



RAILWAY RESERVATION SYSTEM ERD 1

## ENTITIES AND THEIR ATTRIBUTES

### 1. Train

- train\_id (PK)
- train\_number (unique)
- name
- capacity

### 2. Station

- station\_id (PK)
- station\_code (unique)
- name
- location

### 3. Route

- route\_id (PK)
- origin\_station\_id (FK → Station)
- destination\_station\_id (FK → Station)
- distance

### 4. Schedule

- schedule\_id (PK)
- train\_id (FK → Train)
- route\_id (FK → Route)
- departure\_time
- arrival\_time
- available\_seats

### 5. Passenger

- passenger\_id (PK)
- first\_name
- last\_name
- email
- phone\_number

### 6. Reservation

- reservation\_id (PK)
- schedule\_id (FK → Schedule)
- passenger\_id (FK → Passenger)
- pnr (unique)

- seat\_number
- status (BOOKED / CANCELLED)

### **RELATIONSHIPS EXPLAINED**

#### 1. Train → Schedule

- 1-to-Many: A train can have many schedules (different dates/times), but each schedule belongs to one train.

#### 2. Route → Schedule

- 1-to-Many: A route can be scheduled multiple times (daily/weekly trips), but a schedule belongs to one route.

#### 3. Station → Route

- 1-to-Many (twice):
  - One station can serve as the origin for many routes.
  - One station can also serve as the destination for many routes.
- Each route has exactly one origin and one destination station.

#### 4. Schedule → Reservation

- 1-to-Many: A schedule can have many reservations, but a reservation belongs to exactly one schedule.

#### 5. Passenger → Reservation

- 1-to-Many: A passenger can make multiple reservations, but each reservation is linked to one passenger.

### Abbreviations and their meaning

1. PK – Primary Key
2. FK – Foreign Key