

Dimensional Model Documentation:

Reservation Fact Table

1. Business Process

The business process represented by this fact table is **airline reservations**. This process tracks various financial and operational metrics related to airline ticket bookings, including revenue, profit, costs, and reservation details.

2. The Grain

The grain of the fact table is defined at the **individual reservation level**, meaning each row in the fact table represents a single reservation made by a passenger.

3. Dimensions

The **Reservation Fact Table** is surrounded by several dimension tables that provide descriptive context for each reservation. The key dimensions are:

- **Passenger_DIM** – Contains passenger demographics such as age category, gender, occupation, nationality, loyalty tier, and membership status.
- **Airport_DIM** – Stores details about airports, including airport code, name, city, and country.
- **Dim_Airplane** – Represents aircraft-related attributes such as model, capacity, seating arrangements, and fuel capacity.
- **Dim_Promotion** – Captures promotional offers that apply to reservations, including promotion name, description, and category.
- **Date_DIM** – Provides date-related details, including calendar year, fiscal year, month, and day-level information.
- **Country-Specific Date Outtrigger** – Adds context regarding holidays, workdays, and seasons for a given date.

4. Identify the Facts

The **Reservation Fact Table** contains measurable metrics related to flight reservations, including:

- **Revenue** – The total income generated from the reservation.
- **Profit** – The profit derived from the reservation after deducting relevant costs.
- **Payment_Method** – The method used for payment (credit card, debit card, cash, etc.).
- **Reservation_Channel** – The booking channel used (website, mobile app, travel agency, etc.).
- **Fare_Basis** – The fare class or basis on which the ticket was booked.
- **Airport_fees** – Fees charged by the airport for the reservation.
- **Taxes** – Government-imposed taxes on the ticket.
- **Fuel_Cost** – The estimated fuel cost attributed to this reservation.
- **Crew_fees** – Costs related to crew operations for the reservation.
- **Meal_fees** – Costs associated with in-flight meals for the reservation.
- **Total_Cost** – The total cost incurred for the reservation, including fuel, crew, and other expenses.
- **Distance_in_miles** – The total distance covered for the reservation flight.

Metrics (Financial and Operational)

These are the **measurable values** used for analytics.

Financial Metrics

- **Revenue** → The total income generated from a reservation (ticket sales).
- **Profit** → The revenue minus all costs (net earnings).
- **Fare_Basis** → The base ticket price before adding fees and taxes.
- **Airport_fees** → Charges related to airport operations (landing, boarding, security, etc.).
- **Taxes** → Government-imposed taxes on the ticket.
- **Fuel_cost** → The fuel expenses for the trip.
- **Crew_fees** → Payments for pilots, flight attendants, and other crew.
- **Meal_fees** → Charges for meals provided during the flight.
- **Total_Cost** → The sum of all expenses (airport fees, taxes, fuel, crew, meal fees, etc.)