Software Specification – Bus Seat Booking Application

1. Purpose of the System

The system allows passengers to **view available seats**, **select seats**, and **book bus tickets** easily. It helps bus operators manage bookings without confusion.

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2. Intended Users

- **Passengers** who want to book bus seats
- **Bus company staff** who manage bus schedules and bookings

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3. System Overview

The system will:

- Show bus routes and travel dates
- Show seat layout (available / booked)
- Allow users to select a seat
- Collect passenger details
- Confirm and store the booking
- Generate a booking ID

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4. Key Features

4.1 Seat Selection

- Display bus seat layout (e.g., 2×2 layout)
- Available seats shown in **green**
- Booked seats shown in **red**

4.2 Booking

- User selects route
- User selects date
- User chooses seat
- User enters name, phone number
- System saves booking and gives a confirmation message

4.3 Admin Features

- Add bus schedules (route, time, date)
- View all bookings
- Mark seats as reserved or cancelled

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5. Functional Requirements

FR1: System must display a list of bus routes.

FR2: System must display available dates and times for each route.

FR3: System must show seat layout for each bus.

FR4: User must be able to select a seat.

FR5: System must prevent booking if seat is already taken.

FR6: System must store passenger details.

FR7: System must generate a unique booking ID.

FR8: Admin must be able to view all bookings.

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6. Non-Functional Requirements

NFR1: Usability

- Interface must be simple and easy to use.

NFR2: Performance

- Booking should complete within 2 seconds.

NFR3: Reliability

- Seat selection should always show correct available seats.

NFR4: Security

- User details should be stored safely.

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7. Inputs / Outputs

Inputs

- Route selection
- Travel date
- Seat number
- Passenger details

Outputs

- Confirmation message
- Booking ID
- Booking report for admin

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8. Hardware / Software Requirements

Hardware

- Any computer or mobile device with internet

Software

- Web browser (Chrome/Edge)
- Backend server (optional)
- Database (MySQL / SQLite)

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9. Constraints

- Internet connection required

- Seat cannot be changed after confirmation (unless admin edits)

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10. Success Criteria

- Users can book seats without errors
- Admin can view and manage bookings
- System updates seat availability instantly