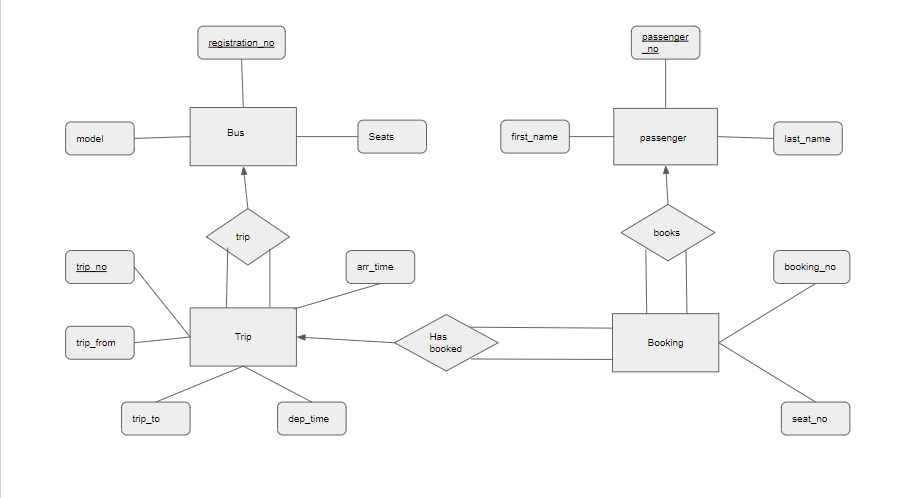
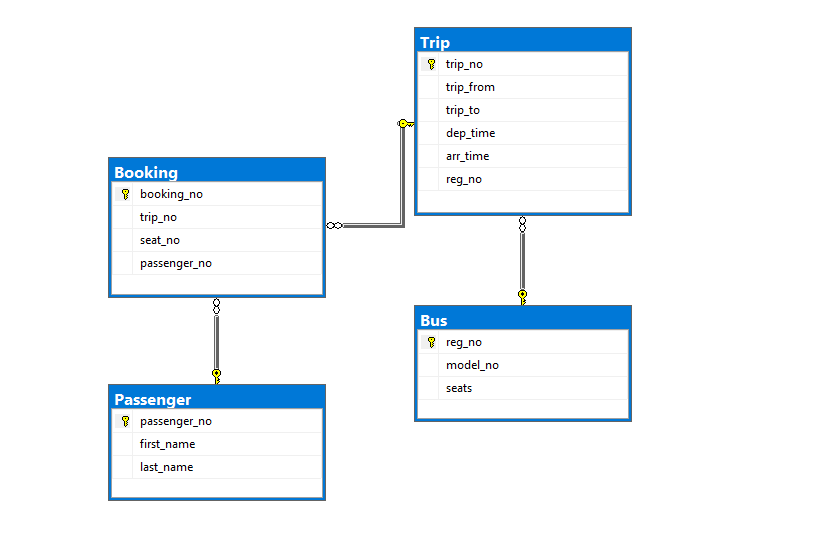
**Bus Management System**

I have made a “Bus Management System” consisting of 4 tables of bus, passenger, trip and booking. The bus network has one or more buses. A bus has a model number, a unique registration number, and the capacity to take one or more passengers. A bus trip has a unique trip number, a departure station, a destination station, a departure datetime, an arrival datetime. Each trip is carried out by a single bus. A passenger has a first name, last name, and a unique passenger id. A bus is uniquely identified by its registration number, so I used it as the primary key. A trip is uniquely identified by its trip number, so I used it as the primary key of the trip table. The departure and destination are captured in the trip\_from and trip\_to attributes, and I have separate attributes for the departure and arrival date and time with datetime. Because no two passengers will share a passenger number, I used the passenger number as the primary key for the Passenger entity. Booking number is unique, that's why I used booking number as primary key in Booking entity. Here the passenger no is a foreign key from the passenger table. A Bus can be involved in any number of trips, while each trip uses exactly one bus, so the trip relationship between the bus and trip relationship has cardinality because a trip cannot exist without a bus. A passenger can book any number of flights, while a flight can be booked by any number of passengers.

**ER Diagram:**

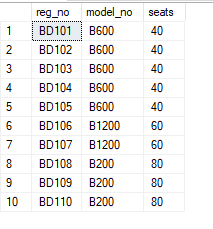
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**Schema Diagram:**

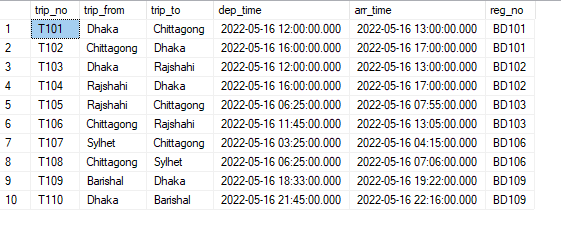
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**Data Insertion:**

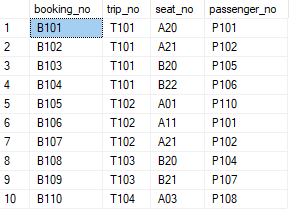
1. Bus table



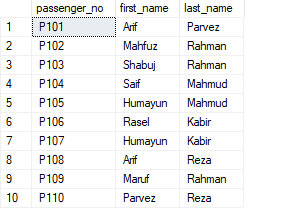
1. Trip Table



1. Booking Table



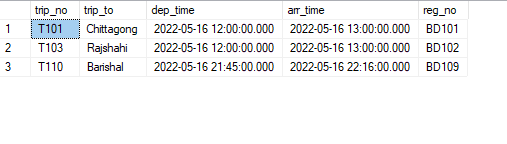
1. Passenger Table



**Queries:**

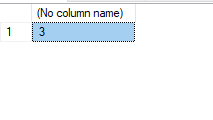
1. **List all trips from Dhaka containing trip\_no, destination, departure time, arrival time and registration numbers of the bus.**

Query: SELECT trip\_no,trip\_to,dep\_time,arr\_time,reg\_no FROM dbo.Trip WHERE trip\_from = 'Dhaka';



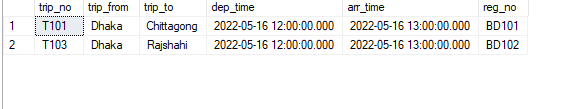
1. **How many trips departs from Dhaka?**

**Query: SELECT COUNT(DISTINCT trip\_no) FROM dbo.Trip WHERE trip\_from = 'Dhaka';**

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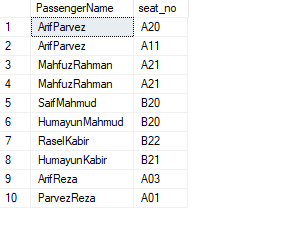
1. **List all the trips departing from Dhaka 5th (5am) to 20th (8pm) order by departing time.**

**Query: SELECT \* FROM dbo.Trip WHERE trip\_from = 'Dhaka' and dep\_time between '2022-05-16 05:00:00.000' and '2022-05-16 20:00:00.000' order by dep\_time;**

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1. **Provide the name of all the passenger and their seat number.**

**Query: SELECT p.first\_name + p.last\_name as PassengerName, b.seat\_no from Passenger p INNER JOIN Booking b ON b.passenger\_no = p.passenger\_no;**

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