Lab 3

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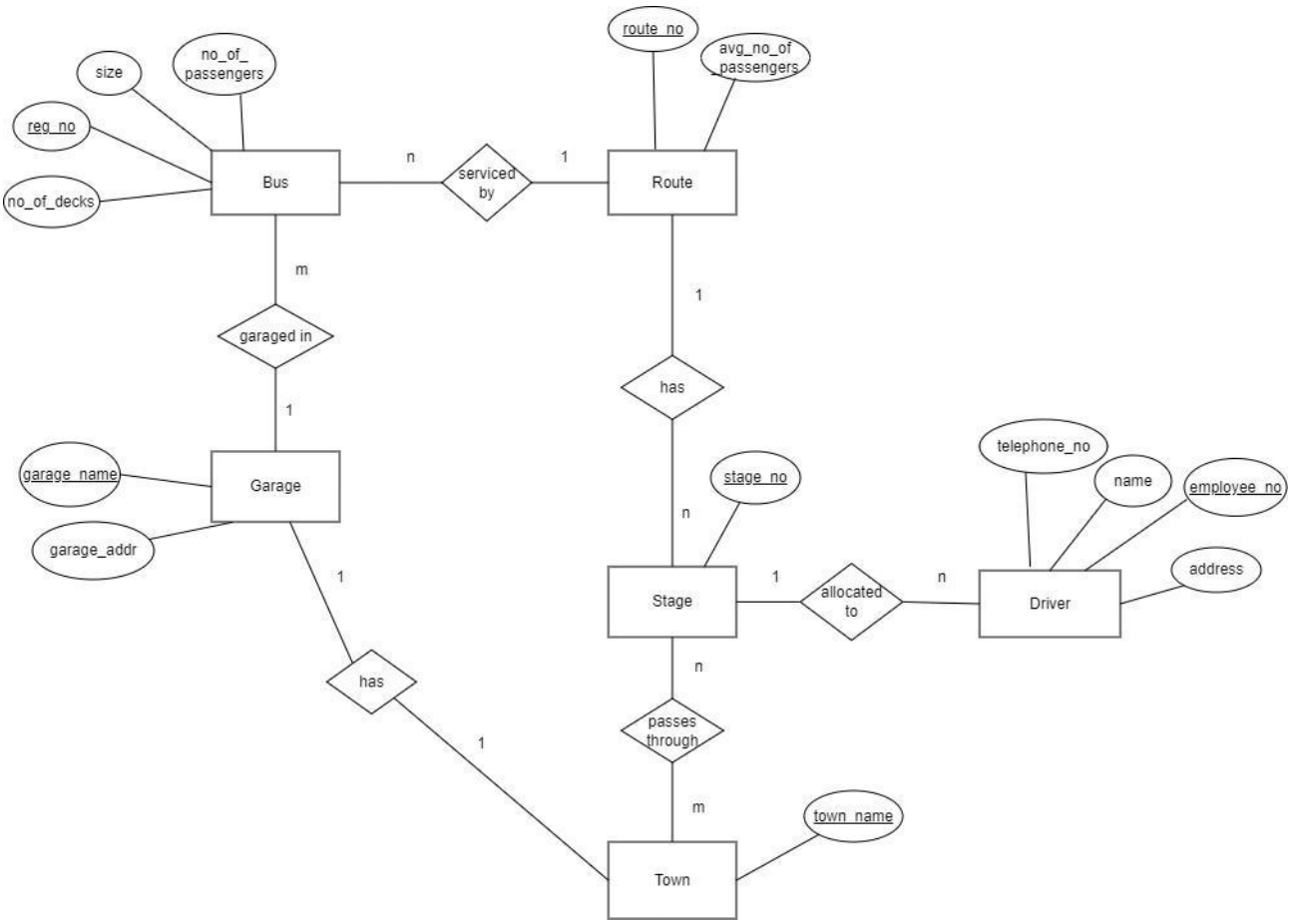
Part 1:

ER DIAGRAM FOR COUNTRY BUS COMPANY:



ENTITIES AND KEY ATTRIBUTES:

Bus – RegistrationNumber
Route - RouteNumber
Town - TownName
Stage - StageNumber
Driver - EmployeeNumber
Garage – GarageName

STRUCTURAL CONSTRAINTS ON RELATIONSHIP TYPE:

1. Each bus is allocated to a particular route, some routes may have several busses.
   Bus - Route (n :1) allocated to

2. A route passes through a number of towns
   Route-Stage (1:n) has

3. stages passes through one or more towns on a route.
   Stage-Driver (n:m) passes through

4. Some towns have garages
   Garage-Town (1:1) has

5. A garage keeps buses and each bus has
   only one garage.
   Bus-Garage (m:1) garaged

Part 2:

Requirements and constraints for an airline reservation system:
The given ER diagram gives information about the Airline Reservation System. It contains details about the Airport , Airlines ,Flight_legs, Fares, Seats and Reservations.

Requirements:

- The database has information airports, flights, flight legs, leg instances, reservations, and airplanes.
- Each airport must have a unique airport code.
- Each flight must have a unique number and be operated by a specific airline.
- A flight can be composed of one or more flight legs.
- Each flight leg must have a departure airport, scheduled departure time, arrival airport, and scheduled arrival time.
- A leg instance is an instance of a flight leg on a specific date.
- The actual departure and arrival airports and times are recorded for each flight leg after the flight leg has been concluded.
- The number of available seats and the airplane used in the leg instance are also kept.
- The customer reservations on each leg instance include the customer name, phone number, and seat number(s) for each reservation.
- Each airplane must have a unique airplane ID.

- For each airplane type, the type name, manufacturing company, and maximum number of seats are kept.
- The airports in which planes of this type can land are also kept in the database.

Constraints:

- An airport can be the departure airport or arrival airport for multiple flight legs.
- A flight leg can be part of multiple flights.
- A leg instance can have multiple reservations.
- An airplane can be used for multiple flight legs.
- An airplane type can be used by multiple airlines.