

## **Business Rules for Commuter Reservation System**

This document outlines the core business rules and validation constraints implemented in the Commuter Reservation System. These rules ensure data integrity, accurate passenger validation, proper booking workflow, and alignment with operational railway policies.

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### **1. Passenger Data Validation**

- **Unique email per passenger**

**Enforcement:** UNIQUE constraint and stored procedure validation

**Error Code:** -20004

- **Unique phone number per passenger**

**Enforcement:** UNIQUE constraint and stored procedure validation

**Error Code:** -20004

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### **2. Travel & Booking Rules**

- **Date of Birth (DOB) must not be in the past**

**Enforcement:** Procedure validation

**Error Code:** -20004

- **Travel date must be in the future**

**Enforcement:** Procedure validation

**Error Code:** -20002

- **Booking allowed only up to 7 days in advance**

**Enforcement:** Procedure validation

**Error Code:** -20006

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### **3. Train Operation Rules**

- **Train must operate on the selected day**

**Enforcement:** Function validation

**Error Code:** -20001

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### **4. Seat Allocation Rules**

- **Maximum 40 confirmed seats per class**

**Enforcement:** Procedure logic

**Error Code:** -20003

- **Maximum 35 waitlist positions per class**

**Enforcement:** Procedure logic

**Error Code:** -20003

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## 5. Booking Integrity Rules

- **No duplicate bookings allowed**

(A passenger cannot book the same train, class, and travel date more than once.)

**Enforcement:** Stored procedure validation

**Error Code:** -20007

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## 6. Automatic Workflow Rules

- **Auto-promotion of waitlisted passengers upon cancellation**

(When a confirmed seat is canceled, the next waitlisted passenger is automatically moved to confirmed status.)

**Enforcement:** Procedure logic

**Error Code:** N/A

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## Summary

These business rules collectively ensure that the Railway Reservation System maintains:

- High data integrity
- Fair seat allocation
- Accurate booking constraints
- Reliable waitlist management
- Compliance with operational schedules

They form the backbone of a consistent, predictable, and passenger-friendly booking experience.