ONLINE BUS RESERVATION SYSTEM (OBRS)

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DOCUMENTATION

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1. Introduction

The Online Bus Reservation System (OBRS) is a web-based application built using ASP.NET Core MVC with Entity Framework Core and SQL Server as the database.

It provides users the ability to:

- Search for available buses
- View routes and fares
- Book tickets online
- Manage bookings
  And admins can:
- Manage buses, routes, and fares
- Monitor reservations
- Update booking statuses

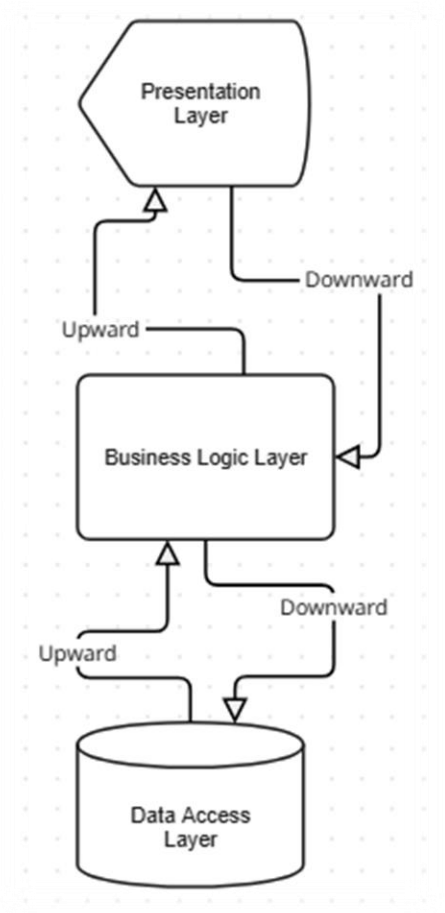
2. Objectives

- Provide an online platform for easy and fast bus reservations.
- Reduce manual work for booking counters.
- Ensure real-time availability of seats.
- Provide admin with a dashboard for revenue and booking management.

3. System Architecture

This system follows a 3-Tier Architecture:

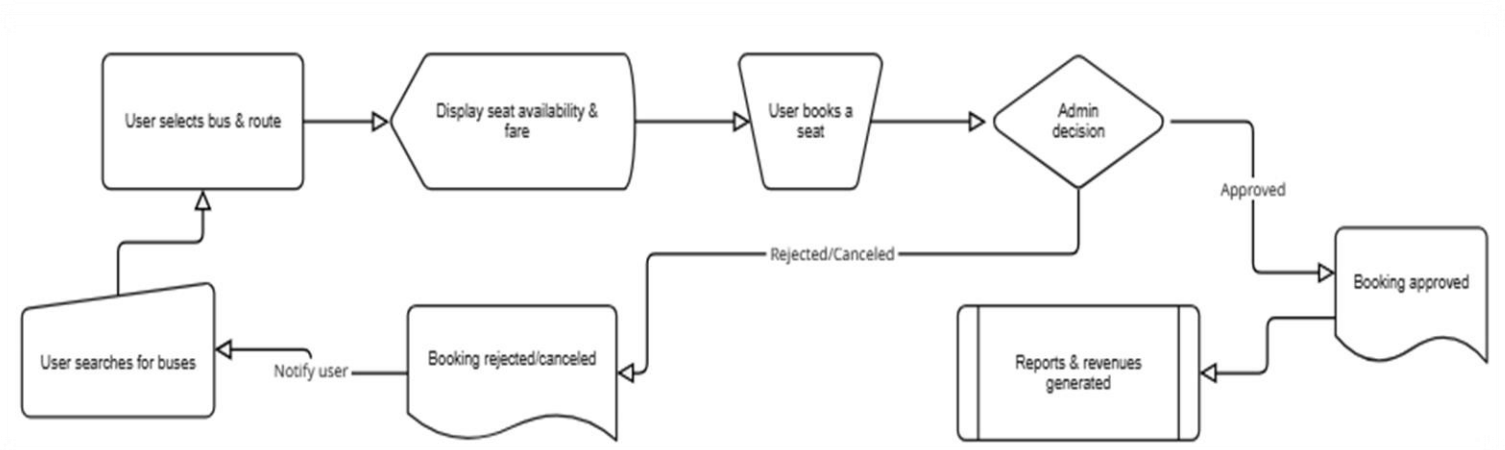
1. Presentation Layer – ASP.NET MVC Views
2. Business Logic Layer – Controllers and Services
3. Data Access Layer – Entity Framework Core + SQL Server



4. Project Flow

The overall flow of the project is as follows:

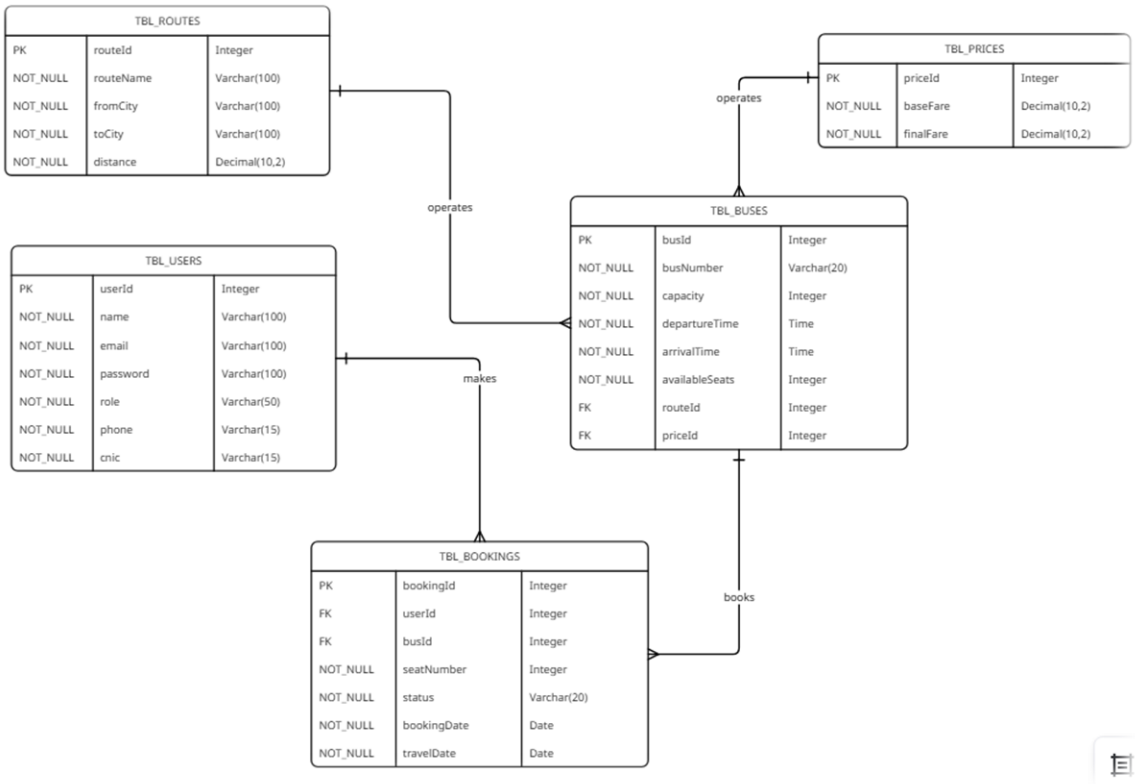
1. User searches for buses.
2. User selects a bus & route.
3. System displays seat availability and fare.
4. User books a seat (confirmation + payment).
5. Admin can approve/reject/cancel bookings.
6. Reports & revenues generated.



5. Database Design

Main Tables:

- tbl_users → stores user details
- tbl_buses → stores bus info (Bus No, Capacity, etc.)
- tbl_routes → route info (From, To, Distance, etc.)
- tbl_prices → stores fare (Base Fare, Final Fare)
- tbl_bookings → stores booking details (User, BusId, Seat, Status, Date, etc.)



6. Features

For Users

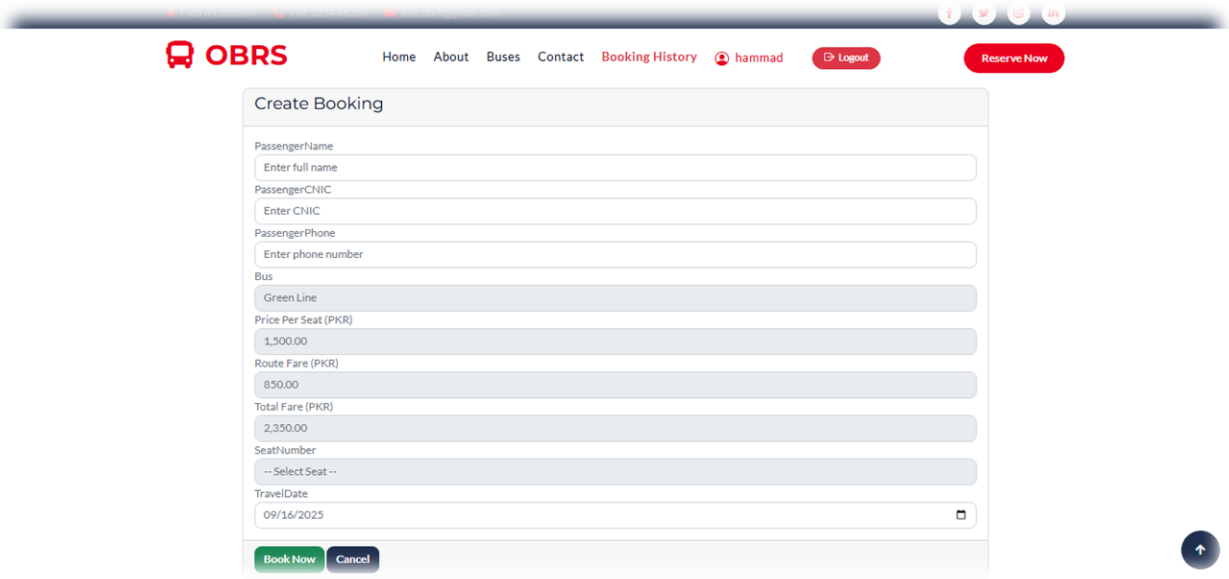
- Search buses by route/date
- View seat availability
- Book tickets online
- View booking history
- Cancel bookings

For Admins

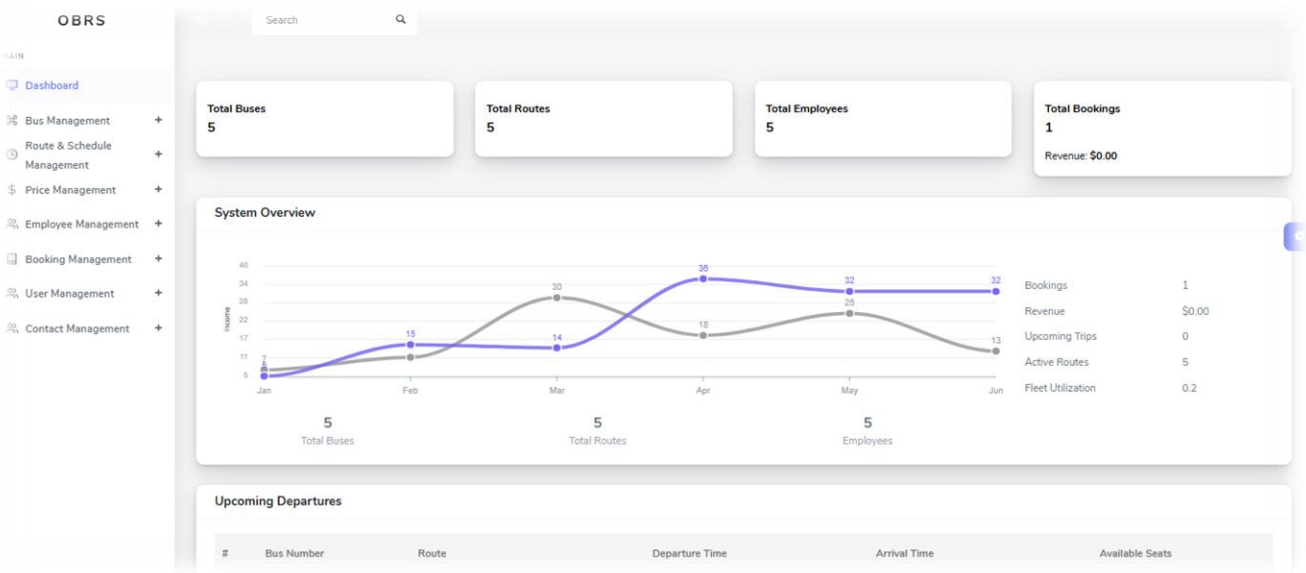
- Add/Edit/Delete buses
- Add/Edit/Delete routes
- Manage fares
- Manage bookings (approve, cancel, complete)
- Dashboard with revenue summary

📌 *Insert screenshots of key pages here:*

- ![User Booking Screen]

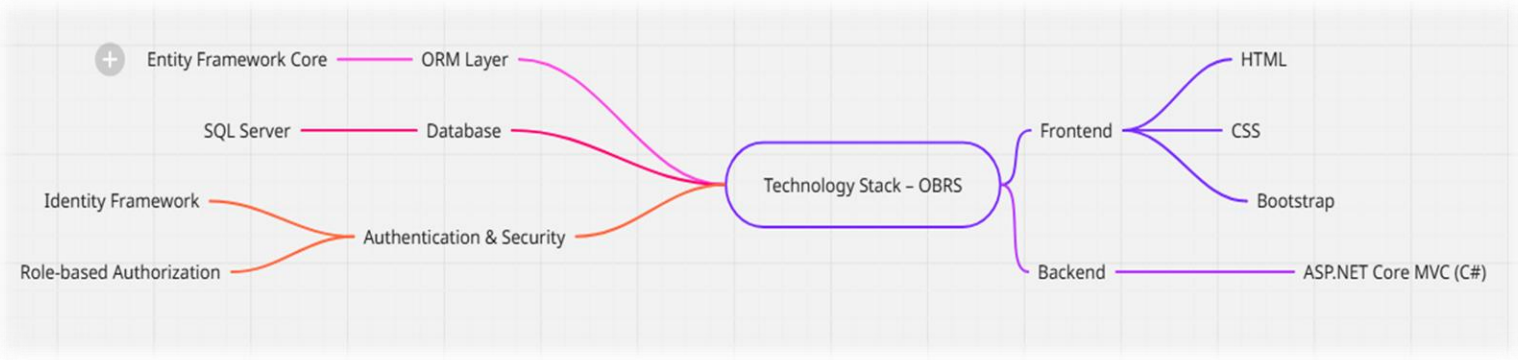


- ![Admin Dashboard]



7. Technology Stack

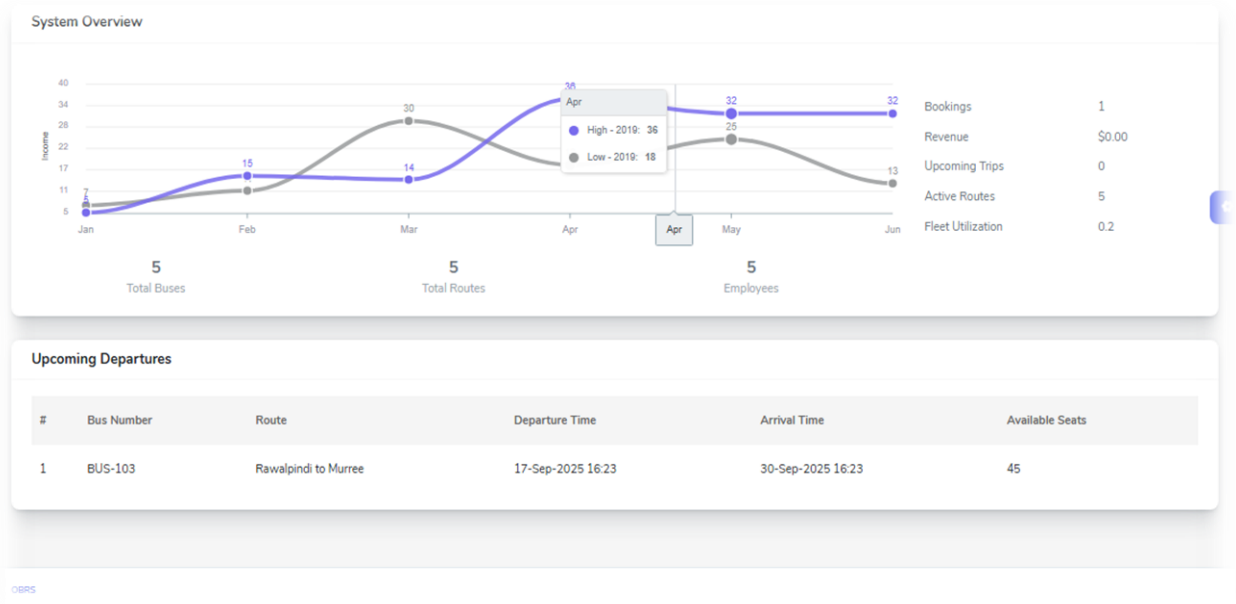
- Frontend: HTML, CSS, Bootstrap
- Backend: ASP.NET Core MVC (C#)
- Database: SQL Server
- ORM: Entity Framework Core
- Authentication: Identity (with Role-based Authorization)



8. Dashboard & Reports

Admin dashboard provides:

- Total Bookings
- Revenue Generated
- Upcoming Departures
- Payment Summaries

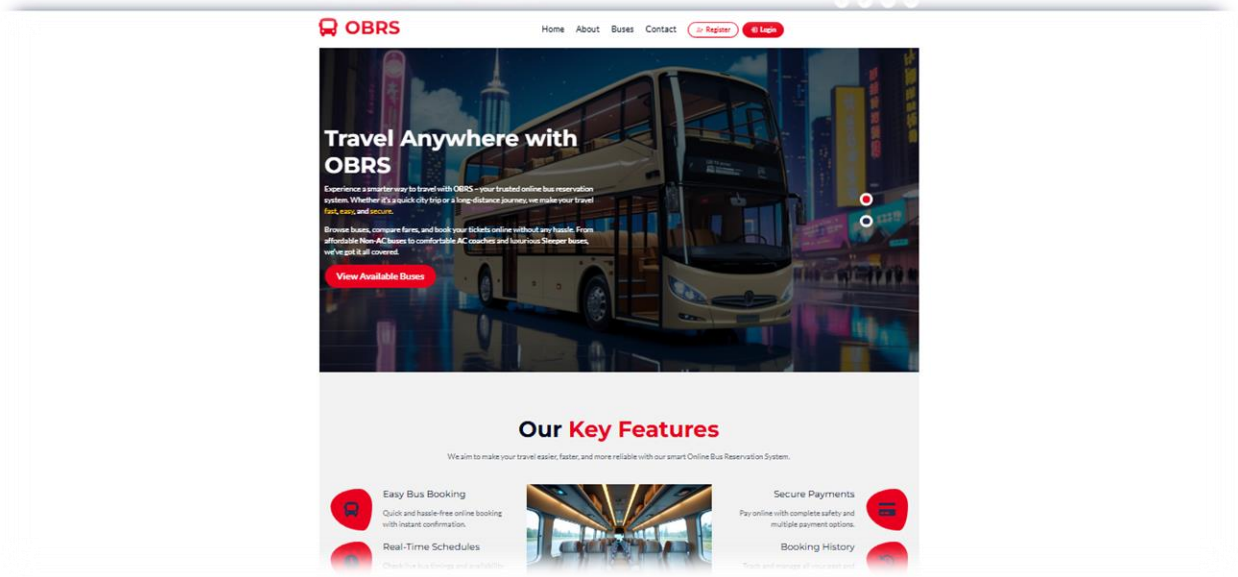


9. Future Enhancements

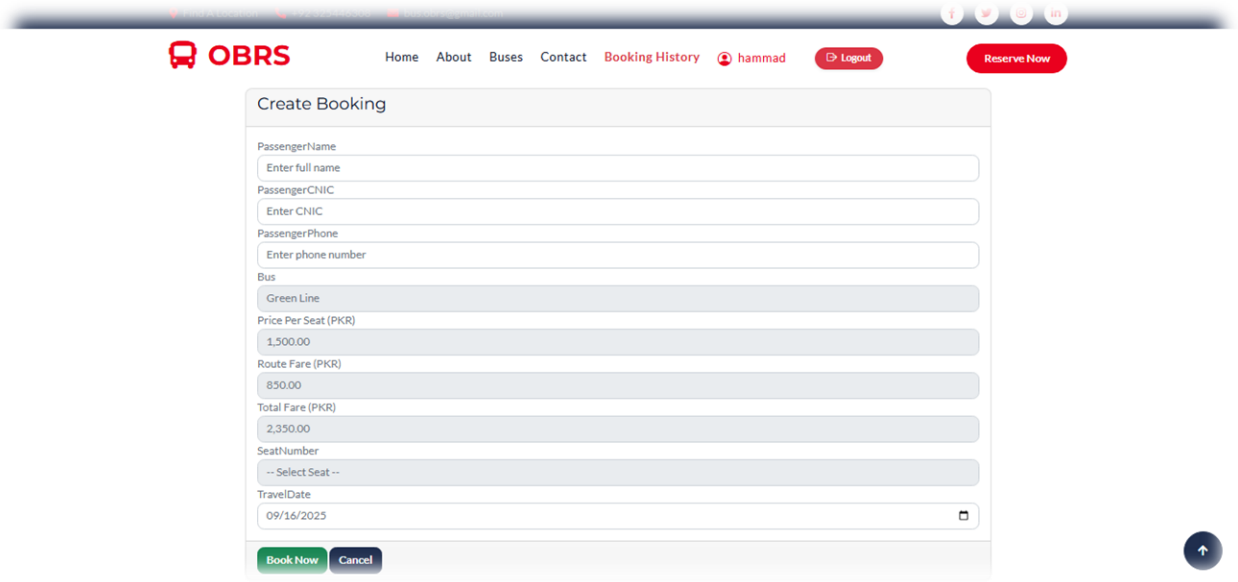
- Online Payment Gateway (JazzCash/EasyPaisa/Stripe)
- Email/SMS Notifications
- Mobile App (Xamarin / React Native)
- Real-time seat locking system

10. Project Screenshots

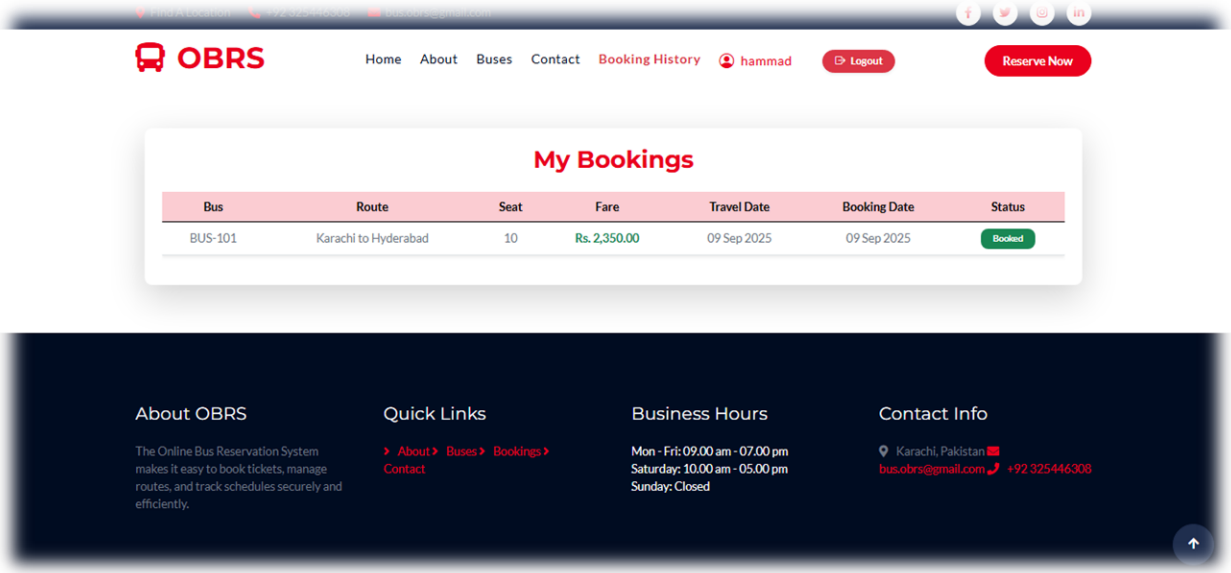
- Home Page →



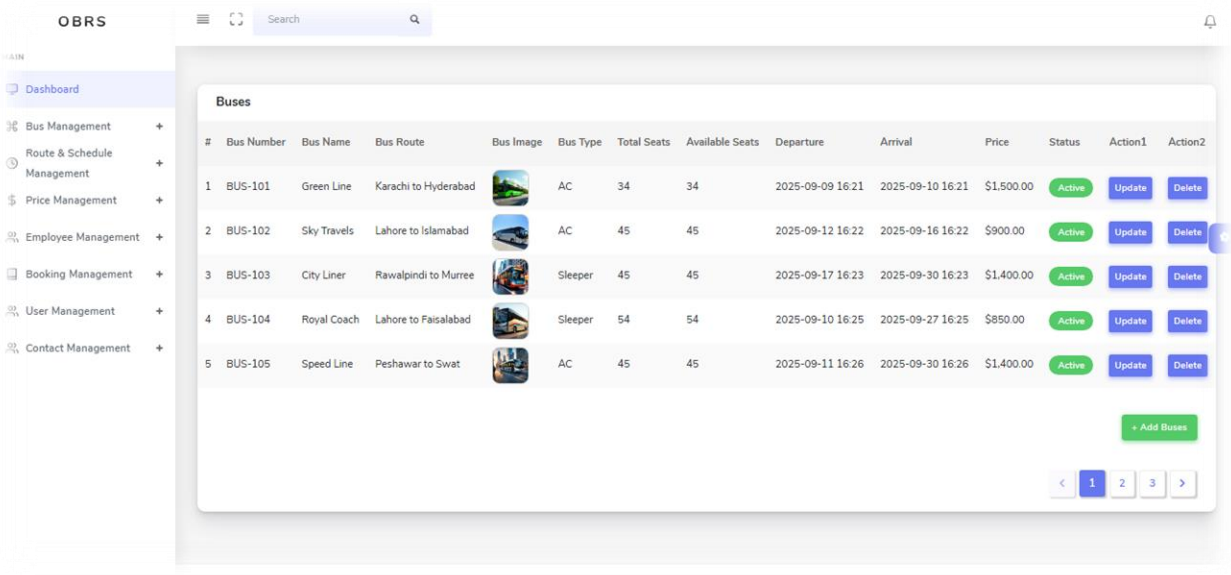
- Booking Page →



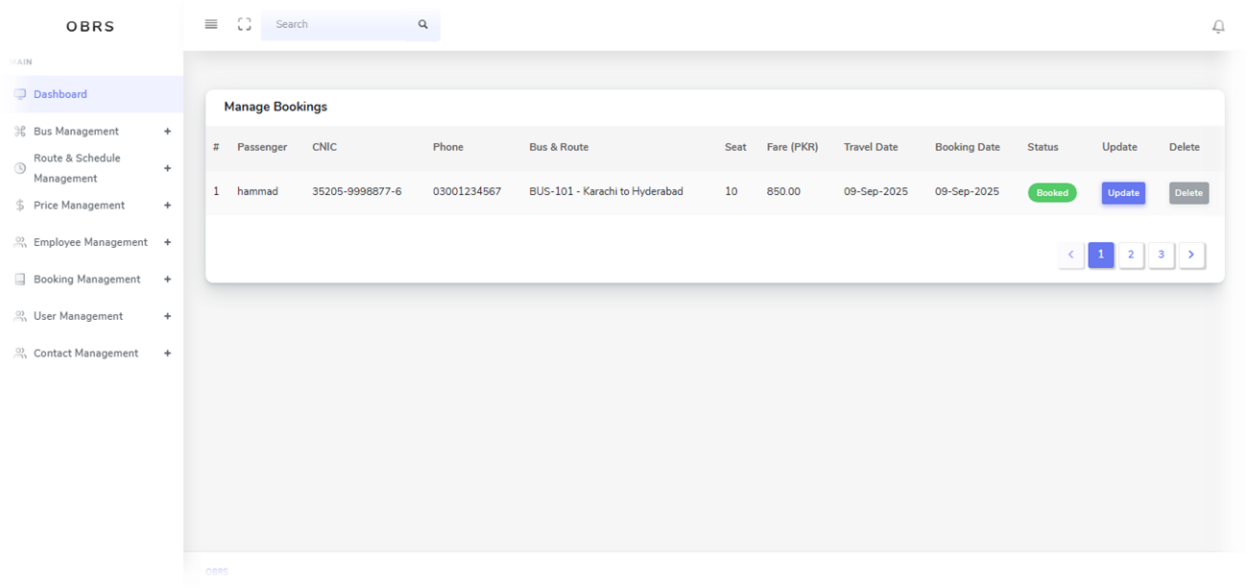
- Payment Summary →



- Manage Buses (Admin) →



- Manage Bookings (Admin) →



11. Conclusion

The Online Bus Reservation System provides a seamless platform for bus operators and passengers. It automates the entire process of searching, booking, and managing tickets.

It saves time, reduces errors, and increases operational efficiency.