

Airlines Project Details

1)

The business process was about monitoring booking processes and measuring customer- satisfaction rate.

We followed the “Inmon” approach by making an ERD first in a Normalized form then we created the dimensional modeling for reporting.

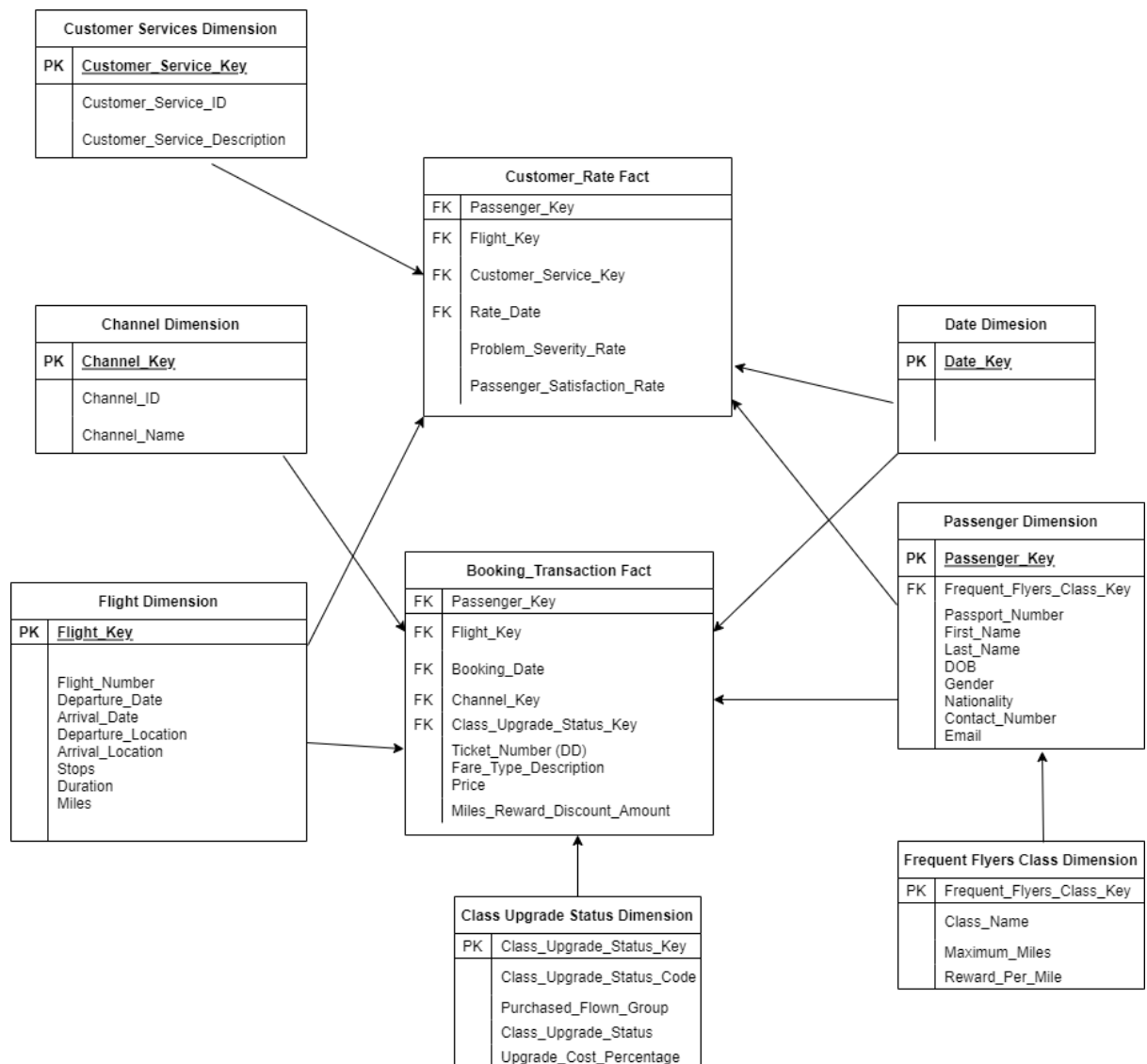
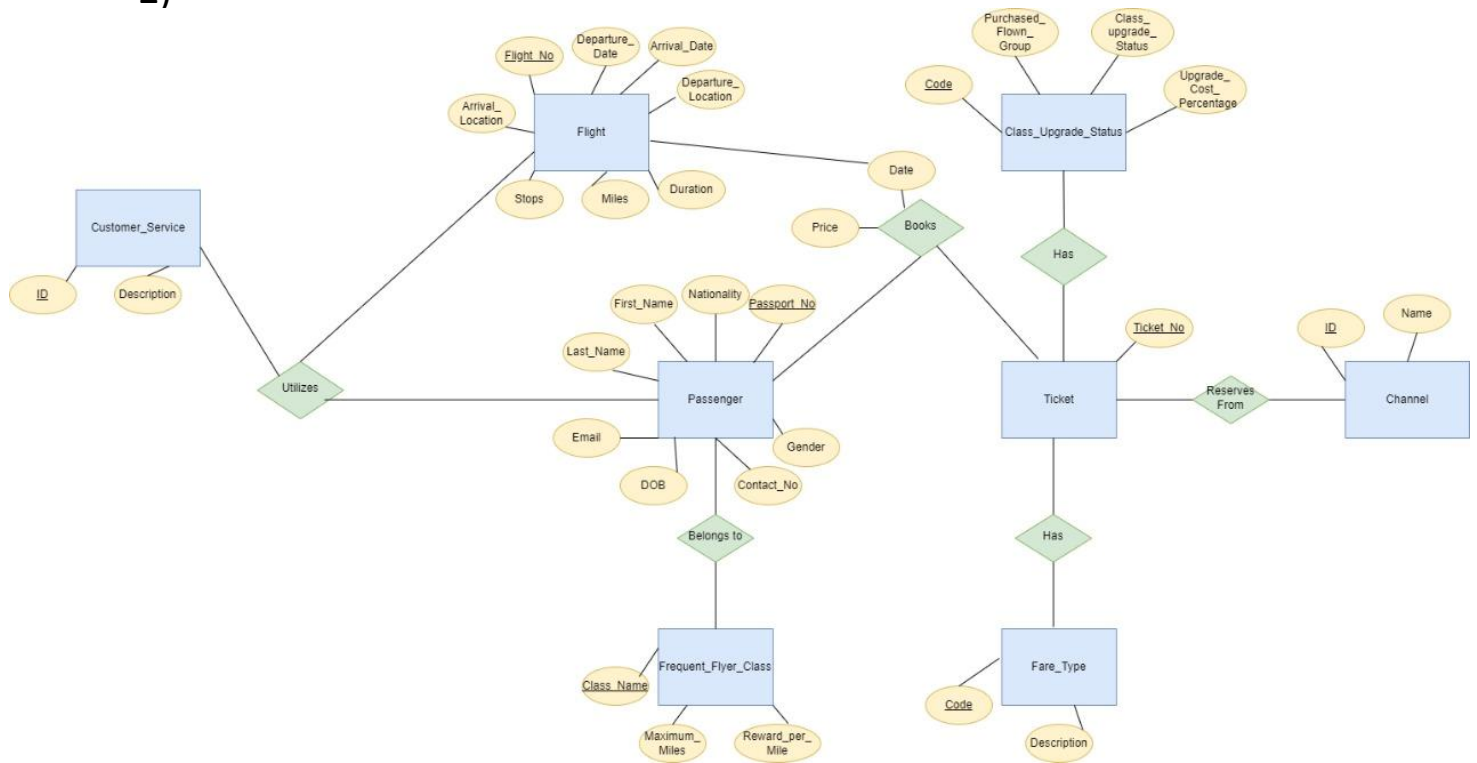
In ERD we have 8 entities (Passenger, Flight, Ticket, Channel, Fare_type, Frequent_Flyer_Class, Customer_Service and Class_Upgrade_Status).

We created a Galaxy Schema in Dimensional modeling which has two facts tables (Customer_Rate_Fact and Booking_Transaction_Fact) and 7 Dimensions (Customer_Services_Dimension, Channel_Dimension, Date_Dimension, Passenger_Dimension, Flight_Dimension, Class_Upgrade_Status_Dimension and Frequent_Flyers_Class_Dimension).

The booking transaction and customer rate facts granularity level are up-to-date on a daily basis.

We followed Inmon’s approach as it is much easier to create dimensional modeling from the data available in the data warehouse because the data is already cleaned and integrated.

2)



- Passenger_Dimension has all info about each passenger.
- Frequent_Flyers_Class_Dimension has the following info.

id	FREQUENT_FLYER_CLASS_KEY	CLASS_NAME	MINMUM_MILES	REWARD_PER_MILE
▶	1	SILVER	1000	0.2
	2	GOLD	3000	0.5
	3	PLATINUM	5000	0.6
	4	TITANIUM	8000	0.7
	5	NON FF	0	0

- Class_Upgrade_Status_Dimension has the following info.

id	CLASS_UPGRADE_STATUS_KEY	PURCHASED_FLOWN_GROUP	CLASS_UPGRADE_STATUS	UPGRADE_COST_PERCENTAGE	CLASS_UPGRADE_STATUS_CODE
▶	1	ECONOMY-ECONOMY	NO CLASS UPGRADE		EE
	2	ECONOMY-BUSINESS	UPGRADE	15	EB
	3	ECONOMY-FIRST	UPGRADE	35	EF
	4	BUSINESS-BUSINESS	NO CLASS UPGRADE		BB
	5	BUSINESS-FIRST	UPGRADE	30	BF
	6	FIRST-FIRST	NO CLASS UPGRADE		FF

Booking_Transaction_Fact represents each ticket transaction that is booked by each passenger per each flight and what fare does he pay for. The Fare_Type_Description column represents the fare that is booked by each passenger through its six values (Economy Full Fare, Economy Discounted, Business Full Fare, Business Discounted, First Full Fare, First Discounted). The Price column represent the cost of each fare type. The Class_Upgrade_Status column shows us whether the passenger has upgrade his ticket or not. The Miles_Reward_Discount_Amount column has the redeem miles amount according to the class of the frequent flyer and the number of miles he has. So to calculate the final price after redeeming miles, you can subtract the Price column from the Miles_Reward_Discount_Amount column.

id	PASSENGER_KEY	FLIGHT_KEY	BOOKING_DATE	CHANNEL_KEY	CLASS_UPGRADE_STATUS_KEY	TICKET_NUMBER	MILES_REWARD_DISCOUNT_AMOUNT	FARE_TYPE_DESCRIPTION	PRICE
▶	2	1	1	3	2	2	0	ECONOMY, FULL FARE	25000
	4	1	1	1	1	3	0	ECONOMY, FULL FARE	25000
	1	2	3	1	1	4	0	ECONOMY, FULL FARE	10000
	5	2	2	1	4	5	0	BUSINESS, DISCOUNTED	12000
	4	2	2	1	1	6	4470	ECONOMY, DISCOUNTED	8000
	4	3	5	2	1	7	0	ECONOMY, FULL FARE	18000
	6	3	1	1	2	8	0	ECONOMY, DISCOUNTED	15000
	7	3	2	4	1	9	0	ECONOMY, FULL FARE	18000
	1	4	8	1	1	10	7315	ECONOMY, FULL FARE	23000
	2	4	9	4	6	11	0	FIRST, FULL FARE	60000
	8	4	2	4	1	12	0	ECONOMY, FULL FARE	23000
	9	5	7	3	1	13	0	ECONOMY, DISCOUNTED	5000
	1	5	7	3	4	14	3360	BUSINESS, DISCOUNTED	9500
	4	6	10	2	6	15	0	FIRST, FULL FARE	25000
	1	1	1	1	6	1	0	FIRST CLASS, FULL FARE	50000
	5	6	4	1	2	16	1500	ECONOMY, DISCOUNTED	7000

- Customer_Services_Dimension has the type of customer service activities that is monitored by the company to enhance their business process to satisfy their customers.

	CUSTOMER_SERV_KEY	CUSTOMER_SERV_ID	DESCRIPTION
▶	1	200	COMPLAINT
	2	300	CORONA RULES
	3	400	BAGGAGE
	6	600	UPGRADES
	7	700	REBOOKING
	8	800	GENERAL INQUIRIES
	9	900	FEEDBACK

- Channel_Dimension has the type of channel that is used by each passenger during booking.

	CHANNEL_KEY	CHANNEL_ID	CHANNEL_NAME
▶	1	1	APP
	2	2	PHONE
	3	3	WEBSITE
	4	4	OFFICE

- Flight_Dimension has all info about each flight.

- Customer_Rate_Fact represents the customer service activities done by each passenger and his satisfaction rate.

PASSENGER_KEY	FLIGHT_KEY	RATE_DATE	CUSTOMER_SERV_KEY	PROBLEM_SEVERITY_RATE	PASSENGER_SATISFACTION_RATE
1	1	3	3	10	2
1	1	1	2	3	9
1	2	3	8	1	10
1	4	8	2	3	10
2	1	3	3	10	2
2	4	10	7	2	2
4	1	3	3	10	2
4	6	11	8	4	7
5	2	2	2	3	10
5	6	6	6	5	8
6	3	2	2	4	10
7	3	6	2	5	9
1	1	2	9	10	1
2	1	2	9	10	1
4	1	2	9	10	1
1	2	5	9	1	10
4	2	5	9	1	10
5	2	5	9	2	9
4	3	9	9	3	7
6	3	9	9	2	10
7	3	10	9	1	10
9	5	10	9	1	9
1	5	10	9	1	9