

Case Study on Transport Management System

Database Schema for Transport Management System:

1. Vehicles table:

- VehicleID: INT, AUTO_INCREMENT, PRIMARY KEY
- Model: VARCHAR(255)
- Capacity: DECIMAL(10, 2)
- Type: VARCHAR(50) (e.g., Truck, Van, Bus)
- Status: VARCHAR(50) (e.g., Available, On Trip, Maintenance)

2. Routes table:

- RouteID: INT, AUTO_INCREMENT, PRIMARY KEY
- StartDestination: VARCHAR(255)
- EndDestination: VARCHAR(255)
- Distance: DECIMAL(10, 2)

3. Trips table:

- TripID: INT, AUTO_INCREMENT, PRIMARY KEY
- VehicleID: INT, FOREIGN KEY REFERENCES Vehicles(VehicleID)
- RouteID: INT, FOREIGN KEY REFERENCES Routes(RouteID)
- DepartureDate: DATETIME
- ArrivalDate: DATETIME
- Status: VARCHAR(50) (e.g., Scheduled, In Progress, Completed, Cancelled)
- TripType: VARCHAR(50) DEFAULT 'Freight' (e.g., Freight, Passenger)
- MaxPassengers: INT

4. Passengers table:

- PassengerID: INT, AUTO_INCREMENT, PRIMARY KEY
- FirstName: VARCHAR(255)
- gender: VARCHAR(255)
- age: INT
- Email: VARCHAR(255), UNIQUE
- PhoneNumber: VARCHAR(50)

5. Bookings table:

- BookingID: INT, AUTO_INCREMENT, PRIMARY KEY
- TripID: INT, FOREIGN KEY REFERENCES Trips (TripID)
- PassengerID: INT, FOREIGN KEY REFERENCES Passengers (PassengerID)
- BookingDate: DATETIME
- Status: VARCHAR (50) (e.g., Confirmed, Cancelled, Completed)

```
mysql> create database transport_management_system;
Query OK, 1 row affected (0.02 sec)

mysql> show databases;
+-----+
| Database |
+-----+
| classicmodels |
| courier_management |
| courier_management_system |
| ems |
| information_schema |
| mysql |
| performance_schema |
| sakila |
| sys |
| transport_management_system |
| world |
+-----+
11 rows in set (0.00 sec)

mysql>
```

```
CREATE TABLE Vehicles (VehicleID INT AUTO_INCREMENT PRIMARY KEY, Model VARCHAR(255) NOT NULL, Capacity DECIMAL(10, 2) NOT NULL, Type VARCHAR(50) NOT NULL, Status VARCHAR(50) NOT NULL);
```

```
CREATE TABLE Routes (RouteID INT AUTO_INCREMENT PRIMARY KEY, StartDestination VARCHAR(255) NOT NULL, EndDestination VARCHAR(255) NOT NULL, Distance DECIMAL(10, 2) NOT NULL);
```

```
CREATE TABLE Trips (TripID INT AUTO_INCREMENT PRIMARY KEY, VehicleID INT, RouteID INT, DepartureDate DATETIME NOT NULL, ArrivalDate DATETIME NOT NULL, Status VARCHAR(50) NOT NULL, TripType VARCHAR(50) DEFAULT 'Freight', MaxPassengers INT, FOREIGN KEY (VehicleID) REFERENCES Vehicles(VehicleID), FOREIGN KEY (RouteID) REFERENCES Routes(RouteID));
```

```
CREATE TABLE Passengers (PassengerID INT AUTO_INCREMENT PRIMARY KEY, FirstName VARCHAR(255) NOT NULL, Gender VARCHAR(255) NOT NULL, Age INT NOT NULL, Email VARCHAR(255) UNIQUE NOT NULL, PhoneNumber VARCHAR(50) NOT NULL);
```

```
CREATE TABLE Bookings (BookingID INT AUTO_INCREMENT PRIMARY KEY, TripID INT, PassengerID INT, BookingDate DATETIME NOT NULL, Status VARCHAR(50) NOT NULL, FOREIGN KEY (TripID) REFERENCES Trips(TripID), FOREIGN KEY (PassengerID) REFERENCES Passengers(PassengerID));
```

Devanshu Sharma

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MySQL 8.0 Command Line Cli x + v
mysql> CREATE TABLE Vehicles (VehicleID INT AUTO_INCREMENT PRIMARY KEY, Model VARCHAR(255) NOT NULL, Capacity DECIMAL(10, 2) NOT NULL, Type VARCHAR(50) NOT NULL, Status VARCHAR(50) NOT NULL);
Query OK, 0 rows affected (0.12 sec)

mysql> CREATE TABLE Routes (RouteID INT AUTO_INCREMENT PRIMARY KEY, StartDestination VARCHAR(255) NOT NULL, EndDestination VARCHAR(255) NOT NULL, Distance DECIMAL(10, 2) NOT NULL);
Query OK, 0 rows affected (0.03 sec)

mysql> CREATE TABLE Trips (TripID INT AUTO_INCREMENT PRIMARY KEY, VehicleID INT, RouteID INT, DepartureDate DATETIME NOT NULL, ArrivalDate DATETIME NOT NULL, Status VARCHAR(50) NOT NULL, TripType VARCHAR(50) DEFAULT 'Freight', MaxPassengers INT, FOREIGN KEY (VehicleID) REFERENCES Vehicles(VehicleID), FOREIGN KEY (RouteID) REFERENCES Routes(RouteID));
Query OK, 0 rows affected (0.15 sec)

mysql> CREATE TABLE Passengers (PassengerID INT AUTO_INCREMENT PRIMARY KEY, FirstName VARCHAR(255) NOT NULL, Gender VARCHAR(255) NOT NULL, Age INT NOT NULL, Email VARCHAR(255) UNIQUE NOT NULL, PhoneNumber VARCHAR(50) NOT NULL);
Query OK, 0 rows affected (0.18 sec)

mysql> CREATE TABLE Bookings (BookingID INT AUTO_INCREMENT PRIMARY KEY, TripID INT, PassengerID INT, BookingDate DATETIME NOT NULL, Status VARCHAR(50) NOT NULL, FOREIGN KEY (TripID) REFERENCES Trips(TripID), FOREIGN KEY (PassengerID) REFERENCES Passengers(PassengerID));
Query OK, 0 rows affected (0.15 sec)

mysql> s
```

```
mysql> show tables;
+-----+
| Tables_in_transport_management_system |
+-----+
| bookings                             |
| passengers                           |
| routes                               |
| trips                                |
| vehicles                             |
+-----+
5 rows in set (0.01 sec)

mysql>
```

INSERT INTO Vehicles (Model, Capacity, Type, Status) VALUES ('Tata Ace', 1.00, 'Truck', 'Available'), ('Mahindra Bolero', 7.00, 'Van', 'On Trip'), ('Ashok Leyland 16', 16.00, 'Bus', 'Available'), ('Force Traveller', 12.00, 'Van', 'Maintenance'), ('Isuzu D-Max', 2.00, 'Truck', 'Available');

INSERT INTO Routes (StartDestination, EndDestination, Distance) VALUES ('Delhi', 'Mumbai', 1447.00), ('Bengaluru', 'Chennai', 348.00), ('Hyderabad', 'Pune', 590.00), ('Kolkata', 'Bhopal', 820.00), ('Jaipur', 'Ahmedabad', 650.00);

INSERT INTO Trips (VehicleID, RouteID, DepartureDate, ArrivalDate, Status, TripType, MaxPassengers) VALUES (1, 1, '2024-10-01 08:00:00', '2024-10-02 08:00:00', 'Scheduled', 'Freight', 0), (2, 2, '2024-10-03 09:00:00', '2024-10-03 20:00:00', 'In Progress', 'Passenger', 7), (3, 3, '2024-10-04 10:00:00', '2024-10-04 15:00:00', 'Scheduled', 'Passenger', 12), (4, 4, '2024-10-05 11:00:00', '2024-10-05 17:00:00', 'Completed', 'Passenger', 12), (5, 5, '2024-10-06 07:30:00', '2024-10-06 12:00:00', 'Cancelled', 'Freight', 0);

INSERT INTO Passengers (FirstName, Gender, Age, Email, PhoneNumber) VALUES ('Rahul Sharma', 'Male', 30, 'rahul.sharma@example.com', '9876543210'), ('Priya Gupta', 'Female', 28, 'priya.gupta@example.com', '9876543211'), ('Anita Verma', 'Female', 35, 'anita.verma@example.com', '9876543212'), ('Vikram Singh', 'Male', 40, 'vikram.singh@example.com', '9876543213'), ('Neha Rani', 'Female', 22, 'neha.rani@example.com', '9876543214');

INSERT INTO Bookings (TripID, PassengerID, BookingDate, Status) VALUES (1, 1, '2024-09-25 10:00:00', 'Confirmed'), (2, 2, '2024-09-26 11:00:00', 'Confirmed'), (3, 3, '2024-09-27 12:00:00', 'Cancelled'), (4, 4, '2024-09-28 09:30:00', 'Completed'), (5, 5, '2024-09-29 14:45:00', 'Confirmed');

```
MySQL 8.0 Command Line CL
passengers
routes
trips
vehicles
-----
5 rows in set (0.01 sec)

mysql> INSERT INTO Vehicles (Model, Capacity, Type, Status) VALUES
-> ('Tata Ace', 1.00, 'Truck', 'Available'),
-> ('Mahindra Bolero', 7.00, 'Van', 'On Trip'),
-> ('Ashok Leyland 16', 16.00, 'Bus', 'Available'),
-> ('Force Traveller', 12.00, 'Van', 'Maintenance'),
-> ('Isuzu D-Max', 2.00, 'Truck', 'Available');
Query OK, 5 rows affected (0.01 sec)
Records: 5 Duplicates: 0 Warnings: 0

mysql> INSERT INTO Routes (StartDestination, EndDestination, Distance) VALUES ('Delhi', 'Mumbai', 1447.00), ('Bengaluru', 'Chennai', 348.00), ('Hyderabad', 'Pune', 590.00), ('Kolkata', 'Bhopal', 820.00), ('Jaipur', 'Ahmedabad', 650.00);
Query OK, 5 rows affected (0.05 sec)
Records: 5 Duplicates: 0 Warnings: 0

mysql> INSERT INTO Trips (VehicleID, RouteID, DepartureDate, ArrivalDate, Status, TripType, MaxPassengers) VALUES (1, 1, '2024-10-01 08:00:00', '2024-10-02 08:00:00', 'Scheduled', 'Freight', 0), (2, 2, '2024-10-03 09:00:00', '2024-10-03 20:00:00', 'In Progress', 'Passenger', 7), (3, 3, '2024-10-04 10:00:00', '2024-10-04 15:00:00', 'Scheduled', 'Passenger', 12), (4, 4, '2024-10-05 11:00:00', '2024-10-05 17:00:00', 'Completed', 'Passenger', 12), (5, 5, '2024-10-06 07:30:00', '2024-10-06 12:00:00', 'Cancelled', 'Freight', 0);
Query OK, 5 rows affected (0.01 sec)
Records: 5 Duplicates: 0 Warnings: 0

mysql> INSERT INTO Passengers (FirstName, Gender, Age, Email, PhoneNumber) VALUES ('Rahul Sharma', 'Male', 30, 'rahul.sharma@example.com', '9876543210'), ('Priya Gupta', 'Female', 28, 'priya.gupta@example.com', '9876543211'), ('Anita Verma', 'Female', 35, 'anita.verma@example.com', '9876543212'), ('Vikram Singh', 'Male', 40, 'vikram.singh@example.com', '9876543213'), ('Neha Rani', 'Female', 22, 'neha.rani@example.com', '9876543214');
Query OK, 5 rows affected (0.05 sec)
Records: 5 Duplicates: 0 Warnings: 0

mysql> INSERT INTO Bookings (TripID, PassengerID, BookingDate, Status) VALUES (1, 1, '2024-09-25 10:00:00', 'Confirmed'), (2, 2, '2024-09-26 11:00:00', 'Confirmed'), (3, 3, '2024-09-27 12:00:00', 'Cancelled'), (4, 4, '2024-09-28 09:30:00', 'Completed'), (5, 5, '2024-09-29 14:45:00', 'Confirmed');
Query OK, 5 rows affected (0.05 sec)
Records: 5 Duplicates: 0 Warnings: 0

mysql>
```

```
mysql> select * from Vehicles;
+-----+-----+-----+-----+-----+
| VehicleID | Model          | Capacity | Type   | Status   |
+-----+-----+-----+-----+-----+
| 1          | Tata Ace       | 1.00     | Truck  | Available |
| 2          | Mahindra Bolero | 7.00     | Van    | On Trip   |
| 3          | Ashok Leyland 16 | 16.00    | Bus    | Available |
| 4          | Force Traveller | 12.00    | Van    | Maintenance |
| 5          | Isuzu D-Max    | 2.00     | Truck  | Available |
+-----+-----+-----+-----+-----+
5 rows in set (0.00 sec)

mysql> select * from Routes;
+-----+-----+-----+-----+
| RouteID | StartDestination | EndDestination | Distance |
+-----+-----+-----+-----+
| 1        | Delhi            | Mumbai        | 1447.00  |
| 2        | Bengaluru        | Chennai        | 348.00   |
| 3        | Hyderabad        | Pune           | 590.00   |
| 4        | Kolkata          | Bhopal         | 820.00   |
| 5        | Jaipur           | Ahmedabad     | 650.00   |
+-----+-----+-----+-----+
5 rows in set (0.00 sec)

mysql> select * from Trips;
+-----+-----+-----+-----+-----+-----+-----+-----+
| TripID | VehicleID | RouteID | DepartureDate | ArrivalDate | Status   | TripType | MaxPassengers |
+-----+-----+-----+-----+-----+-----+-----+-----+
| 1       | 1         | 1       | 2024-10-01 08:00:00 | 2024-10-02 08:00:00 | Scheduled | Freight  | 0             |
| 2       | 2         | 2       | 2024-10-03 09:00:00 | 2024-10-03 20:00:00 | In Progress | Passenger | 7             |
| 3       | 3         | 3       | 2024-10-04 10:00:00 | 2024-10-04 15:00:00 | Scheduled | Passenger | 12            |
| 4       | 4         | 4       | 2024-10-05 11:00:00 | 2024-10-05 17:00:00 | Completed | Passenger | 12            |
| 5       | 5         | 5       | 2024-10-06 07:30:00 | 2024-10-06 12:00:00 | Cancelled | Freight  | 0             |
+-----+-----+-----+-----+-----+-----+-----+-----+
5 rows in set (0.00 sec)
```

```
mysql> select * from Passengers;
```

PassengerID	FirstName	Gender	Age	Email	PhoneNumber
1	Rahul Sharma	Male	30	rahul.sharma@example.com	9876543210
2	Priya Gupta	Female	28	priya.gupta@example.com	9876543211
3	Anita Verma	Female	35	anita.verma@example.com	9876543212
4	Vikram Singh	Male	40	vikram.singh@example.com	9876543213
5	Neha Rani	Female	22	neha.rani@example.com	9876543214

```
5 rows in set (0.00 sec)
```

```
mysql> select * from Bookings;
```

BookingID	TripID	PassengerID	BookingDate	Status
1	1	1	2024-09-25 10:00:00	Confirmed
2	2	2	2024-09-26 11:00:00	Confirmed
3	3	3	2024-09-27 12:00:00	Cancelled
4	4	4	2024-09-28 09:30:00	Completed
5	5	5	2024-09-29 14:45:00	Confirmed

```
5 rows in set (0.00 sec)
```

ER-Diagram

