**Marketing Team Analysis**

1. What flights the company’s frequent flyers take?

FROM CITY TO CITY:

WITH FLIGHTS

AS (SELECT ('FROM: ' || SRC.CITY || ' TO: ' || DEST.CITY) AS FLIGHT

FROM FREQUENTFLYERS FF

INNER JOIN AIRPORTDIM SRC

ON FF.SRCAIRPORTKEY = SRC.AIRPORTKEY

INNER JOIN AIRPORTDIM DEST

ON FF.DSTAIRPORTKEY = DEST.AIRPORTKEY

INNER JOIN DATEDIM DD ON

DD.DATEKEY = FF.RESERVATIONDATE

WHERE DD.YEAR > 2020)

SELECT FLIGHT, COUNT (\*) AS FREQUENCY FROM FLIGHTS

GROUP BY FLIGHT ORDER BY FREQUENCY DESC;

FROM CITY TO CITY:

WITH FLIGHTS

AS (SELECT ('FROM: ' || SRC.CITY || ' TO: ' || DEST.CITY) AS FLIGHT FROM FREQUENTFLYERS FF

INNER JOIN AIRPORTDIM SRC

ON FF.SRCAIRPORTKEY = SRC.AIRPORTKEY

INNER JOIN AIRPORTDIM DEST

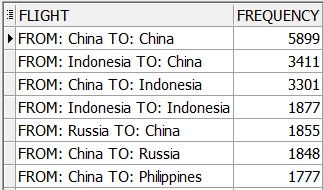
ON FF.DSTAIRPORTKEY = DEST.AIRPORTKEY

INNER JOIN DATEDIM DD ON

DD.DATEKEY = FF.RESERVATIONDATE

WHERE DD.YEAR > 2020)

SELECT FLIGHT, COUNT (\*) AS FREQUENCY

 FROM FLIGHTS GROUP BY FLIGHT

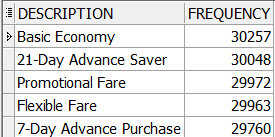
ORDER BY FREQUENCY DESC;

The most frequent flights among our frequent flyers are those between Madrid and Lisbon, Madrid and London, China and Indonesia, China and Russia.

1. What fare basis the company’s frequent flyers pay?

SELECT FB.DESCRIPTION, COUNT (\*) AS FREQUENCY

FROM FREQUENTFLYERS FF INNER JOIN FAREBASISDIM FB ON FF.FBKEY = FB.FBKEY

GROUP BY FB.DESCRIPTION

ORDER BY FREQUENCY DESC;

Our Frequent Flyers tend to pay Basic Economy fare basis.

1. How often our frequent flyers upgrade?

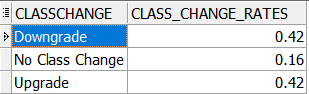
SELECT DISTINCT CLASS.CLASSCHANGE,

ROUND(COUNT (\*) OVER (PARTITION BY CLASS.CLASSCHANGE )

/ COUNT(\*) OVER (), 2) AS Class\_Change\_Rates

FROM FREQUENTFLYERS FF

INNER JOIN CLASSDIM CLASS ON FF.CLASSKEY = CLASS.CLASSKEY;

The upgrade rate for our frequent flyers is **42%.**

1. whether they respond to special fare promotions

A screenshot of a table

Description automatically generatedLet’s count the number of flights flown as a response to special fare promotions each year.

SELECT YEAR, COUNT (\*) FLIGHTS

FROM FREQUENTFLYERS FF

INNER JOIN FAREBASISDIM FB

ON FF.FBKEY = FB.FBKEY

INNER JOIN DATEDIM DD

ON DD.DATEKEY = FF.RESERVATIONDATE

WHERE FB.DESCRIPTION LIKE '%Promotional%'

GROUP BY DD.YEAR

ORDER BY YEAR;

As we can see, on average, 3000 flights are organized each year as a response to a special fare promotion.

1. How frequent flyers earn and redeem their frequent flyer miles?

* Flyer miles can be earned from or redeemed into any service provided by the company or any partner company.
* The second delivery of the project covers this matter in a more integrated and complete manner, while the first delivery only focuses on flight activity.
* So, what we can do is to show the countries to which frequent flyers tend to redeem and earn flyer miles.

Let’s start by seeing how much of the earned miles are earned from a bonus miles promotion.

WITH POINTS\_EARNED

AS (SELECT DISTINCT

PD.TYPE TYPE,

SUM (POINTSEARNED) OVER () AS TOTAL\_MILES\_EARNED,

SUM (POINTSEARNED) OVER (PARTITION BY PD.TYPE)

AS PROMOTION\_MILES\_EARNED

FROM FREQUENTFLYERS FF

INNER JOIN

PROMOTIONDIM PD

ON PD.PROMOTIONKEY = FF.PROMOTIONKEY)

SELECT TOTAL\_MILES\_EARNED,

PROMOTION\_MILES\_EARNED,

ROUND (PROMOTION\_MILES\_EARNED / TOTAL\_MILES\_EARNED, 2) RATIO

FROM POINTS\_EARNED

 WHERE TYPE = 'bonus miles';

* **17%** of frequent miles earned are earned from promoted flights.

Let’s see the routes from which frequent flyers redeem their frequent miles.

SELECT SRC.COUNTRY FROM\_, DEST.COUNTRY TO\_, SUM (POINTSEARNED) AS POINTS

FROM FREQUENTFLYERS FF

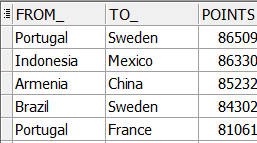
INNER JOIN AIRPORTDIM SRC

ON FF.SRCAIRPORTKEY = SRC.AIRPORTKEY

INNER JOIN AIRPORTDIM DEST

ON FF.DSTAIRPORTKEY = DEST.AIRPORTKEY

GROUP BY SRC.COUNTRY, DEST.COUNTRY ORDER BY POINTS DESC;

Most flyers miles redeemed on flights by company’s frequent flyers are redeemed as discount on flights from Portugal to Sweeden, From Indonesia to Mexico, From America to China, and so on.

1. How long frequent flyers’ overnight stays are?

Let’s calculate the average overnight stand duration for each frequent flyer.

* The grain for this fact table is each transit, and we calculate the overnight stand duration in as a derived attribute.
* It would go something like this:

SELECT FD.ACTUALDEPARTURETIME,

FD.ACTUALARRIVALTIME,

(LAG (ACTUALARRIVALTIME) -- Get the arrival time for previos flight

OVER (PARTITION BY RESERVATIONID\_#DD ORDER BY FD.ACTUALDEPARTURETIME)

- FD.ACTUALDEPARTURETIME)

AS OVERNIGHT\_HOURS

FROM FREQUENTFLYERS FF

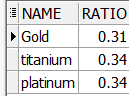
INNER JOIN FLIGHTDIM FD ON FF.FLIGHTKEY = FD.FLIGHTKEY;

Get The average overnight stand duration.

SELECT AVG (OVERNIGHTSTAND) HOURS

 FROM FREQUENTFLYERS;

The average overnight stand between transits is **12 hours.**

1. What proportion of these frequent flyers have gold, platinum or titanium status.

SELECT DISTINCT

SD.NAME,

ROUND (

COUNT (DISTINCT PASSENGERKEY) OVER (PARTITION BY SD.NAME)

/ COUNT (DISTINCT PASSENGERKEY) OVER (), 2) AS RATIO

FROM FREQUENTFLYERS FF

INNER JOIN STATUSDIM SD

ON FF.STATUSKEY = SD.STUTUSKEY;

**31%** Of Frequent flyers have **gold** status, **34%** **Titanium** & **Platinum**

**Finance Team Analysis**

* We provide services rather than products, so calculating profit from reservations (ticketing) is not doable.
* To calculate the profit, we must calculate the cost, and we only have operational cost.
* So, as the first delivery focuses only on flight activities, we will calculate revenue rather than profit and we will focus on profit in the second deliverable.

Let’s remind you that we have 2 kinds of revenues earned and unearned revenue, and our fact table only captures earned revenue by loading data using departure date instead of reservation data.

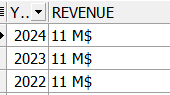
1. What is our yearly revenue over the past 10 years?

SELECT DD.YEAR,

ROUND (SUM (TOTALFARE - DISCOUNT) / 1000000) || ' M$' AS REVENUE

FROM RESERVATIONS RF INNER JOIN DATEDIM DD ON RF.DEPARTUREDATE = DD.DATEKEY

GROUP BY DD.YEAR

ORDER BY YEAR DESC;

On average, we achieve 11 M$ yearly from buying tickets.

Let’s look at our monthly revenue this year.

SELECT DD.MONTH,

ROUND (SUM (TOTALFARE - DISCOUNT) / 1000000) || ' M$' AS REVENUE

FROM RESERVATIONS RF INNER JOIN DATEDIM DD ON RF.DEPARTUREDATE = DD.DATEKEY

WHERE YEAR = 2024

GROUP BY DD.MONTHA table with numbers and letters

Description automatically generated ORDER BY MONTH;

Our average monthly sales this year is 1 M$

1. Revenue per reservation channel.

SELECT CD.NAME, ROUND (SUM (TOTALFARE - DISCOUNT) / 1000000) || ' M$' REVENUE

FROM RESERVATIONS RF

A table with numbers and words

Description automatically generated INNER JOIN

CHANNELDIM CD

ON RF.CHANNELKEY = CD.CHANNELKEY

GROUP BY CD.NAME

ORDER BY REVENUE DESC;

1. What is our yearly revenue in each country?

SELECT DD.YEAR,

AD.COUNTRY,

ROUND (SUM (TOTALFARE - DISCOUNT) / 1000) || ' K$' AS REVENUE

FROM RESERVATIONS RF

INNER JOIN DATEDIM DD

ON RF.DEPARTUREDATE = DD.DATEKEY

INNER JOIN AIRPORTDIM AD

ON AD.AIRPORTKEY = RF.SRCAIRPORTKEY

A table with black text

Description automatically generatedGROUP BY DD.YEAR, COUNTRY

ORDER BY YEAR DESC, REVENUE DESC;

It looks like out business is vital in Asia, especially China and Indonesia.

1. What is our top performing year?

SELECT DD.YEAR,

ROUND (SUM (TOTALFARE - DISCOUNT) / 1000) || ' K$' AS REVENUE

FROM RESERVATIONS RF

INNER JOIN DATEDIM DD

ON RF.DEPARTUREDATE = DD.DATEKEY

GROUP BY DD.YEAR

A screenshot of a graph

Description automatically generatedORDER BY REVENUE DESC;

Numbers are close for each year.

1. What are our top selling months?

SELECT DD.MONTH,

ROUND (SUM (TOTALFARE - DISCOUNT) / 1000) || ' K$' AS REVENUE

FROM RESERVATIONS RF

A table with numbers and letters

Description automatically generated INNER JOIN DATEDIM DD

ON RF.DEPARTUREDATE = DD.DATEKEY

GROUP BY DD.MONTH

ORDER BY SUM (TOTALFARE - DISCOUNT) DESC;

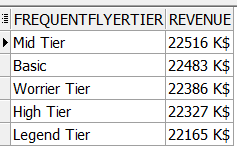
Our services are most popular during the first quarter of the year.

1. Which Customer Tier is most valuable?

SELECT PPD.FREQUENTFLYERTIER,

ROUND (SUM (TOTALFARE - DISCOUNT) / 1000) || ' K$' AS REVENUE

FROM RESERVATIONS RF

**** INNER JOIN

PASSENGERPROFILEDIM PPD

ON PPD.PROFILEKEY = RF.PROFILEKEY

GROUP BY FREQUENTFLYERTIER

ORDER BY REVENUE DESC;

1. What is our most profitable booking Channel?

SELECT CD.NAME,

ROUND (SUM (TOTALFARE - DISCOUNT) / 1000) || ' K$' AS REVENUE

**A screenshot of a computer

Description automatically generated** FROM RESERVATIONS RF

INNER JOIN

CHANNELDIM CD

USING(CHANNELKEY)

GROUP BY NAME

ORDER BY Revenue DESC;

1. What is our most valuable class?

SELECT CD.CLASSFLOWN,

ROUND (SUM (TOTALFARE - DISCOUNT) / 1000) || ' K$' AS REVENUE

**A table with numbers and words

Description automatically generated** FROM RESERVATIONS RF

INNER JOIN

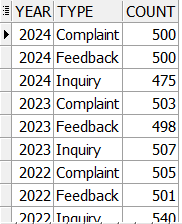
CLASSDIM CD

USING(CLASSKEY)

GROUP BY CLASSFLOWN ORDER BY REVENUE DESC;

**Customer Support Team Analysis**

1. On Average, how many complaints, inquiries, feedback do we get receive each year?

 SELECT YEAR, ID.TYPE, COUNT (\*) COUNT

FROM CUSTOMERCARE CCF

INNER JOIN INTERACTION ID

ON CCF.INTERACTIONKEY = ID.INTERACTIONKEY

INNER JOIN DATEDIM DD

ON DD.DATEKEY = CCF.SUBMISSIONDATE

GROUP BY TYPE, YEAR

ORDER BY YEAR DESC;

1. Do we receive severe complaints frequently?

SELECT ID.SEVERITY, COUNT (\*) COUNT

FROM CUSTOMERCARE CCF

INNER JOIN

INTERACTION ID

A screenshot of a computer

Description automatically generated ON CCF.INTERACTIONKEY = ID.INTERACTIONKEY

WHERE TYPE = 'Complaint'

GROUP BY ID.SEVERITY

ORDER BY COUNT DESC;

Most of the complaint has a non-critical severity.

1. On average, how long does it take for us to respond to the customer's interaction?

SELECT AVG (RESPONDEDELAY) AS MINUTES FROM CUSTOMERCARE;

On average, it takes us **35 minutes** to respond to the customer, but are we trying to improve this?

SELECT YEAR, AVG (RESPONDEDELAY) AS MINUTES

FROM CUSTOMERCARE CC

INNER JOIN

DATEDIM DM

ON CC.SUBMISSIONDATE = DM.DATEKEY

GROUP BY YEAR ORDER BY YEAR DESC;

A screenshot of a computer

Description automatically generatedThe waiting time for each customer to get a response is the same over the past 10 years, meaning that we are not trying to improve customer satisfaction.

1. A screenshot of a computer

   Description automatically generatedOn average, how long does it take for us to resolve a customer’s complaint?

SELECT YEAR, AVG (RESOLUTIONDELAY) AS MINUTES

FROM CUSTOMERCARE CC

INNER JOIN DATEDIM DM

ON CC.RESOLUTIONDATE= DM.DATEKEY

INNER JOIN INTERACTION ID

ON ID.INTERACTIONKEY = CC.INTERACTIONKEY

WHERE ID.TYPE = 'Complaint'

GROUP BY YEAR

ORDER BY YEAR DESC;

On average it takes us 30 – 35 minutes to resolve customers’ issues, but what is more important is that the waiting time has decreased for the current year.

1. Which booking channel received the most complaints?

SELECT CD.NAME CHANNEL, COUNT (\*) COMPLAINTS

FROM CUSTOMERCARE CC

INNER JOIN DATEDIM DM

ON CC.SUBMISSIONDATE = DM.DATEKEY

INNER JOIN INTERACTION ID

ON ID.INTERACTIONKEY = CC.INTERACTIONKEY

INNER JOIN CHANNELDIM CD

A screenshot of a phone number

Description automatically generated USING (CHANNELKEY)

WHERE ID.TYPE = 'Complaint'

GROUP BY CD.NAME

ORDER BY COMPLAINTS DESC;

It looks like we have problems on our website, we need to hire an ITI Graduate full stack developer!

**Flight Activity Analysis**

1. How many flights the company organize each year?

SELECT YEAR, COUNT (\*) FLIGHTS

FROM FLIGHTACTIVITY FA

INNER JOIN

DATEDIM DM

A screenshot of a computer

Description automatically generated ON FA.SCHEDULEDDEPDATEKEY = DM.DATEKEY

GROUP BY YEAR

ORDER BY YEAR DESC;

The company organizes an average of 10K flights each year.

1. Monthly flights organized by the company this year.

SELECT MONTH, COUNT (\*) FLIGHTS

FROM FLIGHTACTIVITY FA

INNER JOIN

DATEDIM DM

ON FA.SCHEDULEDDEPDATEKEY = DM.DATEKEY

WHERE YEAR = 2024

GROUP BY MONTH

ORDER BY MONTH;

**A table with numbers and text

Description automatically generated**Our performance is steady this year with an average of 800 flights each month.

1. Our most popular routes.

WITH FLIGHTS

AS (SELECT ('FROM: ' || SRC.CITY || ' TO: ' || DEST.CITY) AS FLIGHT

FROM FLIGHTACTIVITY FA

INNER JOIN AIRPORTDIM SRC

ON FA.SRCAIRPORTKEY = SRC.AIRPORTKEY

INNER JOIN AIRPORTDIM DEST

ON FA.DSTAIRPORTKEY = DEST.AIRPORTKEY)

SELECT FLIGHT, COUNT (\*) AS FREQUENCY

FROM FLIGHTS

GROUP BY FLIGHT

ORDER BY FREQUENCY DESC;

**A screenshot of a computer

Description automatically generated**

Our most popular routes are flights between China and Indonesia and also between China and Russia.

1. What are the average empty seats count per flight each year?

SELECT YEAR, ROUND (AVG (EMPTYSEATS)) AS SEATS

FROM FLIGHTACTIVITY FA

A screenshot of a calendar

Description automatically generated INNER JOIN

DATEDIM DM

ON FA.ACTUALARRDATEKEY = DM.DATEKEY

GROUP BY YEAR

ORDER BY YEAR DESC;

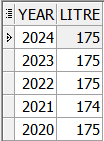
On average we have 15 empty seats available on each flight!

1. What is our average yearly fuel consumption?

SELECT YEAR, ROUND (AVG (FUELCONSUMPTION)) AS LITRE

FROM FLIGHTACTIVITY FA

INNER JOIN

 DATEDIM DM

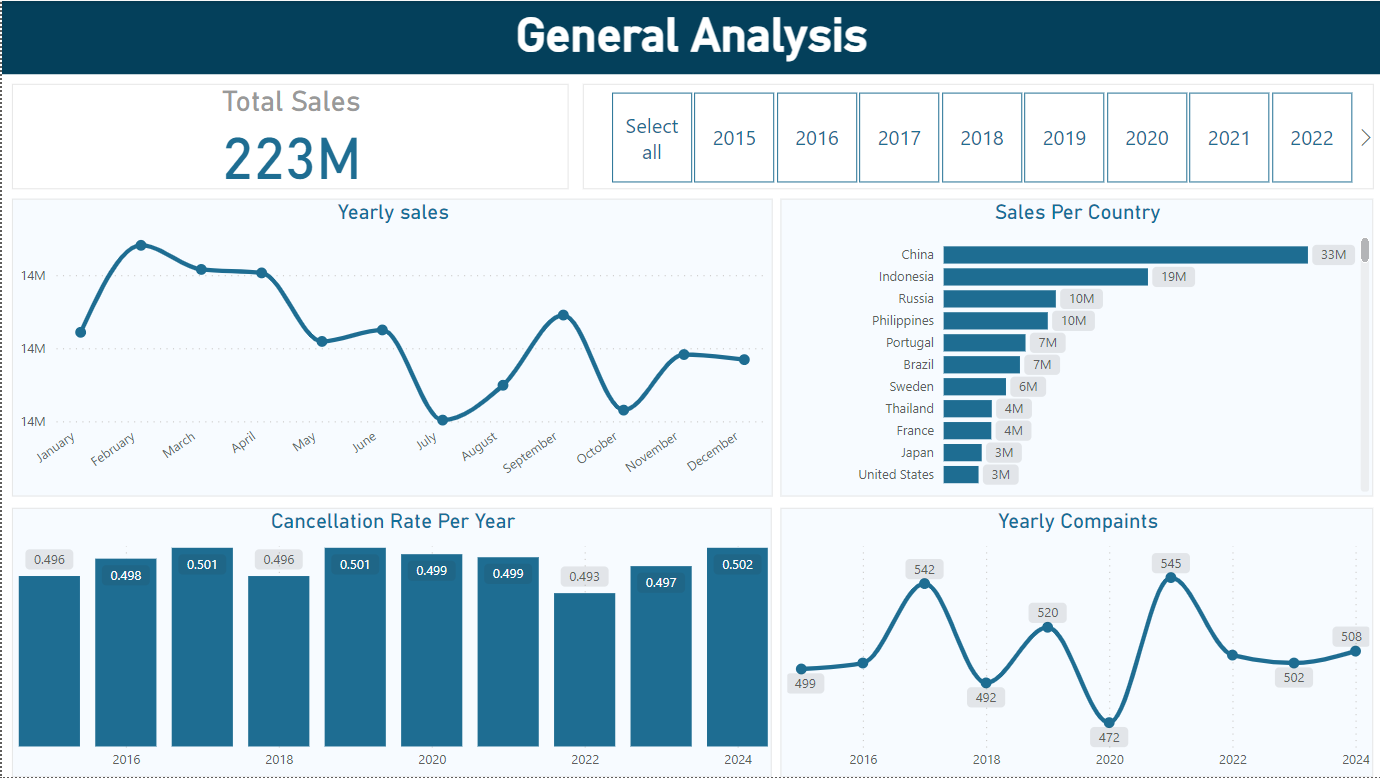
ON FA.ACTUALARRDATEKEY = DM.DATEKEY

GROUP BY YEAR

ORDER BY YEAR DESC;

On average each flight uses 175-liter fuel.

**Dashboards**

We have decided to build an interactive PowerBI Dashboard on top of the DWH.

