**Railway Reservation**

The railway reservation system facilitates the passengers to enquire about the trains available on the basis of source and destination, booking and cancellation of tickets, enquire about the status of the booked ticket, etc.

The aim of scenario is to design and develop a database maintaining the records of different trains, train status, and passengers. The data of train includes its number, name, source, destination, and days on which it is available, whereas data of train status includes dates for which tickets can be booked, total number of seats available, and number of seats already booked.

**Description:**

Passengers can book their tickets for the train in which seats are available. For this, passenger has to provide the desired train number and the date for which ticket is to be booked. Before booking a ticket for a passenger, the validity of train number and booking date is checked. Once the train number and booking date are validated, it is checked whether the seat is available. If yes, the ticket is booked with confirm status and corresponding ticket ID is generated which is stored along with other details of the passenger. After all the available tickets are booked, certain numbers of tickets are booked with waiting status. If waiting is full, then tickets are not booked and a message of non‐availability of seats is displayed. The ticket once booked can be cancelled at any time. For this, the passenger has to provide the ticket ID (the unique key). The ticket ID is searched and the corresponding record is deleted. With this, the first ticket with waiting status also gets confirmed.

**List of Assumption**

Since the reservation system is very large in reality, it is not feasible to develop the case study to that extent and prepare documentation at that level. Therefore, a small sample case study has been created to demonstrate the working of the reservation system. To implement this scenario, some assumptions have been made, which are as follows:

1. The number of trains has been restricted to 5.
2. The booking is open only for seven days before the departure date.
3. The total number of tickets that can be booked for a train is 50.
4. The total number of tickets that can be given the status of waiting is 5.
5. The in‐between train route stations and their bookings are not considered.

**Description of Tables and Procedures**

A few of the tables and procedures that could be created are as follows. Do not assume this list is correct or complete. Do some of your own database design.

**Train**: This table consists of details about all the available trains. The data stored in this table includes train number, train name, and passenger capacity.

**Station**: This table contains all the train stations. The station id, station name, station city, etc.

**Route**: All the data describing a route; station departure, station destination, route duration, other fields.

**Schedule**: train, route, departure date, status

**Passenger**: name, birthdate, gender, email, phone, address id.

**Address**: street, city, postal, etc

**Ticket**: schedule id, person id, ticket number, status (confirmed, waiting, cancelled)

*Note: Some join tables to deal with the many-to-many relationships.*

Booking: In this procedure, the train schedule data is retrieved for status of not full and a ticket is assigned to the passenger using the ticket table. Once a schedule has 50 tickets confirmed it becomes fully booked.

Cancel: In this procedure, ticket number is read for the passenger and corresponding record is searched in the ticket table. If the record exists, the ticket status is changed to cancelled. After cancelling the ticket the first record with waiting status for the same train is searched and its status is changed to confirmed.

*Note – this is a high level description of entities and procedures, others may exist for each description. Consider these descriptions at a high level… make sample data in a spreadsheet, think it through, normalize. Be creative, add your own ideas to the railway design.*