Query Descriptions

1. Update Station Information
   Updates the name and operational status of a specific station.
2. Average Waiting Time
   The Schedule table allows us to determine the average stopping/waiting time at a certain station based on all trains passing through it.
3. Ticket Sales
   Summarizes total revenue grouped by seat class and route from a given date.
4. High-Demand Routes
   Most frequently used 5 routes can be determined using the bookings in the Schedule and Ticket tables to further analyze the needs of passengers.
5. Busiest Station
   This query would show which station is in the most routes and here the start, end and stop-over stations are considered.
6. Routes Passing Through Most Countries
   This report would contain routes that passed through the highest number of countries according to the geographical location of the start, intermediary stops and end stations.
7. Trains Between Cities
   This query would show all trains traveling between two given cities, their stops along the way and the total time for taking that route.
8. Total Seats by Class for a Route
   This would give a total of the seating capacity of the business class as well as the economy class in trains that move along a certain route.
9. Route Distance Report
   Sorts routes by total distance in descending order.
10. Update Business Class Seats
    Decreases business class seat availability by one if needed.

Function and Trigger Descriptions

1. Prevent Double Booking Ensures multiple passengers cannot book a seat for the same schedule. In case of conflict, an error is raised.
2. Calculate Total Ticket Price Calculates total ticket price by summing all associated ticket leg prices.
3. Update Ticket Total Price Automatically recalculates the total ticket price when any ticket leg is added or updated.

4. Check Seat Availability
Checks whether a seat is available for a particular schedule. Returns TRUE if available, FALSE otherwise.
5. Enforce Discount Limit
Checks that discounts applied to tickets are within the allowed range (0-50%). Error is thrown if the rule is violated.
6. Get Upcoming Schedules
Retrieves a list of the upcoming train schedules stopping at a particular station on a given date.
7. Calculate Route Total Distance
Calculates a route's total distance based on the sum of all its stop distances.
8. Get Passenger Travel History Provides a full history of a passenger's tickets and journeys, including boarding and alighting stations, scheduled dates, and train numbers.

View Descriptions

1. SeatAvailability Gives the availability of seats for each schedule, including information such as schedule date, details about the train, seat ID, carriage, and seat number. Also, each seat is marked as either 'Available' or 'Booked'.
2. RevenueSummary Provides a summary of revenue by schedule, route, or date. Total earnings, number of tickets sold, and corresponding schedule and route information are included.
3. TrainCapacityUtilization The report shows the train capacity utilization per schedule. It also shows train capacity, sold tickets, and utilization percentage for evaluation of occupancy of trains.