

AIRLINE PASSENGER SATISFACTION SYSTEM

TEAM QATAR

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PROJECT DESCRIPTION

This is an Airline Passenger Satisfaction Database Management System and Design Project. customer feedback and customer reviews play a crucial role in determining the quality of service, and products for any company or business. Through the influx of data in the form of reviews and feedback, organizations can perform insightful analyses and improvise on their deliverables to their customers.

The Airline Industry encompasses a huge customer base and the reviews and feedback collected from their passengers are very important in improvising their service.

This project aims to retrieve data related to airline customer feedback for different airlines. The retrieval of data is based on the services provided by the airlines and the rating provided for factors such as

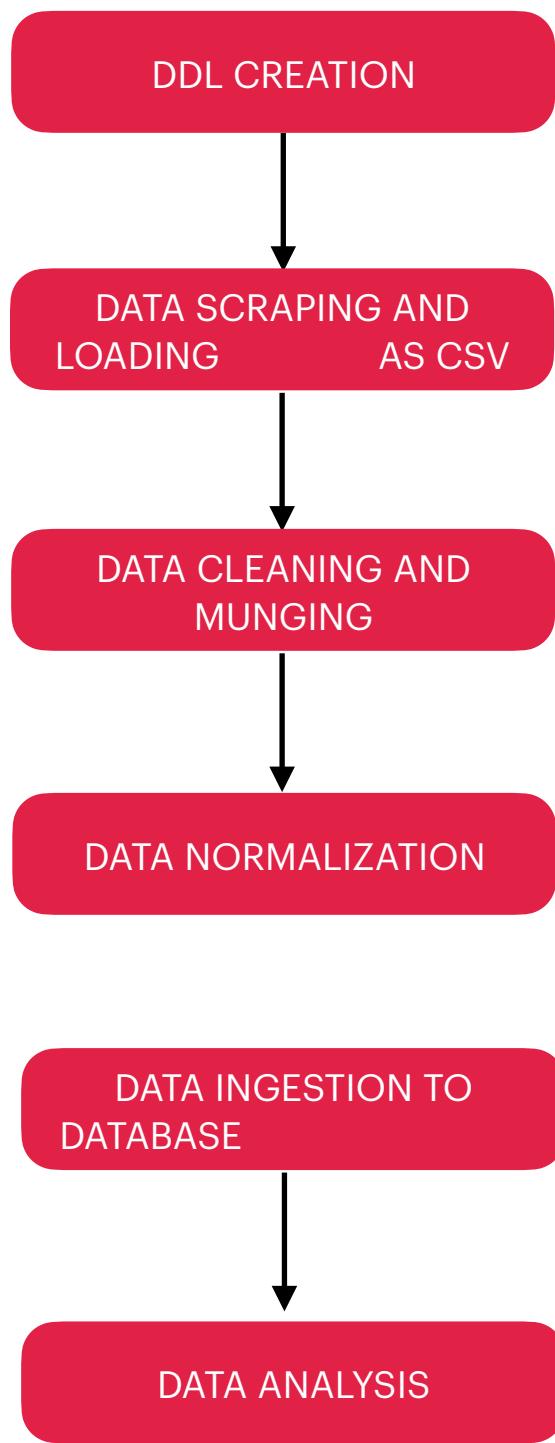
- Seat comfort
- On-ground service
- Food
- Entertainment
- Wifi
- Value for money

Apart from the airline passenger review, the database design also contains information related to the flights and their aircraft information such as capacity, flight number, etc.

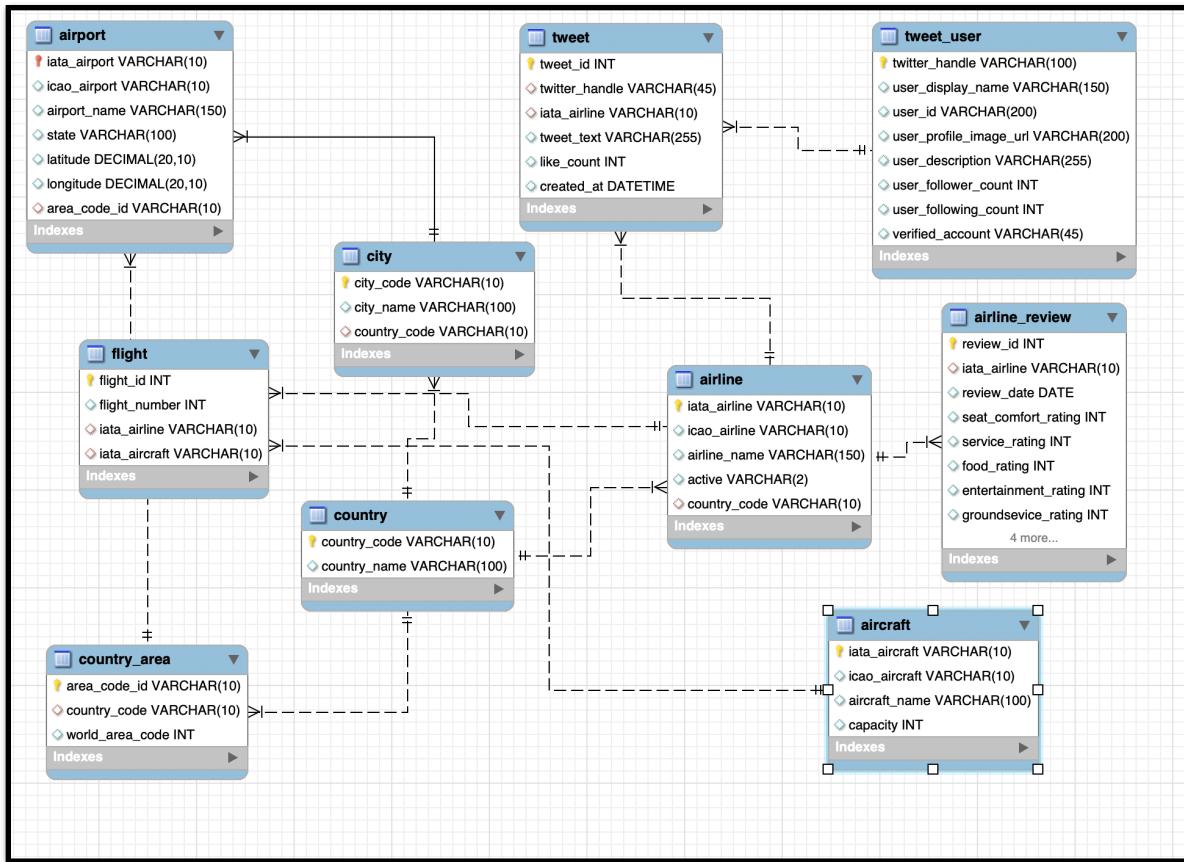
This database is designed to analyze airline passenger reviews and associate and compare customer ratings across the ten airlines for different factors as mentioned above.

We also extracted the tweets containing the airline reviews to further analyze the number of likes obtained for a particular airline review posted by a twitter user and analyzed the same.

PROJECT FLOW



RELATIONAL DATA-BASE SCHEMA



STEPS FOLLOWED

1. DATABASE DESIGN AND CREATION

1. Table Name: Country

Description: This table stores the Country name and their county codes

Primary Key: country_code

Foreign Key: -

SL NO.	FIELDS	DATA TYPE	SIZE	CONSTRAINTS	DESCRIPTION
1	country_code	VARCHAR	(10)	PRIMARY KEY, NOT NULL	A code which is unique for every country
2	country_name	VARCHAR	(100)		Name of the country

2. **Table Name:** country_area

Description: This table stores the Country code and their world area code

Primary Key: area_code_id

Foreign Key: country_code

SL NO.	FIELDS	DATA TYPE	SIZE	CONSTRAINTS	DESCRIPTION
1	area_code_id	VARCHAR	(10)	PRIMARY KEY, NOT NULL	A unique combination generated from the country code and its world area
2	country_code	VARCHAR	(100)		A code which is It unique for every country
3	world_area_code	INT		NOT NULL	a usually 3-digit number that identifies a particular telephone service area in a country

3. **Table Name:** city

Description: This table stores the city details

Primary Key: city_code

Foreign Key: country_code

SL NO.	FIELDS	DATA TYPE	SIZE	CONSTRAINTS	DESCRIPTION
1	city_code	VARCHAR	(10)	PRIMARY KEY, NOT NULL	A code which is It unique for every state
2	city_name	VARCHAR	(100)		Name of the city
3	country_code	VARCHAR		FOREIGN KEY	A code which is It unique for every country

4. **Table Name:** airport

Description: This table stores the airport details

Primary Key: iata_airport

Foreign Key: iata_airport, area_code_id

SL NO.	FIELDS	DATA TYPE	SIZE	CONSTRAINTS	DESCRIPTION
1	iata_airport	VARCHAR	(10)	PRIMARY KEY, NOT NULL	A code which is It unique for every state

SL NO.	FIELDS	DATA TYPE	SIZE	CONSTRAINTS	DESCRIPTION
2	icao_airport	VARCHAR	(100)		Name of the city
3	airport_name	VARCHAR	(150)	NOT NULL	A code which is unique for every country
4	state	VARCHAR	(100)		Name of the state
5	latitude	DECIMAL	(20,10)		Latitude is the measurement of distance north or south of the Equator
6	longitude	DECIMAL	(20,10)		measures distance east or west of the prime meridian.
7	area_code_id	VARCHAR	(10)	FOREIGN KEY	A unique combination generated from the country code and its world area

5. **Table Name:** airline

Description: This table stores the airline details

Primary Key: iata_airline

Foreign Key: country_code

SL NO.	FIELDS	DATA TYPE	SIZE	CONSTRAINTS	DESCRIPTION
1	iata_airline	VARCHAR	(10)	PRIMARY KEY, NOT NULL	Two-character codes assigned by the International Air Transport Association (IATA) to the world's airlines.
2	icao_airline	VARCHAR	(10)		A code assigned by the International Civil Aviation Organization (ICAO) to aircraft operating agencies, aeronautical authorities, and services related to international aviation
3	airline_name	VARCHAR	(150)	NOT NULL	Name of the airline
4	active	VARCHAR	(2)		Current airline working status
5	country_code	VARCHAR	(10)	FOREIGN KEY	A code which is unique for every country

6. **Table Name:** airline_review

Description: This table stores the airline reviews and ratings

Primary Key: review_id

Foreign Key: iata_airline

SL NO.	FIELDS	DATA TYPE	SIZE	CONSTRAINTS	DESCRIPTION
1	review_id	INT		PRIMARY KEY, NOT NULL	Auto generated review ID
2	iata_airline	VARCHAR	(10)	FOREIGN KEY	Two-character codes assigned by the International Air Transport Association (IATA) to the world's airlines.
3	review_title	VARCHAR	(200)		Title of the review
4	review_date	DATE			Review Date
5	seat_comfort_rating	INT			A code which is unique for every country
6	service_rating	INT			Rating given between 1 to 5
7	food_rating	INT			Rating given between 1 to 5
8	entertainment_rating	INT			Rating given between 1 to 5
9	groundservice_rating	INT			Rating given between 1 to 5
10	wifi_rating	INT			Rating given between 1 to 5
11	value_rating	INT			Rating given between 1 to 5
12	overall_score	INT			Rating given between 1 to 5
13	recommended	INT			Rating given between 1 to 5

7. **Table Name:** aircraft

Description: This table stores the aircraft information

Primary Key: iata_aircraft

Foreign Key: -

SL NO.	FIELDS	DATA TYPE	SIZE	CONSTRAINTS	DESCRIPTION
1	iata_aircraft	VARCHAR	(10)	PRIMARY KEY, NOT NULL	A code assigned by the International Civil Aviation Organization (ICAO) to aircraft operating agencies, aeronautical authorities, and services related to international aviation

SL NO.	FIELDS	DATA TYPE	SIZE	CONSTRAINTS	DESCRIPTION
2	icao_aircraft	VARCHAR	(10)		A code assigned by the International Civil Aviation Organization (ICAO) to aircraft operating agencies, aeronautical authorities, and services related to international aviation
3	aircraft_name	VARCHAR	(150)	NOT NULL	Name of the airline
4	capacity	VARCHAR	(2)		Current airline working status

8. **Table Name:** flight

Description: This table stores the flight information

Primary Key: flight_id

Foreign Key: iata_airline

SL NO.	FIELDS	DATA TYPE	SIZE	CONSTRAINTS	DESCRIPTION
1	flight_id	INT		PRIMARY KEY, NOT NULL	Auto generated review ID
2	flight_number	INT			Number of the flight flown by an airline
3	iata_airline	VARCHAR	(10)		Two-character codes assigned by the International Air Transport Association (IATA) to the world's airlines.
4	iata_aircraft	VARCHAR	(10)		A code assigned by the International Civil Aviation Organization (ICAO) to aircraft operating agencies, aeronautical authorities, and services related to international aviation

9. **Table Name:** tweet_user

Description: This table stores the information of the tweet users

Primary Key: twitter_handle

Foreign Key: -

SL NO.	FIELDS	DATA TYPE	SIZE	CONSTRAINTS	DESCRIPTION
1	twitter_handle	VARCHAR	(45)	PRIMARY KEY, NOT NULL	Auto generated review ID

SL NO.	FIELDS	DATA TYPE	SIZE	CONSTRAINTS	DESCRIPTION
2	user_display_name	VARCHAR	(10)		The screen name, handle, or alias that this user identifies themselves with
3	user_id	VARCHAR	(200)		The string representation of the unique identifier for this User
4	user_profile_image_url	VARCHAR			A HTTPS-based URL pointing to the user's profile image
5	user_description	VARCHAR			The user-defined UTF-8 string describing their account
6	user_follower_count	INT			The number of followers this account currently has.
7	user_following_count	INT			The number of followers this account is following
8	verified_account	VARCHAR	(45)		When true, indicates that the user has a verified account

10. Table Name: tweet

Description: This table stores the information of the tweets posted by the user

Primary Key: twitter_id

Foreign Key: twitter_handle

SL NO.	FIELDS	DATA TYPE	SIZE	CONSTRAINTS	DESCRIPTION
1	tweet_id	VARCHAR	(100)	PRIMARY KEY, NOT NULL	The integer representation of the unique identifier for this Tweet
2	twitter_handle	VARCHAR	(45)	FOREIGN KEY	The screen name, handle, or alias that this user identifies themselves with
3	iata_airline	VARCHAR	(10)		Two-character codes assigned by the International Air Transport Association (IATA) to the world's airlines.
4	tweet_text	TEXT			The actual UTF-8 text of the status update
5	like_count	INT			Number of likes received for the tweet IDs

SL NO.	FIELDS	DATA TYPE	SIZE	CONSTRAINTS	DESCRIPTION
6	created_at	DATETIME			UTC time when this Tweet was created

2. DATA SCRAPPING

Sources used for scrapping airlines data

Source	Type
Kayak	Website (kayak)
Datasets(txt,csv) from Kaggle etc	File
Twitter	API
Skytrax	Website

PROCEDURE:

1. Created a Scrapping Bot to scrape the tweets using the Twitter API for relevant airlines and used scripted a python code to scrape the airline details and reviews from the Skytrax website using the Jupyter Notebook. Data for passenger reviews extracted from Skytrax Website.
2. Python script is written in Jupyter notebook to extract data using the following python libraries
 1. Snscreape
 2. Beautiful Soup
 3. Scrapy
 4. Selenium
3. After the extraction of the data from the websites they were stored as CSV files.
4. Flight table was populated using INSERT SCRIPTS

```
#INSERT FLIGHT DATA
```

```
• USE airline_passenger_system;
• INSERT INTO flight(flight_number, iata_airline, iata_aircraft) VALUES(576, "AF", "340");
• INSERT INTO flight(flight_number, iata_airline, iata_aircraft) VALUES(476, "BA", "732");
• INSERT INTO flight(flight_number, iata_airline, iata_aircraft) VALUES(366, "QR", "734");
• INSERT INTO flight(flight_number, iata_airline, iata_aircraft) VALUES(898, "LH", "AB3");
• INSERT INTO flight(flight_number, iata_airline, iata_aircraft) VALUES(898, "EK", "A40");
• INSERT INTO flight(flight_number, iata_airline, iata_aircraft) VALUES(898, "AA", "AB6");
• INSERT INTO flight(flight_number, iata_airline, iata_aircraft) VALUES(898, "NH", "AB3");
• INSERT INTO flight(flight_number, iata_airline, iata_aircraft) VALUES(898, "QF", "ATP");
• INSERT INTO flight(flight_number, iata_airline, iata_aircraft) VALUES(898, "LS", "A40");
• INSERT INTO flight(flight_number, iata_airline, iata_aircraft) VALUES(898, "SQ", "AB3");
• INSERT INTO flight(flight_number, iata_airline, iata_aircraft) VALUES(898, "TK", "732");
```

CSV FILES SAVED AFTER EXTRACTION

Name	Date Modified	Size	Kind
air-france.csv	Today at 8:12 PM	156 KB	CSV Document
ana-all-nippon-airways.csv	Today at 8:12 PM	86 KB	CSV Document
british-airways.csv	Today at 8:12 PM	172 KB	CSV Document
emirates.csv	Today at 8:12 PM	168 KB	CSV Document
japan-airlines.csv	Today at 8:12 PM	58 KB	CSV Document
korean-air.csv	Today at 8:12 PM	73 KB	CSV Document
qantas-airways.csv	Today at 8:12 PM	167 KB	CSV Document
qatar-airways.csv	Today at 8:12 PM	174 KB	CSV Document
reviews.csv	Today at 8:12 PM	1.3 MB	CSV Document
singapore-airlines.csv	Today at 8:12 PM	176 KB	CSV Document
swiss-international-air-lines.csv	Today at 8:12 PM	157 KB	CSV Document
turkish-airlines.csv	Today at 8:12 PM	175 KB	CSV Document

3. DATA CLEANING, MUNGING, AND VISUALIZATION

1. Python Scripts written in Jupyter notebook using Pandas for cleaning the airline data scrapped.

```
1 #REMOVING THE DUPLICATE VALUES
2
3 df_airline_reviews = df_airline_reviews.drop_duplicates(keep='first')
4 display(df_airline_reviews)
5 print(len(df_airline_reviews))
```

airline_name	overall_score	review_title	reviewer_country	review_date	aircraft_model	travel_type	seat_type	route	date_flown	seat_comfort_rate
output; double click to hide	4.0	"return flight was changed so many times"	(New Caledonia)	9th May 2022	NaN	Couple Leisure	Economy Class	Paris to Amsterdam	May 2022	
1	air france	10.0	"Plane was spotless"	(New Caledonia)	5th May 2022	NaN	Solo Leisure	Economy Class	Paris to Lyon	May 2022

```

1 #REGEX FUNCTION DEFINED TO REMOVE SPECIAL CHARACTERS
2
3 def stripChar(x):
4     try:
5         return re.sub("[()\"]","",x)
6     except:
7         return np.nan
8
9

```

```

1 #REMOVING THE SPECIAL CHARS FROM ALL THE COLUMNS
2
3 df_airline_reviews.review_title = df_airline_reviews.review_title.apply(lambda x: stripChar(x))
4 df_airline_reviews.reviewer_country = df_airline_reviews.reviewer_country.apply(lambda x: stripChar(x))
5 display(df_airline_reviews)

```

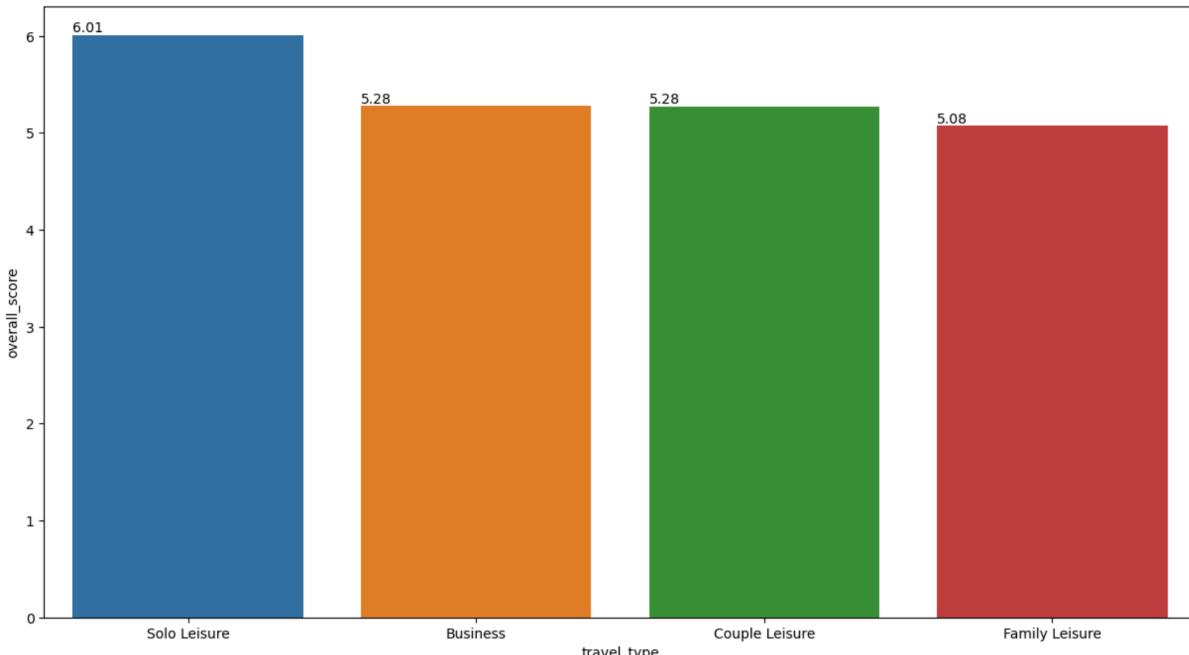
	airline_name	overall_score	review_title	reviewer_country	review_date	aircraft_model	travel_type	seat_type	route	date_flown	seat_comfort_rat
1	air france	10.0	Plane was spotless	New Caledonia	5th May 2022	NaN	Solo Leisure	Economy Class	Paris to Lyon	May 2022	
2	air france	1.0	got nothing but the run around	New Caledonia	19th April 2022	NaN	Solo Leisure	Economy Class	NaN	September 2021	

2. Data Visualization charts were obtained using marplot lib and wordcloud.

```

1 #overall score for each travel type
2
3 Seat = df_airline_reviews.groupby('travel_type')['overall_score'].mean().reset_index().sort_values(by = 'overall_
4 import seaborn as sns
5 fig, ax = plt.subplots(figsize=(15,8))
6 sns.barplot(x="travel_type", y="overall_score", data=Seat, ax=ax)
7 # ax.set_xticklabels(ax.get_xticklabels(), rotation = 90)
8 for p in ax.patches:
9     ax.annotate("%0.2f"% (p.get_height()), (p.get_x(), p.get_height() * 1.005))
10 plt.show()
11

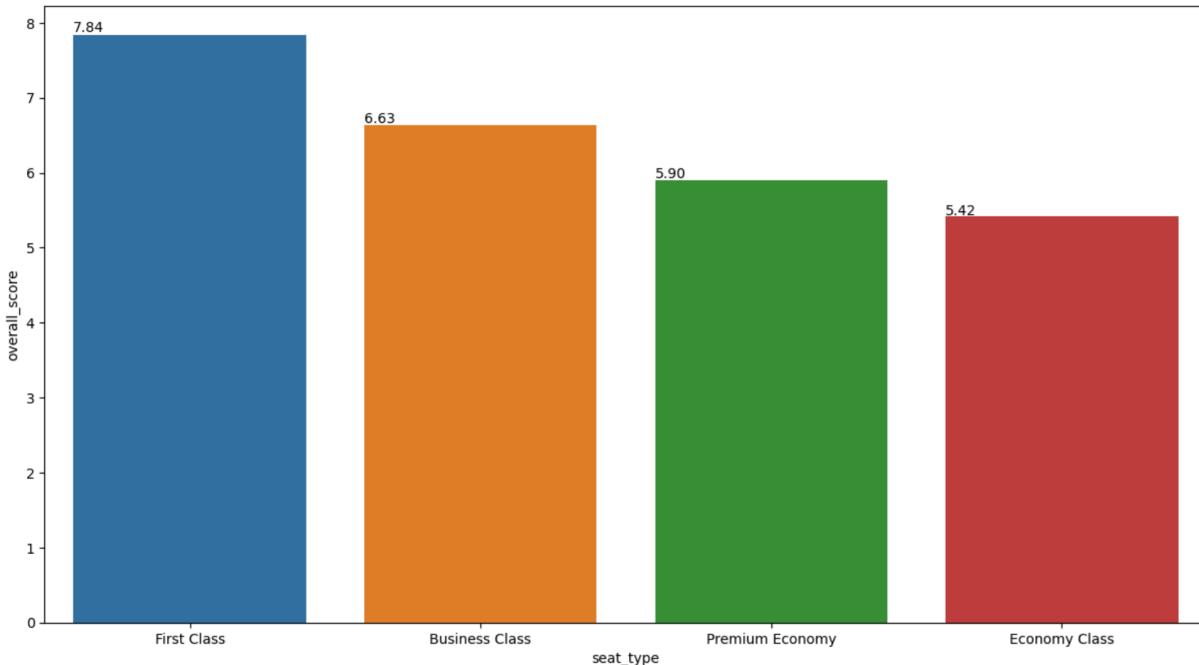
```



```

1 #OVERALL SCORE GIVEN FOR EACH SEAT TYPE
2
3 Seat = df_airline_reviews.groupby('seat_type')['overall_score'].mean().reset_index().sort_values(by = 'overall_s
4 import seaborn as sns
5 fig, ax = plt.subplots(figsize=(15,8))
6 sns.barplot(x="seat_type", y="overall_score", data=Seat, ax=ax)
7 # ax.set_xticklabels(ax.get_xticklabels(), rotation = 90)
8 for p in ax.patches:
9     ax.annotate("%0.2f"% (p.get_height()), (p.get_x(), p.get_height() * 1.005))
10 plt.show()

```



```

1 #WORD ANALYTICS DONE FOR JAPAN AIRLINES FROM ITS REVIEWS
2
3 stopJapan = ['airline_name']
4 df_Japan = df_airline_reviews[df_airline_reviews['airline_name']=='Japan Airlines']
5 df_Japan.review_title = df_airline_reviews.review_title.apply(lambda x: " ".join(x for x in x.split() if x not in
6 wc = WordCloud(background_color="white", max_words=300, width=1000, height=600)
7 # generate word cloud
8 wc.generate(' '.join(df_Japan['review_title']))
9 plt.figure(figsize=(12, 6))
10 plt.imshow(wc, interpolation='bilinear')
11 plt.axis("off")
12 plt.show()
13

```



DATA NORMALIZATION

TABLE: MAIN MERGED TABLE

FORM: 1 NF

	iata_airport	icao_airport	airport_name	state	latitude	longitude	city_name	country_name	country_code	world_area_code	area_name
0	SHJ	OMSJ	Sharjah International Airport	Ash Sharqah	25.328600	55.517200	Sharjah	United Arab Emirates	AE	678	Emirates
1	AZI	OMAD	Al Bateen Executive Airport	Abu Zaby	24.428301	54.458099	Abu Dhabi	United Arab Emirates	AE	678	Emirates
2	FJR	OMFJ	Fujairah International Airport	Al Fujayrah	25.112200	56.324001	Al-Fujairah	United Arab Emirates	AE	678	Emirates
3	RKT	OMRK	Ras Al Khaimah International Airport	Ra's al Khaymah	25.613501	55.938801	Ras Al Khaimah	United Arab Emirates	AE	678	Emirates
4	DHF	OMAM	Al Dhafra Air Base	Abu Zaby	24.248199	54.547699	Abu Dhabi	United Arab Emirates	AE	678	Emirates

TABLE 1: COUNTRY TABLE

FORM: 3 NF

Primary Key: country_code

	country_code	country_name
0	AE	United Arab Emirates
9	AF	Afghanistan
35	AG	Antigua and Barbuda

TABLE 2: CITY TABLE

FORM: 3 NF

Primary Key: city_code

Foreign Key: country_code

	city_code	city_name	country_code
0	SHJ	Sharjah	AE
1	AZI	Abu Dhabi	AE
2	FJR	Al-Fujairah	AE
3	RKT	Ras Al Khaimah	AE

TABLE 3: COUNTRY AREA TABLE

1. A new column was added to the main table to obtain the primary key combination for the table country area code
2. `merge_df['area_code_id'] = merge_df['country_code']+merge_df['world_area_code']`

	iata_airport	icao_airport	airport_name	state	latitude	longitude	city_name	country_name	country_code	world_area_code	area_code_id
0	SHJ	OMSJ	Sharjah International Airport	Ash Sharqah	25.328600	55.517200	Sharjah	United Arab Emirates	AE	678	AE678
1	AZI	OMAD	Al Bateen Executive Airport	Abu Zaby	24.428301	54.458099	Abu Dhabi	United Arab Emirates	AE	678	AE678
2	FJR	OMFJ	Fujairah International Airport	Al Fujayrah	25.112200	56.324001	Al-Fujairah	United Arab Emirates	AE	678	AE678
3	RKT	OMRK	Ras Al Khaimah International Airport	Ra's al Khaymah	25.613501	55.938801	Ras Al Khaimah	United Arab Emirates	AE	678	AE678

OUTPUT DATA FRAME

NORMALIZED FORM

Primary Key: area_code_id

Foreign Key: country_code

	country_code	world_area_code	area_code_id
0	AE	678	AE678
5	AE	971	AE971
9	AF	701	AF701
35	AG	206	AG206
37	AI	202	AI202

TABLE 4: AIRPORT TABLE

Primary Key: iata_airport

Foreign Key: area_code_id

	iata_airport	icao_airport	airport_name	state	latitude	longitude	area_code_id
0	FAH	OAFR	Farah Airport	Farah	32.367001	62.182999	AF701
1	MMZ	OAMN	Maymana Airport	Faryab	35.930801	64.760902	AF701
2	KWH	OAHN	Khwahan Airport	Badakhshan	37.882999	70.217003	AF701
3	SBF	OADS	Sardeh Band Airport	Ghazni	33.320702	68.636498	AF701

TABLE 5: AIRLINES TABLE

FORM: 2NF

[country name is redundant, so we just link it with the country table primary key country_code]

	airline_name	iata_airline	icao_airline	country_name	active	country_code
0	1Time Airline	1T	RNX	South Africa	Y	ZA
1	Comair	MN	CAW	South Africa	Y	ZA
2	Interlink Airlines	ID	ITK	South Africa	Y	ZA
3	Mango	JE	MNO	South Africa	Y	ZA
4	Nationwide Airlines	CE	NTW	South Africa	Y	ZA

2NF

Form

After Normalization into 3NF

Primary Key: iata_airline

Foreign Key: country_code

	airline_name	iata_airline	icao_airline	active	country_code
0	1Time Airline	1T	RNX	Y	ZA
1	Comair	MN	CAW	Y	ZA
2	Interlink Airlines	ID	ITK	Y	ZA
3	Mango	JE	MNO	Y	ZA

The airlines reviews table was generated after creating CSV files from the data scrapped for ten airlines from the Skytrax website

Dataframe created for all the scrapped data CSVs

	airline_name	overall_score	review_title	reviewer_country	review_date	aircraft_model	travel_type	seat_type	route	date_flown	seat_comfort_rat
1	air france	10.0	Plane was spotless	New Caledonia	2022-05-05	NaN	Solo Leisure	Economy Class	Paris to Lyon	May 2022	
2	air france	1.0	got nothing but the run around	New Caledonia	2022-04-19	NaN	Solo Leisure	Economy Class	NaN	September 2021	
3	air france	2.0	would not recommend	New Caledonia	2022-04-15	NaN	Family Leisure	Economy Class	Tel Aviv to Toronto via Paris	April 2022	
4	air france	1.0	didn't bother to put my bag on the aircraft	New Caledonia	2022-04-06	A319	Business	Economy Class	Paris to Newcastle	April 2022	

seat_comfort_rating	service_rating	food_rating	entertainment_rating	groundservice_rating	wifi_rating	value_rating	recommended
5	5	5	0	5	0	5	1
0	0	0	0	0	0	1	0
3	1	2	3	1	4	1	0
1	1	1	0	1	1	1	0
4	4	4	4	2	4	3	1

TABLE 6: AIRLINES REVIEWS TABLE

Primary Key: airline_review_id —> Auto Incremented
 Foreign Key: iata_airline

iata_airline	review_title	review_date	seat_comfort_rating	service_rating	food_rating	entertainment_rating	groundservice_rating	wifi_rating	value_rat
0 AF	Plane was spotless	2022-05-05	5	5	5	0	5	0	
1 AF	got nothing but the run around	2022-04-19	0	0	0	0	0	0	
2 AF	would not recommend	2022-04-15	3	1	2	3	1	4	6

TABLE 7: AIRCRAFTS TABLE

Form: 3NF

Primary Key: iata_aircraft

	aircraft_iata	aircraft_icao	capacity	aircraft_name
0	AT5	AT45	50	Aerospatiale/Alenia ATR 42-500
2	AT7	AT72	74	Aerospatiale/Alenia ATR 72
3	SSC	CONC	128	Aerospatiale/BAC Concorde

TABLE 8: FLIGHTS TABLE

Form: 3NF

Primary Key: flight_id

Foreign Key: iata_aircraft, iata_airline

flight_id	aircraft_iata	flight_number	iata_airline
1	100	900	CE
2	340	300	AF
3	142	900	BA
4	340	200	BA

TABLE 9: TWEETS TABLE

Primary Key: tweet_id

Foreign Key: iata_airline

	tweet_id	twitter_handle	tweet_text	iata_airline	like_count	created_at
227	1548683280567902209	10josalu	@British_Airways We've had to book with an alt...	BA	0	2022-07-17 14:57:21+00:00
340	1531735310249369601	1stCrazyCanuck	@TheYaminashy @yield2yetis @Andres_Choice @Sen...		0	2022-05-31 20:32:10+00:00
97	1574721666957074434	2899906590_KM	Attention: I am desperately waiting for a boar...		0	2022-09-27 11:24:36+00:00
555	1497566830155776002	904Mae	@PhilipPlickert @British_Airways Maybe #Russia...	BA	2	2022-02-26 13:38:50+00:00
596	1486554417520418816	984inthemorning	When we fly Kenya Airways we're in for a relax...		13	2022-01-27 04:19:26+00:00
...
957	1366713791656980480	yorkyc22	3. Flights from South America and Africa hadn'...		11	2021-03-02 11:35:34+00:00
550	1497991101155794952	zach1198_	@British_Airways your airline is completely in...	BA	1	2022-02-27 17:44:44+00:00
441	1515184760074776577	zara_ojinks	@British_Airways My connecting flight to Aberd...	BA	8	2022-04-16 04:26:12+00:00
910	1390808007454334978	zobiabinteazhar	@qatarairways I am holding Turkey Visitor Visa...	QR	0	2021-05-07 23:17:23+00:00

FORM: 2NF

Primary Key: tweet_id

Foreign Key: iata_airline

tweet_id	twitter_handle	tweet_text	profile_image_url	like_count	created_at	iata_airline
1548683280567902209	10josalu	@British_Airways We've had to book with an alt...	https://pbs.twimg.com/profile_images/15126805... 0	2022-07-17 14:57:21	QR	
1531735310249369601	1stCrazyCanuck	@TheYaminashy @yield2yetis @Andres_Choice @Sen...	https://pbs.twimg.com/profile_images/14480346... 0	2022-05-31 20:32:10	QR	
1574721666957074434	2899906590_KM	Attention: I am desperately waiting for a boardin...	https://pbs.twimg.com/profile_images/13686038... 0	2022-09-27 11:24:36	QR	
1497566830155776002	904Mae	@PhilipPlickert @British_Airways Maybe #Russ...	https://pbs.twimg.com/profile_images/88476010... 2	2022-02-26 13:38:50	QR	
1486554417520418816	984inthemorning	When we fly Kenya Airways we're in for a relax...	https://pbs.twimg.com/profile_images/11379559... 13	2022-01-27 04:19:26	JL	

NORMALIZED FORM: 3NF

TABLE 10: TWEET_USERS TABLE

	tweet_id	twitter_handle	tweet_text		iata_airline	like_count	created_at
0	1602451159893032961	bendolino	So, @British_Airways, entirely without announc...		BA	0	2022-12-12 23:51:43+00:00
	twitter_handle	user_display_name	user_id	user_profile_image_url	user_description	user_followers_count	user_follow...
0	bendolino	bendolino	20092400	https://pbs.twimg.com/profile_images/158085634...	Which one of you is man with beard?	631	
1	MreidMichele	Michele	2941391020	https://pbs.twimg.com/profile_images/918896693...		20	
2	louloveslouies	natalia. TODAY	4625131577	https://pbs.twimg.com/profile_images/160004849...	' Thank you for giving me the confidence to do...	11164	

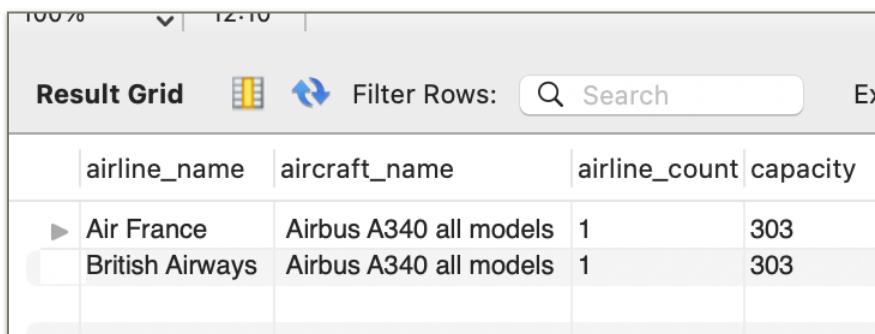
USE CASES AND QUERIES

DDL SCRIPTS

DATABASE: airline_passenger_system

#1 Count all aircrafts owned by airlines which have a seat capacity>150

```
SELECT t1.airline_name, t2.aircraft_name, count(t2.aircraft_name) as airline_count, t2.capacity  
FROM airline t1  
JOIN flight t3  
ON t1.iata_airline = t3.iata_airline  
JOIN aircraft t2  
ON t2.iata_aircraft = t3.iata_aircraft  
WHERE t2.capacity>150  
GROUP by t1.airline_name, t2.aircraft_name, t2.capacity;
```



	airline_name	aircraft_name	airline_count	capacity
▶	Air France	Airbus A340 all models	1	303
◀	British Airways	Airbus A340 all models	1	303

#2 Display airline names and the number of positive recommendations received

```
SELECT t1.airline_name, COUNT(t2.recommended) no_of_recommendation  
FROM airline t1  
JOIN airline_review t2  
ON (t1.iata_airline = t2.iata_airline)  
WHERE t2.recommended = True  
GROUP BY t1.airline_name
```

ORDER BY no_of_recommendation DESC ;

airline_name	no_of_recommendati...
► Qatar Airways	720
Singapore Airlines	681
Swiss International Air Lines	530
Qantas Airways	481

#3 How many passenger flights do Air France Airlines own?

```
SELECT t2.airline_name, count(t2.airline_name) AS flight_count
FROM flight t1
INNER JOIN airline t2
ON t1.iata_airline=t2.iata_airline
INNER JOIN aircraft t3
ON t1.iata_aircraft=t3.iata_aircraft
WHERE t3.capacity>0 AND t1.iata_airline="AF"
GROUP BY t2.airline_name;
```

airline_name	flight_cou...
► Air France	3

#4 Which airline received maximum average seating comfort rating ?

```
SELECT t1.airline_name, AVG(t2.seat_comfort_rating) AS avg_seat_comfort_rating
FROM airline t1
JOIN airline_review t2
ON (t1.iata_airline = t2.iata_airline)
```

```
GROUP BY t1.airline_name
```

```
limit 1
```

```
;
```

airline_name	avg_seat_comfort_rat...
Air France	2.9087

#5 Find all airlines owning 2 passenger flights

```
SELECT t2.airline_name, count(t2.airline_name) AS airline_count
FROM flight t1
INNER JOIN airline t2
ON t1.iata_airline=t2.iata_airline
INNER JOIN aircraft t3
ON t1.iata_aircraft=t3.iata_aircraft
WHERE t3.capacity>0
GROUP BY t2.airline_name
HAVING count(t2.airline_name)=2;
```

airline_name	airline_count
British Airways	2

#6 How many reviews does Air France have with >4.0 rating

```

SELECT t1.iata_airline, t1.review_title, t1.overall_score
FROM airline_review t1
INNER JOIN (
    SELECT *
    FROM airline
    WHERE airline_name like '%air france%'
    LIMIT 1) as t2
ON t1.iata_airline=t2.iata_airline
WHERE t1.overall_score>8;

```

iata_airline	review_title	overall_score
► AF	Plane was spotless	10
AF	comfortable and the service friendly	9
AF	The food and wine was extraordinary	10
AF	Would fly Air France again	9

#7 Find top 5 airlines with best overall reviews

```

SELECT t2.airline_name, AVG(t1.overall_score) as avg_overall_score
FROM airline_review t1
INNER JOIN airline t2
ON t1.iata_airline=t2.iata_airline
GROUP BY t2.airline_name
ORDER BY avg_overall_score DESC
LIMIT 5;

```

airline_name	avg_overall_score
► Ana All Nippon Airways	7.8610
Japan Airlines	7.3528
Qatar Airways	7.2255
Cit	6.9222

#8 Find the airline which provides the best entertainment in flights along with their reviews

```
SELECT t2.airline_name,t1.review_title, MAX(avg_rating) as max_average_rating  
FROM (  
    SELECT review_title,iata_airline,AVG(entertainment_rating)  
    AS avg_rating  
    FROM airline_review  
    GROUP BY iata_airline,review_title ) AS t1  
JOIN airline t2  
ON t1.iata_airline=t2.iata_airline  
GROUP BY t2.airline_name,t1.review_title  
ORDER BY MAX(avg_rating) DESC  
limit 1;
```

The screenshot shows a database query results grid. The top bar includes zoom controls (100%), a refresh icon, a 'Result Grid' button, a 'Filter Rows' button, a search bar, and an 'Export' button. The main grid has three columns: 'airline_name', 'review_title', and 'max_average_rati...'. A single row is displayed, showing 'Air France' in the first column, 'comfortable and the service friendly' in the second column, and '5.0000' in the third column.

airline_name	review_title	max_average_rati...
Air France	comfortable and the service friendly	5.0000

#9 order airline names based on the count of their service rating for service rating > 4

```
SELECT t1.airline_name, COUNT(t2.service_rating) AS service_rating_count  
FROM airline t1  
JOIN airline_review t2  
USING(iata_airline)
```

```

WHERE t2.service_rating > 4
GROUP BY t1.airline_name
ORDER BY service_rating_count DESC;

```

airline_name	service_rating_co...
► Qatar Airways	640
Singapore Airlines	504
Swiss International Air Lines	363

#10 Count the number of aircraft each flight has

```

SELECT t1.flight_number, COUNT(t2.aircraft_name) AS aircraft_count
FROM flight t1
JOIN aircraft t2
ON t1.iata_aircraft = t2.iata_aircraft
GROUP BY t1.flight_number;

```

flight_numb...	aircraft_co...
► 900	2
300	2
200	1
800	1

#11 DISPLAY COUNT OF REVIEWS FOR EVERY AIRLINE BASED ON THE COUNTRY IT FLIES

```

SELECT t1.airline_name, t2.country_name, COUNT(t3.review_id) as count_of_reviews
FROM airline t1
JOIN country t2
ON t1.country_code = t2.country_code
JOIN airline_review t3
ON t1.iata_airline = t3.iata_airline

```

GROUP BY t1.airline_name, t2.country_name;

airline_name	country_name	count_of_revie...
Air France	France	986
Emirates	United Arab Emirates	989
Japan Airlines	Japan	382
Swiss International Air Lines	Switzerland	924

#12 GET ALL QATAR REVIEWS

```
SELECT t1.twitter_handle, t1(tweet_text  
FROM tweet t1  
JOIN airline t2  
ON t1.iata_airline = t2.iata_airline  
WHERE t2.iata_airline = "QR";
```

twitter_handle	tweet_text
kingkha9	@qatarairways @CAAQATAR Qatar Airways sy...
IBRAHIM_AMER82	@TK_HelpDesk @lufthansa @etihad @emirate...
iiqrah_	@SuzeShardlow @qatarairways Never in the p...
zobiabinteazhar	@qatarairways I am holding Turkey Visitor Visa...

#13 DISPLAY THE REVIEW COUNT, FOOD RATING FOR EVERY AIRLINE WHERE THE RATING GIVEN IS =5

```
SELECT t1.airline_name, t2.food_rating, COUNT(*) as review_count  
FROM airline t1  
JOIN airline_review t2  
USING(iata_airline)  
WHERE t2.food_rating=5  
GROUP BY t1.airline_name, t2.food_rating;
```

airline_name	food_rating	review_count
Air France	5	200
Ana All Nippon Airways	5	205
Emirates	5	189

#14 SELECT THE MAXIMUM COUNTS GIVEN TO TWEET REVIEWS FOR BRITISH AIRWAYS

```
SELECT t1.like_count, t1(tweet_text
FROM tweet t1
WHERE t1.like_count = (
    SELECT MAX(like_count)
    FROM tweet);
```

like_count	tweet_text
3419	Who remembers being asked "smoking or non-...

#15 DISPLAY NUMBER OF FOLLOWERS, THEIR NAME, FOLLOWING COUNT AND WHEN WAS IT CREATED FOR THOSE WHO REVIEWED FOR TURKISH AIRLINES

```
SELECT t1.user_display_name,t1.user_follower_count, t2.airline_name, t3.created_at as TWEET_DATE
FROM tweet t3
JOIN airline t2
ON t3.iata_airline = t2.iata_airline
JOIN tweet_user t1
ON t1.twitter_handle = t3.twitter_handle
WHERE lower(t2.airline_name)= "TURKISH AIRLINES";
```

#16 GET THE AVERAGE COUNT OF LIKES FOR REVIEWS GIVEN BY CUSTOMERS FOR QATAR AIRWAYS

	user_display_name	user_follower_co...	airline_name	TWEET_DATE
▶	Sadaf Raja	2	Turkish Airlines	2022-11-20 20:30:55

```

SELECT t2.airline_name, AVG(t1.like_count) AS AVG_CNT
FROM tweet t1
JOIN airline t2
USING(iata_airline)
WHERE lower(airline_name) = "qatar airways"
GROUP BY t2.airline_name
ORDER BY t2.airline_name;

```

airline_name	AVG_CNT
Qatar Airways	1.0588

#17 WHICH AIRLINE GOT THE MAXIMUM NUMBER OF RATING 5 FOR ITS WIFI SERVICE

```

SELECT t1.airline_name, t2.wifi_rating, COUNT(t2.wifi_rating) AS rating_count
FROM airline t1
JOIN airline_review t2
USING(iata_airline)
WHERE wifi_rating = 5
GROUP BY t1.airline_name, t2.wifi_rating
ORDER BY rating_count desc
LIMIT 1;

```

airline_name	wifi_rati...	rating_count
Qatar Airways	5	239

#18 WHICH AIRLINE GOT THE MINIMUM NUMBER OF RATING 5 FOR ITS WIFI SERVICE

```
SELECT t1.airline_name, t2.wifi_rating, COUNT(t2.wifi_rating) AS rating_count
```

```

FROM airline t1
JOIN airline_review t2
USING(iata_airline)
WHERE wifi_rating = 5
GROUP BY t1.airline_name, t2.wifi_rating
ORDER BY rating_count
LIMIT 1;

```

	airline_name	wifi_rati...	rating_count
▶	Swiss International Air Lines	5	19

#19 SELECT THE COUNT OF LIKES FOR DIFFERENT AIRLINE NAMES

```

SELECT t2.airline_name,COUNT(t1.like_count) AS LIKE_COUNT
FROM tweet t1
JOIN airline t2
ON t1.iata_airline = t2.iata_airline
WHERE airline_name <> ""
GROUP BY t2.airline_name;

```

airline_name	LIKE_COUNT
British Airways	523
Qatar Airways	17
Emirates	2
Qantas Airways	1
Turkish Airlines	1

#20 WHICH AIRLINE REVIEW GOT THE MOST NUMBER OF TWEET LIKES

```

SELECT t2.airline_name,t1.like_count, t1(tweet_text

```

```

FROM tweet t1
JOIN airline t2
ON t1.iata_airline = t2.iata_airline
WHERE t1.like_count = (SELECT MAX(like_count) FROM tweet ) ;

```

	airline_name	like_count	tweet_text
▶	British Airways	3419	Who remembers being asked "smoking or non-...

#21 VIEW THE AIRLINES AND COUNT OF HOW MANY PEOPLE RECOMMENDED IT ?

```

SELECT t1.airline_name, COUNT(t2.recommended) as recommendation_count
FROM airline t1
JOIN airline_review t2
ON t1.iata_airline = t2.iata_airline
WHERE t2.recommended = 1
GROUP BY t1.airline_name;

```

airline_name	recommendation_count
Air France	469
Ana All Nippon Airways	437
Emirates	362
Japan Airlines	282
Qantas Airways	481
Qatar Airways	720
Singapore Airlines	681
Swiss International Air Lines	530
Turkish Airlines	223

#22 REVIEWS FOR WHICH AIRLINE GOT THE MOST NUMBER OF RECOMMENDATION FOR THEIR GROUND SERVICE rating >4?

```

SELECT t1.airline_name, COUNT(t2.recommended) as recommendation_count

```

```

FROM airline t1
JOIN airline_review t2
ON t1.iata_airline = t2.iata_airline
WHERE t2.recommended = 1 AND t2.groundservice_rating > 4
GROUP BY t1.airline_name
ORDER BY recommendation_count DESC
LIMIT 1;

```

airline_name	recommendation_count
Qatar Airways	444

#23 REVIEWS FOR WHICH AIRLINE GOT THE LEAST NUMBER OF RECOMMENDATION FOR THEIR FOOD SERVICE rating >4?

```

SELECT t1.airline_name, COUNT(t2.recommended) as recommendation_count
FROM airline t1
JOIN airline_review t2
ON t1.iata_airline = t2.iata_airline
WHERE t2.recommended = 1 AND t2.food_rating > 4
GROUP BY t1.airline_name
ORDER BY recommendation_count
LIMIT 1;

```

airline_name	recommendation_count
Japan Airlines	113

#24 REVIEWS FOR WHICH AIRLINE GOT THE MOST NUMBER OF RECOMMENDATION FOR THEIR SEAT SERVICE rating = 5?

```
SELECT t1.airline_name, COUNT(t2.recommended) as recommendation_count  
FROM airline t1  
JOIN airline_review t2  
ON t1.iata_airline = t2.iata_airline  
WHERE t2.recommended = 1 AND t2.seat_comfort_rating=5  
GROUP BY t1.airline_name  
ORDER BY recommendation_count DESC  
LIMIT 1;
```

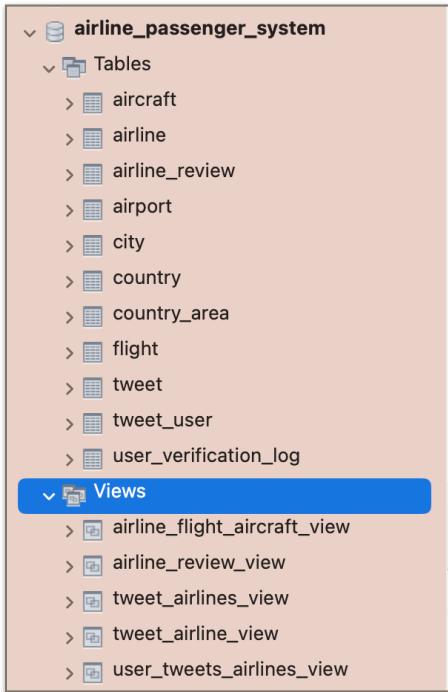
	airline_name	recommendation_count
▶	Qatar Airways	456

#25 SELECT THE COUNT OF LIKES FOR REVIEWS GIVEN TO BRITISH AIRWAYS

```
SELECT t2.airline_name, COUNT(t1.like_count)  
FROM tweet t1  
JOIN airline t2  
ON t1.iata_airline = t2.iata_airline  
WHERE lower(t2.airline_name) = "british airways"  
GROUP BY t2.airline_name;
```

	airline_name	COUNT(t1.like_cou...)
▶	British Airways	523

VIEWS



#V1

```
CREATE VIEW airline_flight_aircraft_view AS
(SELECT t1.airline_name,t1.iata_airline,t1.icao_airline,t1.active,t2.aircraft_name,
t2.aircraft_iata,t2.aircraft_icao,t2.capacity,
t3.flight_id,t3.flight_number
FROM airline t1
JOIN flights t3
ON t1.iata_airline = t3.iata_airline
JOIN aircraft t2
ON t2.aircraft_iata = t3.aircraft_iata);
```

#V2

```
CREATE VIEW airline_review_view AS
(SELECT t1.airline_name,t1.icao_airline,t1.iata_airline,t1.active, t2.review_title, t2.review_date,
t2.seat_comfort_rating,
```

```
t2.service_rating, t2.food_rating, t2.entertainment_rating, t2.groundservice_rating, t2.wifi_rating,  
t2.value_rating, t2.overall_score,  
t2.recommended  
FROM airline t1  
JOIN airline_reviews t2  
ON t1.iata_airline = t2.iata_airline);
```

#V3

```
drop view twitter_view;  
CREATE VIEW tweet_airline_view AS  
(SELECT t1(tweet_id, t1.twitter_handle, t1(tweet_text, t1.profile_image_url, t1.like_count,  
t1.created_at, t1.iata_airline,  
t2.icao_airline, t2.airline_name, t2.active  
FROM tweets t1  
JOIN airline t2  
ON t1.iata_airline = t2.iata_airline
```

);

#V4

```
drop view tweet_airlines_view;  
CREATE VIEW tweet_airlines_view AS  
(SELECT t1(tweet_id, t1.twitter_handle, t1(tweet_text, t1.profile_image_url, t1.like_count,  
t1.created_at, t1.iata_airline,  
t2.airline_name, t2.user_location  
FROM tweets t1  
JOIN airlines t2
```

```
ON t1(tweet_id = t2(tweet_id  
);
```

#V5

```
CREATE VIEW user_tweets_airlines_view AS  
(  
SELECT t1.twitter_handle, t1.user_display_name, t1.user_id, t1.user_profile_image_url,  
t1.user_description, t1.user_followers_count, t1.user_following_count,  
t3(tweet_id, t3(tweet_text, t3.like_count, t3.created_at, t3.iata_airline, t2.airline_name,  
t2.user_location  
FROM user t1  
JOIN tweets t3  
ON t1.twitter_handle = t3.twitter_handle  
JOIN airlines t2  
ON t2(tweet_id = t3(tweet_id  
);
```

QUERIES WRITTEN USING VIEWS

#Q1 Count all aircrafts owned by airlines which have a seat capacity>150

```
SELECT airline_name, aircraft_name, count(aircraft_name) as airline_count, capacity  
FROM airline_flight_aircraft_view  
WHERE capacity>150  
GROUP by airline_name, aircraft_name, capacity;
```

airline_name	aircraft_name	airline_count	capacity
Air France	Airbus A340 all models	1	303
British Airways	Airbus A340 all models	1	303

EXPLAIN
▶ > Table scan on <temporary> (actual time=1.265..1.267 rows=2 loops=1) → Aggregate using temporary table (actual time=1.263..1.263 rows=2 loops=1) → Nested loop inner join (cost=3.65 rows=2) (actual

```
'-> Table scan on <temporary> (actual time=1.265..1.267 rows=2 loops=1)
-> Aggregate using temporary table (actual time=1.263..1.263 rows=2 loops=1)
-> Nested loop inner join (cost=3.65 rows=2) (actual time=1.081..1.122 rows=2 loops=1)
-> Nested loop inner join (cost=2.95 rows=2) (actual time=0.981..1.011 rows=2 loops=1)
-> Filter: ((t3.iata_aircraft is not null) and (t3.iata_airline is not null)) (cost=0.85 rows=6) (actual time=0.177..0.195 rows=6 loops=1)
-> Table scan on t3 (cost=0.85 rows=6) (actual time=0.174..0.189 rows=6 loops=1)
-> Filter: (t2.capacity > 150) (cost=0.26 rows=0.3) (actual time=0.056..0.056 rows=0 loops=6)
-> Single-row index lookup on t2 using PRIMARY (iata_aircraft=t3.iata_aircraft) (cost=0.26 rows=1) (actual time=0.055..0.055 rows=1 loops=6)
-> Single-row index lookup on t1 using PRIMARY (iata_airline=t3.iata_airline) (cost=0.30 rows=1) (actual time=0.055..0.055 rows=1 loops=2)'
```

#Q2 Select the maximum like_count given to the tweet_texts

EXPLAIN ANALYZE

```
SELECT airline_name, COUNT(recommended) as no_of_recommendation
FROM airline_review_view
WHERE recommended = True
GROUP BY airline_name
ORDER BY no_of_recommendation DESC ;
-> Sort: no_of_recommendation DESC (actual time=11.745..11.746 rows=9 loops=1)
-> Table scan on <temporary> (actual time=11.546..11.547 rows=9 loops=1)
-> Aggregate using temporary table (actual time=11.546..11.546 rows=9 loops=1)
-> Nested loop inner join (cost=1105.33 rows=801) (actual time=3.868..9.369 rows=4185 loops=1)
-> Filter: ((t2.recommended = true) and (t2.iata_airline is not null)) (cost=825.05 rows=801) (actual time=3.319..7.749 rows=4185 loops=1)
-> Table scan on t2 (cost=825.05 rows=8008) (actual time=3.306..7.386 rows=8299 loops=1)
-> Single-row index lookup on t1 using PRIMARY (iata_airline=t2.iata_airline) (cost=0.25 rows=1) (actual time=0.000..0.000 rows=1 loops=4185)
```

EXPLAIN		
	airline_name	no_of_recommendati...
▶	Qatar Airways	720
	Singapore Airlines	681
	Swiss International Air Lines	530
	Cathay Pacific	421

#3 How many passenger flights do Air France Airlines own?

```
SELECT airline_name, count(airline_name) AS flight_count  
FROM airline_flight_aircraft_view  
WHERE capacity>0 AND iata_airline="AF";
```

airline_name	flight_cou...
Air France	3

#Q4 Which airline received maximum average seating comfort rating ?

```
SELECT airline_name, AVG(seat_comfort_rating) AS avg_seat_comfort_rating  
FROM airline_review_view  
GROUP BY t1.airline_name  
limit 1;
```

airline_name	avg_seat_comfort_rat...
Air France	2.9087

#5 Find all airlines owning 2 passenger flights

```
SELECT airline_name, count(airline_name) AS airline_count  
FROM airline_flight_aircraft_view  
WHERE capacity>0  
GROUP BY airline_name  
HAVING count(airline_name)=2;
```

airline_name	airline_count
British Airways	2

airline_name	avg_overall_score
Ana All Nippon Airways	7.8610
Japan Airlines	7.3528
Qatar Airways	7.2255

#6 Find top 5 airlines with best overall reviews

```
SELECT airline_name, AVG(overall_score) as avg_overall_score
FROM airline_review_view
GROUP BY airline_name
ORDER BY avg_overall_score DESC
LIMIT 5;
```

#7 order airline names based on the count of their service rating for service rating > 4

```
SELECT airline_name, COUNT(service_rating) AS service_rating_count
FROM airline_review_view
WHERE service_rating > 4
GROUP BY t1.airline_name
ORDER BY service_rating_count DESC;
```

airline_name	service_rating_co...
Qatar Airways	640
Singapore Airlines	504
Swiss International Air Lines	363

#8 Count the number of aircraft each flight has

```
SELECT flight_number, COUNT(aircraft_name) AS aircraft_count
FROM airline_flight_aircraft_view
```

GROUP BY flight_number;

flight_number	aircraft_code
900	2
300	2
200	1
800	1

#9 Get all Qatar reviews

```
SELECT twitter_handle, tweet_text  
FROM tweet_airline_view  
WHERE iata_airline = "QR";
```

twitter_handle	tweet_text
kingkha9	@qatarairways @CAAQATAR Qatar Airways sy...
IBRAHIM_AMER82	@TK_HelpDesk @lufthansa @etihad @emirate...
iiqrah_	@SuzeShardlow @qatarairways Never in the p...
zobiabinteazhar	@qatarairways I am holding Turkey Visitor Visa...

#13 Number of followers, their name and when they created the tweet about the British Airways

```
SELECT user_follower_count, user_display_name, airline_name, created_at as TWEET_DATE  
FROM user_tweets_airlines_view
```

Where lower(airline_name) = "british airways";

user_follower_count	user_display_name	airline_name	TWEET_DATE
55	Abdulla Al Khalifa	British Airways	2021-10-11 11:30:07
2070	RB	British Airways	2022-01-17 12:25:15
13	Jonathan Croucher	British Airways	2022-07-17 14:57:21
976	Mae Johnson	British Airways	2022-02-26 13:38:50

1 4

DISPLAY THE USER NAME ALONG WITH AIRLINE_NAME

```
SELECT user_display_name, airline_name
```

user_display_name	airline_name
Abdulla Al Khalifa	British Airways
RB	British Airways
Jonathan Croucher	British Airways
Mae Johnson	British Airways

#15 GET THE AVERAGE COUNT OF LIKES FOR REVIEWS GIVEN BY CUSTOMERS FOR BRITISH AIRWAYS

```
SELECT airline_name, AVG(like_count) AS AVG_CNT  
FROM tweet_airlines_view  
WHERE lower(airline_name) = "british airways"  
GROUP BY airline_name  
ORDER BY airline_name;
```

airline_name	AVG_CNT
► British Airways	9.4780

#16 Select the count of likes for the different airline names

```
SELECT COUNT(like_count) AS LIKE_COUNT, airline_name  
FROM tweet_airlines_view  
WHERE airline_name <> ""  
GROUP BY airline_name;
```

LIKE_COUNT	airline_name
523	British Airways
17	Qatar Airways
2	Emirates
1	Qantas Airways
1	Turkish Airlines

#17 Tweet airline reviews that have the most likes.

```
SELECT like_count, tweet_text, airline_name
```

```

FROM tweet_airlines_view
WHERE like_count = (SELECT MAX(like_count) FROM tweet );

```

#18 DISPLAY THE REVIEW COUNT, FOOD RATING FOR EVERY AIRLINE WHERE THE RATING GIVEN IS =5

```

SELECT airline_name, food_rating, COUNT(*) as review_count
FROM airline_review_view
WHERE food_rating=5
GROUP BY t1.airline_name, t2.food_rating;

```

152 #18 Tweet airline reviews that have the most likes.

```

153 •    SELECT like_count, tweet_text, airline_name
154    FROM tweet_airlines_view
155    WHERE like_count = (SELECT MAX(like_count) FROM tweet ) ;
156

```

100% 14:153

Result Grid Filter Rows: Search Export:

like_count	tweet_text	airline_name
3419	Who remembers being asked "smoking or non-...	British Airways

Table	Non_unique	Key_name	Seq_in_index	Column_name	Collation	Cardinality	Sub_part	Packed	Null	Index_type	Comment	Index_comment	Visible	Expression
airline...	0	PRIMARY	1	review_id	A	8008	NULL	NULL		BTREE			YES	NULL
airline...	1	fk_airline_idx	1	iata_airline	A	10	NULL	NULL	YES	BTREE			YES	NULL
airline...	1	airline_review_score_idx	1	overall_score	A	11	NULL	NULL	YES	BTREE			YES	NULL
airline...	1	airline_review_score_idx	2	recommended	A	21	NULL	NULL	YES	BTREE			YES	NULL
airline...	1	airline_review_score_idx	3	value_rating	A	99	NULL	NULL	YES	BTREE			YES	NULL

INDEXES

```

4
5     # CREATE INDICES
6 •    CREATE INDEX airline_name_idx
7    ON airline (airline_name);
8
9 •    CREATE INDEX airline_review_score_idx
10    ON airline_review (overall_score, recommended, value_rating, wifi_rating,
11                      groundservice_rating, entertainment_rating, food_rating, service_rating, seat_comfort_rating);
12
13    # VIEW ALL INDICES
14 •    SHOW INDEXES FROM airline;
15 •    SHOW INDEXES FROM airline_review;
16

```

```

13      # VIEW ALL INDICES
14 • SHOW INDEXES FROM airline;
15 • SHOW INDEXES FROM airline_review;

```

100% ◇ 11:14 |

Result Grid Filter Rows: Q Search Export:

Table	Non_unique	Key_name	Seq_in_index	Column_name	Collation	Cardinality	Sub_part	Packed	Null	Index_type	Comment	Index_comment	Visible	Expression
► airline	0	PRIMARY	1	iata_airline	A	672	NULL	NULL		BTREE			YES	NULL
airline	1	fk_airline_countrycode_idx	1	country_code	A	145	NULL	NULL	YES	BTREE			YES	NULL
airline	1	airline_name_idx	1	airline_name	A	669	NULL	NULL	YES	BTREE			YES	NULL
Table	Non_unique	Key_name	Seq_in_index	Column_name	Collation	Cardinality	Sub_part	Packed	Null	Index_type	Comment	Index_comment	Visible	Expression
► airline...	0	PRIMARY	1	review_id	A	8008	NULL	NULL		BTREE			YES	NULL
airline... 1		fk_airline_idx	1	iata_airline	A	10	NULL	NULL	YES	BTREE			YES	NULL
airline... 1		airline_review_score_idx	1	overall_score	A	11	NULL	NULL	YES	BTREE			YES	NULL
airline... 1		airline_review_score_idx	2	recommended	A	21	NULL	NULL	YES	BTREE			YES	NULL
airline... 1		airline_review_score_idx	3	value_rating	A	99	NULL	NULL	YES	BTREE			YES	NULL

```

# EXAMPLE QUERY WITH
• EXPLAIN ANALYZE
  SELECT t1.iata_airline, t1.review_title, t1.overall_score
  FROM airline_review t1
  Ⓜ INNER JOIN (
    SELECT *
    FROM airline
    WHERE airline_name LIKE '%air france%'
    LIMIT 1) AS t2
  ON t1.iata_airline=t2.iata_airline
  WHERE t1.overall_score>8;

```

◇ 10:23 |

Explain Grid Filter Rows: Q Search Export:

EXPLAIN

```

> Filter: (t1.overall_score > 8) (cost=106.25 rows=335) (actual time=7.536..9.315 rows=248 loops=1)
  -> Index lookup on t1 using fk_airline_idx (iata_airline='AF') (cost=106.25 rows=986) (actual time=7.394..9.103 rows...

```

'-> Filter: (t1.overall_score > 8) (cost=106.25 rows=335) (actual time=7.536..9.315 rows=248 loops=1)
 -> Index lookup on t1 using fk_airline_idx (iata_airline='AF') (cost=106.25 rows=986) (actual time=7.394..9.103 rows=986 loops=1)'

TRIGGERS

```

DROP TABLE IF EXISTS user_verification_log;
3 • DROP TRIGGER IF EXISTS user_verification_trigger;
4
5 • Ⓜ CREATE TABLE user_verification_log (
6   user_id VARCHAR(200),
7   user_display_name VARCHAR(150),
8   log_date DATE,
9   log_message VARCHAR(100)
10 );
11
12   delimiter //
13 • CREATE TRIGGER user_verification_trigger
14   AFTER UPDATE ON tweet_user
15   FOR EACH ROW
16   BEGIN
17     Ⓜ IF !(NEW.verified_account <=> OLD.verified_account) THEN
18       INSERT INTO user_verification_log(user_id, user_display_name, log_message, log_date)
19       VALUES(NEW.user_id, NEW.user_display_name, "USER VERIFIED!", NOW());
20     END IF;
21   END;
22   //
23   delimiter ;
--
```

After the update statement is executed the trigger gets called

```

25 • UPDATE tweet_user SET verified_account="true" WHERE twitter_handle="10josalu";
26 • SELECT * FROM user_verification_log;
27

```

00% 15:26 |

Result Grid Filter Rows: Search Export:

user_id	user_display_name	log_date	log_message
266545909	Jonathan Croucher	2022-12-14	USER VERIFIED!

and the log table updates as shown below.

STORED PROCEDURES

airline_passenger_system

- Tables
- Views
- Stored Procedures
 - SelectAirlineFlightCount
 - ViewReviewCount
- Functions

```

L #DROP STORED PROCEDURES
? • DROP PROCEDURE IF EXISTS SelectAirlineFlightCount;
? • DROP PROCEDURE IF EXISTS ViewReviewCount;
?
? #STORED PROCEDURES 1
? DELIMITER //
? • CREATE PROCEDURE SelectAirlineFlightCount
? (
?   iata_airline VARCHAR(10)
? )
? BEGIN
?   SELECT t2.airline_name, count(t2.airline_name) AS flight_count
?     FROM flight t1
?       INNER JOIN airline t2
?         ON t1.iata_airline=t2.iata_airline
?       INNER JOIN aircraft t3
?         ON t1.iata_aircraft=t3.iata_aircraft
?       WHERE t3.capacity>0 AND t1.iata_airline=iata_airline
?       GROUP BY t2.airline_name;
? END//
? DELIMITER ;
?
```

```

#STORED PROCEDURES 2
DELIMITER //

• CREATE PROCEDURE ViewReviewCount
(
    airlineName VARCHAR(150) ,
    score INT
)
BEGIN
| SELECT t1.iata_airline, t1.review_title, t1.overall_score
| FROM airline_review t1
| INNER JOIN (
|     SELECT *
|     FROM airline

```

45 • CALL SelectAirlineFlightCount("AF"); 1

46 • CALL SelectAirlineFlightCount("BA"); 1

Result Grid Filter Rows: Search Export:

airline_name	flight_cou...
Air France	3

46 • CALL SelectAirlineFlightCount("BA"); 1

Result Grid Filter Rows: Search Export:

airline_name	flight_cou...
British Airways	2

Example of queries rewritten using stored procedures created

REFERENCES

<https://stackoverflow.com/questions/19152974/fire-a-trigger-after-the-update-of-specific-columns-in-mysql>

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