

## Lab 01

### FULL STACK DEVELOPMENT

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Domain: Online Bus Ticket booking system

#### Entities:

1. **Bus**
2. **Route**
3. **Schedule**
4. **Customer**
5. **Booking**
6. **Payment**
7. **Bus Operator**
8. **Feedback**

#### Attributes and DataTypes:

##### 1. **Bus**

**Bus ID** (Integer): Unique identifier for the bus.

**Bus Name** (String): Name or label of the bus.

**Type** (String): Type of bus (e.g., sleeper, AC, non-AC).

**Total Seats** (Integer): Number of seats in the bus.

**Registration Number** (String): Vehicle registration number.

**Operator ID** (Integer): Foreign key referencing the Bus Operator entity.

##### 2. **Route**

**Route ID** (Integer): Unique identifier for the route.

**Start Point** (String): Starting location of the route.

**End Point** (String): Ending location of the route.

**Duration** (Time): Estimated travel time.

**Distance** (Float): Total distance of the route in kilometers.

**Stops** (Array of Strings): List of stops along the route.

### 3. Schedule

**Schedule ID** (Integer): Unique identifier for the schedule.

**Bus ID** (Integer): Foreign key referencing the Bus entity.

**Route ID** (Integer): Foreign key referencing the Route entity.

**Departure Time** (Date/Time): Scheduled departure time.

**Arrival Time** (Date/Time): Scheduled arrival time.

**Available Seats** (Integer): Number of available seats for the schedule.

### 4. Customer

**Customer ID** (Integer): Unique identifier for the customer.

**Name** (String): Full name of the customer.

**Email** (String): Email address of the customer.

**Phone Number** (String): Contact number of the customer.

**Registered Date** (Date/Time): Date the customer registered.

**Loyalty Points** (Integer): Loyalty points earned by the customer.

### 5. Booking

**Booking ID** (Integer): Unique identifier for the booking.

**Customer ID** (Integer): Foreign key referencing the Customer entity.

**Schedule ID** (Integer): Foreign key referencing the Schedule entity.

**Booking Date** (Date/Time): Date and time of booking.

**Total Fare** (Float): Total cost of the booking.

**Booking Status** (String): Status of the booking (e.g., confirmed, canceled).

### 6. Payment

**Payment ID** (Integer): Unique identifier for the payment.

**Booking ID** (Integer): Foreign key referencing the Booking entity.

**Payment Method** (String): Method of payment (e.g., credit card, UPI).

**Amount** (Float): Amount paid.

**Transaction ID** (String): Unique identifier for the transaction.

**Payment Date** (Date/Time): Date and time of payment.

### 7. Bus Operator

**Operator ID** (Integer): Unique identifier for the bus operator.

**Operator Name** (String): Name of the bus operator.

**Contact Person** (String): Name of the primary contact person.

**Phone Number** (String): Contact phone number.

**Email** (String): Email address for the operator.

**Rating** (Float): Average customer rating for the operator.

## 8. Feedback

**Feedback ID** (Integer): Unique identifier for the feedback.

**Booking ID** (Integer): Foreign key referencing the Booking entity.

**Customer ID** (Integer): Foreign key referencing the Customer entity.

**Rating** (Integer): Customer rating (e.g., 1-5)

**Feedback Date** (Date/Time): Date the feedback was submitted

### ER DIAGRAM:

