	904632345v	No.101,Maharagama,colombo	nisan7@gmail.com	1990-03-15	nisA@125*	R005

	Feedback_No	Message	Customer_ID
1	1	Game-changer,making it effortless to plan and bo...	C001
2	2	Time server,allowing me to quickly secure my seat...	C002
3	3	user friendly experience provided by the online bu...	C003
4	4	With real-time updates and accurate information,t...	C004
5	5	I can conveniently manage my travel plans and h...	C005

	Manager_ID	Manager_Name	M_Password
1	M0001	K.D.Nadun	m@123
2	M0002	A.Vishva	1vish@134
3	M0003	Pathumi	pathu23@
4	M0004	A.Dahanayake	123@WE&2
5	M0005	P.Tharanga	tHARAN@...

	Payment_ID	Payment_Type	Payment_Date	Payment_Amount	Customer_ID	Manager_ID
1	P001	Credit cards	2022-12-07	Rs. 1200	C001	M0001
2	P002	Cash	2022-12-07	Rs. 600	C002	M0002
3	P003	Mobile paym...	2023-03-05	Rs. 1800	C002	M0003
4	P004	Debit card	2023-04-14	Rs. 1500	C003	M0004
5	P005	Cash	2022-03-03	Rs. 1200	C004	M0005

	Ticket_ID	Quantity	Ticket_Price	Payment_ID	Customer_ID	Route_ID
1	T001	2	600/=	P001	C001	R001
2	T002	1	600/=	P002	C002	R002
3	T003	5	450/=	P003	C003	R003
4	T004	1	1500/=	P004	C004	R004
5	T005	2	600/=	P005	C005	R005

	Bus_ID	Bus_No	Arrival_Time	Departure_Time	Route_ID	Driver_ID
1	B001	1001	06:00:00.0000000	07:00:00.0000000	R001	D001
2	B002	1002	08:00:00.0000000	10:00:00.0000000	R002	D002
3	B003	1003	03:00:00.0000000	03:30:00.0000000	R003	D003
4	B004	1004	14:00:00.0000000	16:00:00.0000000	R004	D004
5	B005	1005	07:30:00.0000000	09:00:00.0000000	R005	D005

	Login_No	Admin_ID	Customer_ID	Manager_ID	Driver_ID
1	L001	1001	C001	M0001	D001
2	L002	1002	C002	M0002	D002
3	L003	1003	C003	M0003	D003
4	L004	1004	C004	M0004	D004
5	L005	1005	C005	M0005	D005

	Report_ID	Report_No	Admin_ID
1	R001	301	1001
2	R002	302	1002
3	R003	303	1003
4	R004	304	1004
5	R005	305	1005

	Admin_ID	Report_ID	Date
1	1001	R001	2023-02-12
2	1002	R002	2022-05-16
3	1003	R003	2023-03-10
4	1004	R004	2022-12-17
5	1005	R005	2023-03-18

	Admin_ID	A_Phone_No
1	1003	706754231
2	1001	712545125
3	1005	756723452
4	1002	774325678
5	1004	782123980

	NIC	P_Phone_No
1	975542375v	713467896
2	920156727v	721345678
3	925632415v	745632781
4	985632415v	785645876
5	960234546v	789675456

	Driver_ID	D_Phone_No
1	D005	702898670
2	D004	753423158
3	D003	762365456
4	D001	772341567
5	D002	782341678

	Customer_ID	Cus_Phone_No
1	C004	478734567
2	C002	703421567
3	C001	714352678
4	C003	747865342
5	C005	785643260

	Manager_ID	M_Phone_No
1	M0002	115634276
2	M0001	704534236
3	M0003	726573893
4	M0004	762345901
5	M0005	781278325

URL - Database.sql

7. Description of Database Performance

Database performance is the speed with which a database management system (DBMS) sends data to users.

Let's take a look at the below factors.

- System Resources
- Workload
- Throughput
- Contention
- Optimization

System Requirements

System resources are the hardware and software tools that are at the disposal of the system. To find out how much RAM or memory your computer has available, utilize the system resources application. By checking the system resources, you can see what programs are installed on your computer.

System resources example:

- Cache controllers
- Include memory such as database kernel.

Workload

The more challenging client consolidation difficulties are often handled via workload management. To comprehend the performance of the system, a detailed and comprehensive specification of the workload is essential.

The elements of workload management are as follows.

- Services.
- Connected load balancing.
- A framework to ensure high availability.
- Load balancing advisory
- Failover capability

Workload examples:

- maps reduce, memory/storage/compute resources intensive applications analytics.
- such a heavy month-end processing of payroll.

Throughput

A system's throughput assesses how well it can handle data processing in general. The rate at which data is moved from one point to another over time is referred to as throughput. The concept of throughput is crucial. It's crucial to consider your hardware's capability while establishing DBMS throughput targets.

Example of throughput:

- Hard Disk Drive performance
- RAM
- Measure the internet and network connections, as well.
- When it comes to data transmission.
- Throughput of the network.

Contention

This situation occurs when two or more workload components try to use each other in opposition to one another.

Example of contention:

When more than one task component, such as two changes to the same piece of data, tries to use the same resources in conflicting ways.

- Throughput decreases as contention rises.
- The same piece of data is updated twice.

Optimization

Performance optimization is the process of updating a software system to make it operate more quickly and effectively.

Example of optimization:

- Formulation of SQL
- Parameters for database configuration
- Design of the table
- Distribution of data

7.1 Performance Requirements

- The speed of the website will be taken into account for both navigation and data processing.
- This online bus scheduling and booking system requires performance, which can be improved by using well-organized, straightforward code.
- Using a simple database will improve the speed of data input.
- Performance requirements for the system include usability and speed.
- The user stories state that the system should operate without any issues or delays.
- In addition to the requirements mentioned above, accuracy is among the most crucial requirements. The accuracy of the calculations is crucial. Additionally, goods are correctly categorized.

8. Security Requirements

System security requirements are described as a set of requirements that must be met in order to achieve security objectives. This is a safety feature for users of the system or a quality that the system ought to possess to earn users' trust. Security demands and other non-functional needs are viewed as non-functional requirements.

Security Requirements in Online Bus Scheduling and Booking System

- The only people who can charge for system data access rights are the staff and the data administrator.
- The user of the System and the data server must employ encrypted external communications.
- Data can only be accessed by and interpreted by authorized users.
- The customer's payment details must be authenticated and kept confidential.
- Sensitive data and information sent over the internet by linked clients must be encrypted by the system.
- Daily malware scans using antivirus software provide system security and protection from potentially harmful attacks.
- The system must have security precautions against any potential service assaults.
- Log system activities and security appropriately.
- Install current antivirus software on every system.
- The behavior of the system must be accurate and predictable.