**OBJECTIVE:**

This SQL database is designed for a BUS SEAT RESERVATION AND MANAGEMENT SYSTEM that helps manage bus operations, schedules, passengers, and other related information. The system tracks buses, their amenities, staff members, routes between cities, schedules, payments, and maintenance records.

**Database Tables and Their Purpose**

**1. BUSES Table**

* Stores information about all buses in the system
* Contains details like bus number, seating capacity, type (standard/premium/luxury), and current status
* Example: PKR-1001 is a standard bus with 45 seats currently active

**2. BUS\_AMENITIES Table**

* Lists amenities available on each bus (like WiFi, AC, recliner seats)
* Shows whether each amenity is currently available
* Example: Bus PKR-1001 has WiFi available

**3. STAFF Table**

* Contains employee records including drivers, conductors, and mechanics
* Stores contact information and current employment status
* Example: Ali Khan is an active driver with contact details

**4. CITIES Table**

* Maintains a list of all cities served by the bus service
* Example: Major Pakistani cities like Lahore, Karachi, Islamabad

**5. STATIONS Table**

* Records bus stations in each city with location details
* Example: Lahore General Bus Stand at Badami Bagh

**6. ROUTES Table**

* Defines travel routes between stations with distances
* Example: Route from Lahore to Karachi is 150km

**7. BUS\_SCHEDULES Table**

* Contains scheduled bus trips & seat availability.
* Links buses to specific routes
* Example: Bus PKR-1001 scheduled on Lahore-Karachi route

**8. PASSENGERS Table**

* Stores passenger information for ticket bookings
* Records names, CNIC, and contact details

**9. ADMINS Table**

* Contains administrator accounts for system management
* Stores login credentials and names

**10. SIGNUP Table**

* Manages user accounts for online bookings
* Stores registration information

**11. PAYMENT\_METHODS Table**

* Lists available payment options (credit card, JazzCah, etc.)
* Shows whether each method is active

**12. FEEDBACK Table**

* Collects customer feedback and suggestions
* Stores messages with contact information

**13. VEHICLE\_MAINTENANCE Table**

* Tracks bus maintenance history and costs
* Example: Engine repair for PKR-1001 costing Rs.1500

**14. NOTICEBOARD Table**

* Displays system notices posted by administrators
* Example: Holiday announcements

**15. FARE\_RULES TABLE**

* It has fares for different routes

**ASSUMPTIONS:**

* All entities (buses, staff, passengers, routes, schedules, etc.) have unique identifiers.
* Route distances and fare rules are fixed unless updated by administrators.
* Bus status and amenities availability reflect the current state and may change over time.
* Each bus schedule corresponds to one route and one bus.
* Passengers can book seats only for available schedules.
* Only active payment methods are available for bookings.
* Staff members have a single role and current employment status.
* Maintenance records track completed work and costs.
* Cities and stations are predefined and updated by administrators.
* Feedback and notices are managed through the system for customer and admin use.