**Bus Ticket Booking System Database Design Document**

**1. Introduction**

This document outlines the design of a database for a bus ticket booking system. The system will manage bus schedules, reservations, customers, and payment information to facilitate booking and managing bus travel.

**2. Objectives**

- Store and manage bus schedules, routes, and availability.

- Handle customer information and reservations.

- Process payments and track booking statuses.

- Provide efficient data retrieval for reporting and user interaction.

**3. Entities and Relationships**

The system involves the following primary entities:

1. Customer

2. Bus

3. Route

4. Schedule

5. Reservation

6. Payment

**4. Entity Descriptions**

1. Customer

- Attributes :

- CustomerID (Primary Key)

- Name

- Email

- Phone

- Address

- DateOfBirth

- Relationships :

- A customer can make multiple reservations.

2. Bus

- Attributes :

- BusID (Primary Key)

- BusNumber

- Capacity

- BusType (e.g., Sleeper, Semi-Sleeper)

- Relationships :

- A bus can be assigned to multiple schedules.

3. Route

- Attributes :

- RouteID (Primary Key)

- Origin

- Destination

- Distance

- Relationships :

- A route can have multiple schedules.

4. Schedule

- Attributes :

- ScheduleID (Primary Key)

- BusID (Foreign Key)

- RouteID (Foreign Key)

- DepartureTime

- ArrivalTime

- AvailableSeats

- Relationships :

- A schedule is associated with one bus and one route.

- A schedule can have multiple reservations.

5. Reservation

- Attributes :

- ReservationID (Primary Key)

- ScheduleID (Foreign Key)

- CustomerID (Foreign Key)

- SeatNumber

- ReservationStatus (e.g., Confirmed, Cancelled)

- ReservationDate

- Relationships :

- A reservation is linked to one customer and one schedule.

6. Payment

- Attributes :

- PaymentID (Primary Key)

- ReservationID (Foreign Key)

- PaymentDate

- Amount

- PaymentMethod (e.g., Credit Card, GPal)

- PaymentStatus (e.g., Completed, Pending)

- Relationships :

- A payment is associated with one reservation.

5. ER Diagram



