Data modeling of software development

Assignment-6

GROUP – 7

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Bus Scheduling and Booking System

User : customer, manager, supervisor, booking clerk

To design the database schema for the Bus Scheduling and Booking System, we need to identify the main entities and their relationships. Based on the requirements provided, we can outline the following entities:

Explanation of Entities:

- **Users:** This entity stores information about system users such as customers, managers, supervisors, and booking clerks. It includes fields like UserID, Username, Password, Role, and Email.
- **Bus:** Represents the buses available in the system. It includes details like BusID, BusNumber, Capacity, and Type.
- **Routes:** Stores information about the bus routes including RouteID, Origin, Destination, and Distance.
- **Bookings:** Stores the bookings made by customers. It includes BookingID, UserID (customer who made the booking), ScheduleID (bus schedule), Seats (number of seats booked), Status (booking status), and TotalPrice (total price of the booking).
- **Payment:** Stores payment transactions related to bookings. It includes PaymentID, BookingID (related booking), Amount, and Status.

Relationships:

- Users can make many bookings, but each booking is associated with one user. Hence, there's a one-to-many relationship between Users and Bookings.
- Buses can operate on multiple routes, and each route can be served by multiple buses. This represents a many-to-many relationship, which is simplified in the diagram.
- Each booking can have one payment transaction associated with it, but a payment transaction can be associated with only one booking. This is a one-to-one relationship between Bookings and Payment.

The ERD provides a basic structure for the database schema of the Bus Scheduling and Booking System. Depending on specific requirements and system complexities, additional entities and relationships may need to be considered in the actual implementation.