
BUSINESS PROCESSES AND ASSUMPTIONS

We choose data vault model because of the following:

- We need quick data extraction because the data vault is faster and the aviation industry operates around the clock.
- The data is presented in a structured format.
- The existing data links are typically modelled by a third normal form model, which might result in a solution that is rather rigid and requires a lot of rework as new sources are added.
- Kimble lacks historical management and raw data.
- Sources can be easily integrated.
- Reduce 3NF complexity.
- Exceptionally Fast Parallel Loads.

DECLARATIONS/ASSUMPTIONS:

- FREQUENT FLYERS GAIN POINTS PER DOLLAR
- THE AMOUNT IS DIFFER ACCORDING TO FARE BASIS
- FARE BASIS CHANGES ACCORDING TO MEMBERSHIP STATUS
- EACH PASSENGER HAVE MEMBERSHIP STATUS WHETHTER ITS (BLUE, SILVER, GOLD, PLATINUM OR TITANIUM)
- MEMBERSHIP STATUS DEPEND ON NUMBER OF FLIGHTS OR AMOUNT OF DISTANCE COVERED DURING THE YEAR
- PASSENGER BOOK THE TICKET WHETHER FROM AGENCY OR WEBSITE AND EACH HAS ITS OWN FEES PERCENTAGE
- TICKET STATUS DESCRIBE WHETHER THE TICKET IS CANCELLED OR NOT
- EVERY SEAT HAS A TICKET
- EACH AIRPLANE HAS CLASS TYPE WHETHER ITS FIRST, BUSINESS, ECONOMIC OR MIXED CLASS

- FLIGHT STATUS CAN BE EITHER PENDING, CANCELLED OR DONE
- COST TO OPERATE IS THE COST OF ALL THE FLIGHT EXPENSES (e.g. CREW SALARIES, FUEL, etc..)
- WHEN AIRPLANE HAVE ACCIDENTS, WE NEED TO CHECK FOR MAINTENANCE SCHEDULE
- INQUIRY TIME CAN BE EITHER (BEFORE, WITHIN OR AFTER FLIGHT)
- INQUIRY TYPE CAN BE EITHER (INQUIRY, PROBLEM OR FEEDBACK)
- PROBLEM SEVERITY RANGES FROM 1 TO 5
- POINTS CAN BE CONSUMED FOR (UPGRADING, EXTRA MILES OR OTHER AWARDS FROM THE COMPANY)

Business process : Booking flight from agency or website with flight description

Granularity : Per selling ticket

Facts: **Booking flight**

Ticket price , Promotional Discount (in case this passenger have promotion on ticket or discount from website) , Fees (added fees from agency and website).

Dimensions : DATE , PASSENGER, Flight , Agency , Website , Promotion

Business process : Flight Description

Granularity : Per flight

Facts : **Flight**

count of seats number available in this flight and total distance covered by miles

Dimensions :Date , passenger , Airplane , Pilot , crew , Flight , Route

Business process : Finance team analyzing company profit

Granularity : Per total flights per month

Facts : **Total Flight**

Flight cost (operating flight cost within cool , salaries, other staff) , Flight Revenue (total tickets booked) ,total discount (aggregate on total discounts on whole flight) , Total fees (aggregate fees from booking) , Total tickets (total seats booked with its price) , TOTAL PROFIT (Revenues – expenses).

Business Process :

Marketing Team Analyzing what flights the company's frequent flyers take, what fare basis they pay, how often they upgrade, how they earn and redeem their frequent flyer miles, whether they respond to special fare promotions and what proportion of these frequent flyers have gold, platinum or titanium status.

Granularity : Per transaction (upgrading / earning or redeeming miles / respond to promotions)

Facts : **Loyalty Fact**

Points consumed (points of frequent flyer consumed)

Dimensions : Date , Flight , FQ , Points redeeming key , Passenger (to know status of passenger) .

Business Process : Airlines providing hotels for transit passengers

Granularity : Per Flight

Facts : **Staying Fact**

Duration (passenger duration staying in hotel)

Dimensions : Date , Flight , FQ (as a frequent flyer can be using his points to be discounted) , Hotel , hotel staying.

Business Process : Handling Customer Inquires within (problem , complaint)

Granularity : Per Inquiry

Facts : **Factless table**

Dimensions : Date , Passenger , Inquiry ,flight , staff .

NOTE : From inquiry dimension we can figure out it's type whether its (complaint , problem , feedback).

Business Processes:

Booking:

Passengers book tickets of flight whether from agency or websites and the route of flight is determined.

Frequent Flyer Program:

Frequent flyer is passengers with membership status (gold/platinum/titanium) and award points.

Checking:

Passenger checking the tickets of flight in airport by staff of airport.

Upgrading:

Passenger's ticket is upgraded to premium or get promoted if passenger is a loyal passenger.

Cancelling:

Passenger cancelling ticket of flight.

Flight:

Flight includes pilot of this flight, crew of the airplane and airport that it landed in or takeoff from, including airplane type, info and route.

Landing/Takeoff:

Shows which flight takeoff from which country and airport city and land to which country and airport city as well.

Transit:

Passengers book flights with two destinations (transit), airplane land in a middle country.

Booking Hotel:

In transit case, airlines offer hotels for transit passengers.

Car Rent:

Airlines offer cars to travel with passengers.

Report Accident:

Accident of any flight or incident in airplane should be reported with a specific reason.

Maintenance:

Airplane should be maintained regularly by mechanic so in case if there was an accident, we should check if the airplane is maintained or not in time.

Report Inquiry:

Passenger before, after or within flight can report an inquiry to staff and inquiry can be whether problem or feedback about flight by determining severity of inquiry.

Promote:

Passengers can be promoted by consuming their points or any other offers according to their membership.

Redeem Points:

Passenger can redeem their points according to their membership and be used to get offers from hotels or get discount on ticket.