DMA PROJECT PRESENTATION

AIRPORT MANAGEMENT SYSTEM

GROUP No - 13

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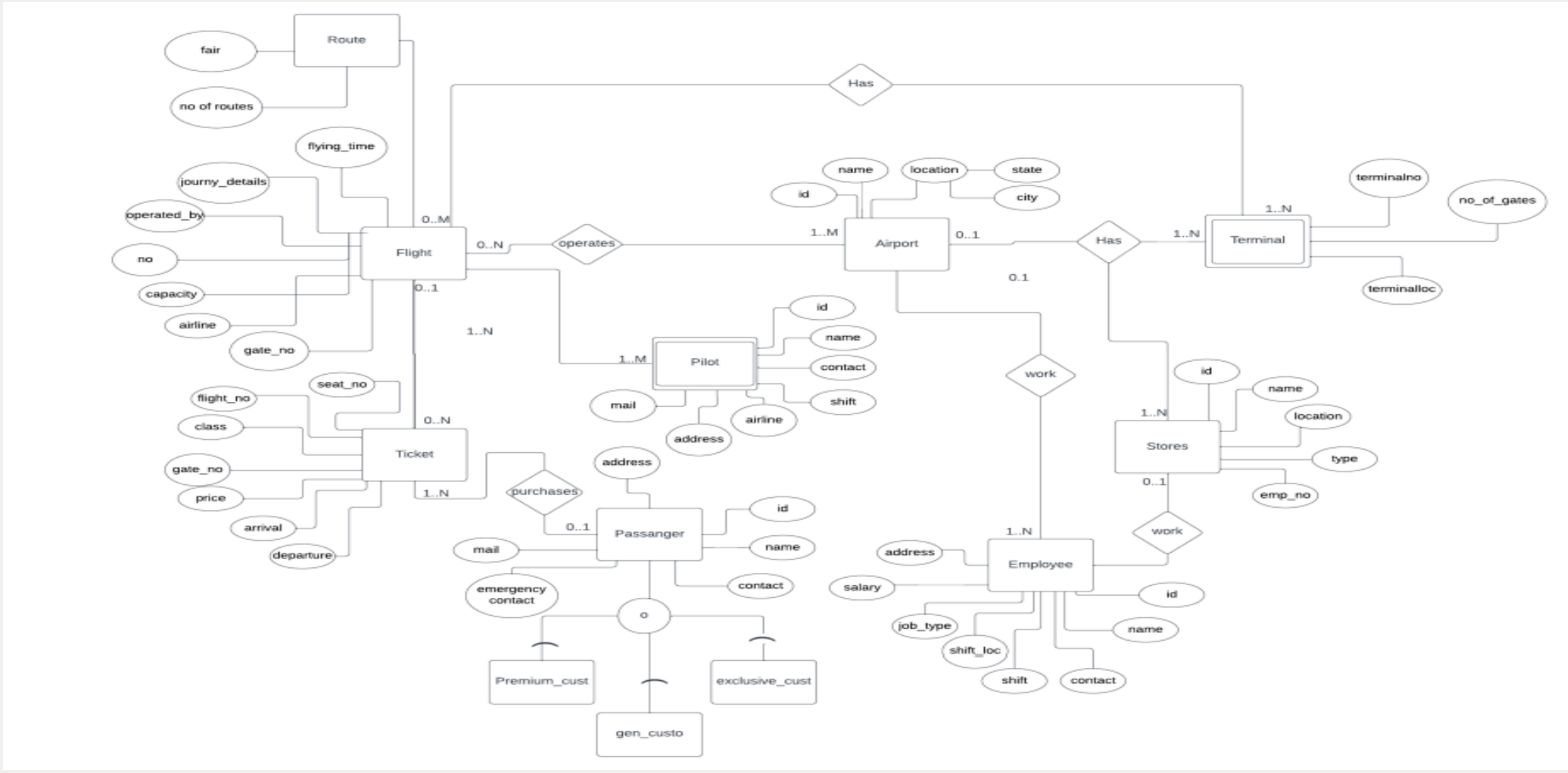
PROBLEM STATEMENT

- Airports generate massive amounts of data on a daily basis. It is vital to manage this continually changing information, as any out-of-date information might cause complications when planning future operations. As a consequence, we suggest a 'Airport Management System' modeL which is in charge of keeping track of system users, customers, staff information, flight information, cancellations and other basic operations.

CONCEPTUAL MODEL



Scope of analytics:

Deliver meaningful data in order to enhance operational planning and execution, as well as any connected goods and services.

Using sophisticated analytics, the airport's operating expenses may be cut by more than 6%. Gains can be obtained by preventing delays and aircraft cancellations and enhancing operational efficiency.

With airport traffic rising by the day, analytics will allow airlines to continue working on optimizing airspace utilization, particularly when it comes to runway bandwidth, flight routes, aircraft types, and so on.

Analyzing data about passengers to give them transportation alternatives they prefer and promote special offers based on their requirements, habits, and unique experiences.

Generation of daily activity reports used to offer predicted performance evaluations such as daily or weekly revenues for specified routes or sectors.

SQL QUERIES

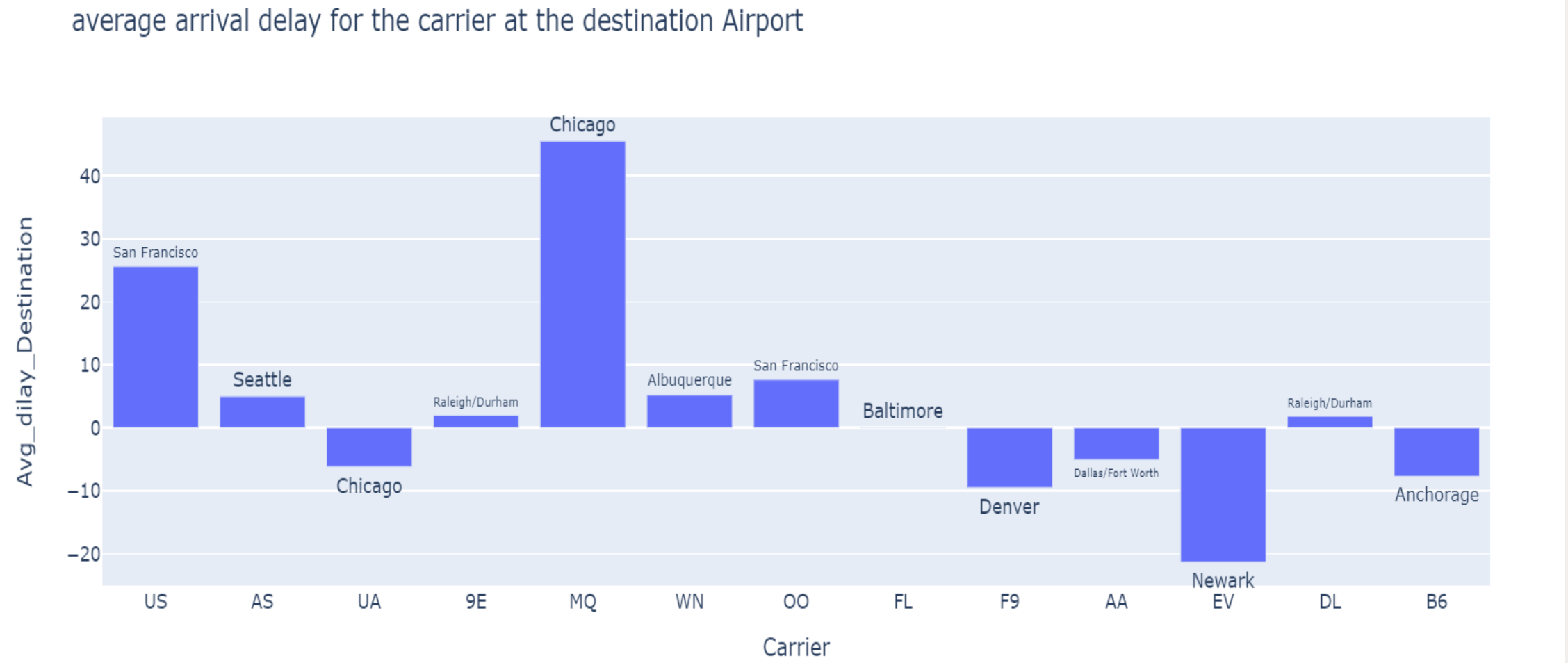
```
1  select Carrier,DestAirportID,a.name as destinationAirportName,
2  avg(ArrDelay) as Avg_dilay_Destination, a.city As destinationCity
3
4  from airports a right join flights f on a.airport_id=f.DestAirportID
5  group by Carrier
6  order by ArrDelay Desc;
7
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

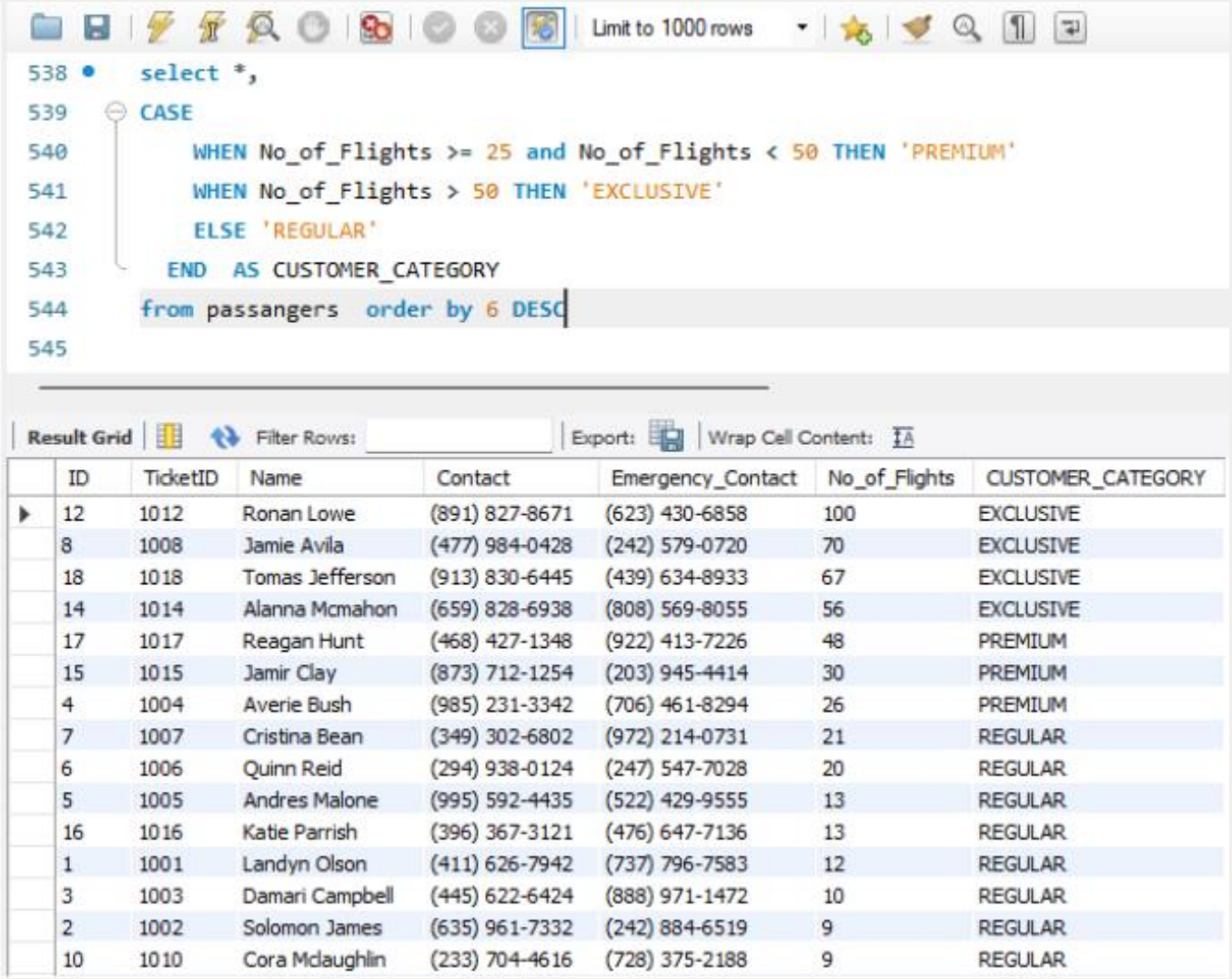
Carrier	DestAirportID	destinationAirportName	Avg_dilay_Destination	destinationCity
US	14771	San Francisco International	25.6000	San Francisco
AS	14747	Seattle/Tacoma International	5.0000	Seattle
UA	13930	Chicago O'Hare International	-6.1818	Chicago
9E	14492	Raleigh-Durham International	2.0000	Raleigh/Durham
MQ	13930	Chicago O'Hare International	45.5000	Chicago
WN	10140	Albuquerque International Sunport	5.2143	Albuquerque
OO	14771	San Francisco International	7.6250	San Francisco
FL	10821	Baltimore/Washington International Thurgood M...	0.0000	Baltimore
F9	11292	Denver International	-9.5000	Denver
AA	11298	Dallas/Fort Worth International	-5.0833	Dallas/Fort Worth

Get the average arrival delay for the carrier at the destination Airport In descending order of the delay.

Analytics :


average arrival delay for the carrier at the destination Airport
Avg_dilay_Destination
40
30
20
10
0
−10
−20
San Francisco
Seattle
Chicago
Raleigh/Durham
Chicago
Albuquerque
San Francisco
Baltimore
Denver
Dallas/Fort Worth
Newark
Raleigh/Durham
Anchorage
US
AS
UA
9E
MQ
WN
OO
FL
F9
AA
EV
DL
B6
Carrier

SQL QUERY



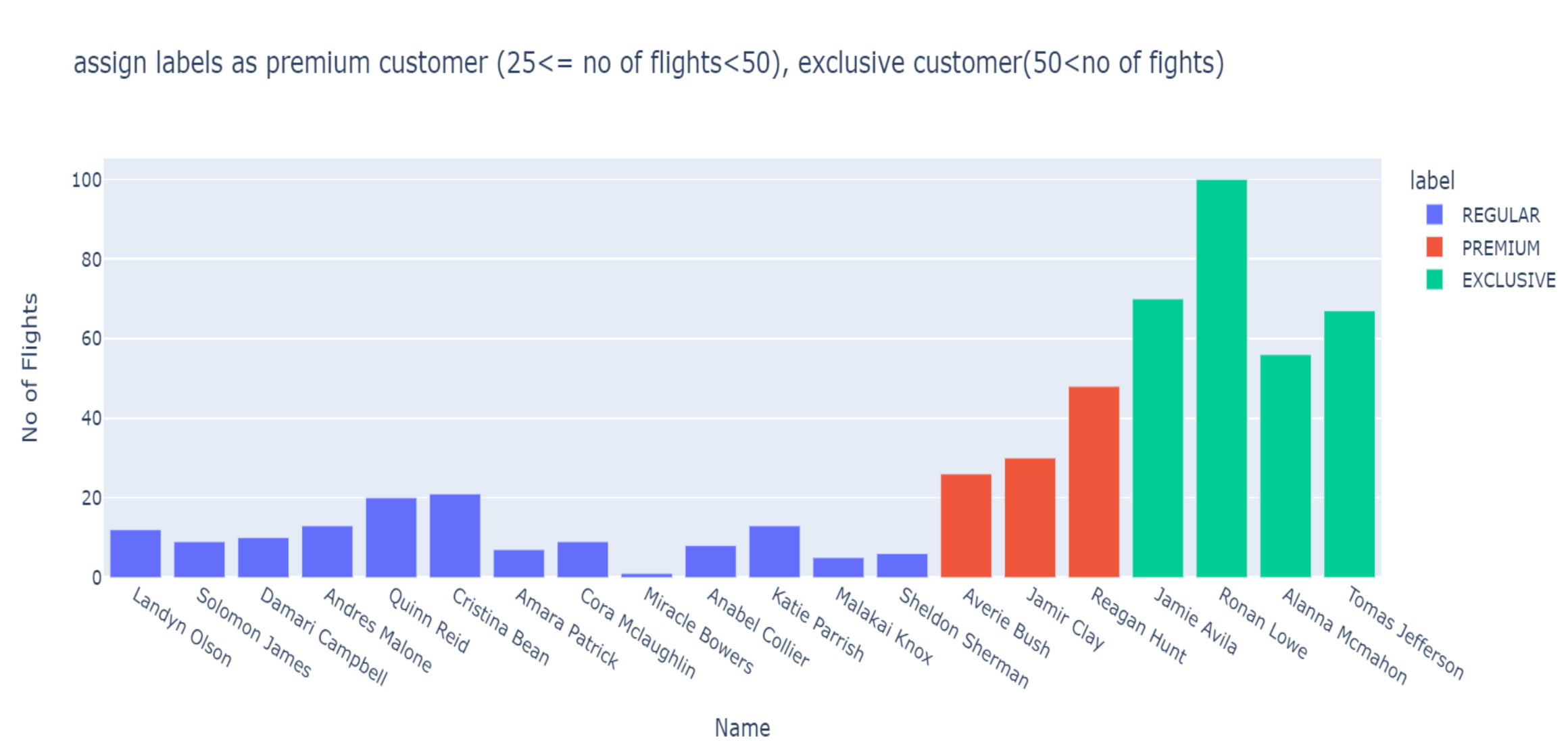
```
538 •  select *,
539    CASE
540        WHEN No_of_Flights >= 25 and No_of_Flights < 50 THEN 'PREMIUM'
541        WHEN No_of_Flights > 50 THEN 'EXCLUSIVE'
542        ELSE 'REGULAR'
543      END  AS CUSTOMER_CATEGORY
544    from passangers  order by 6 DESC
545
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

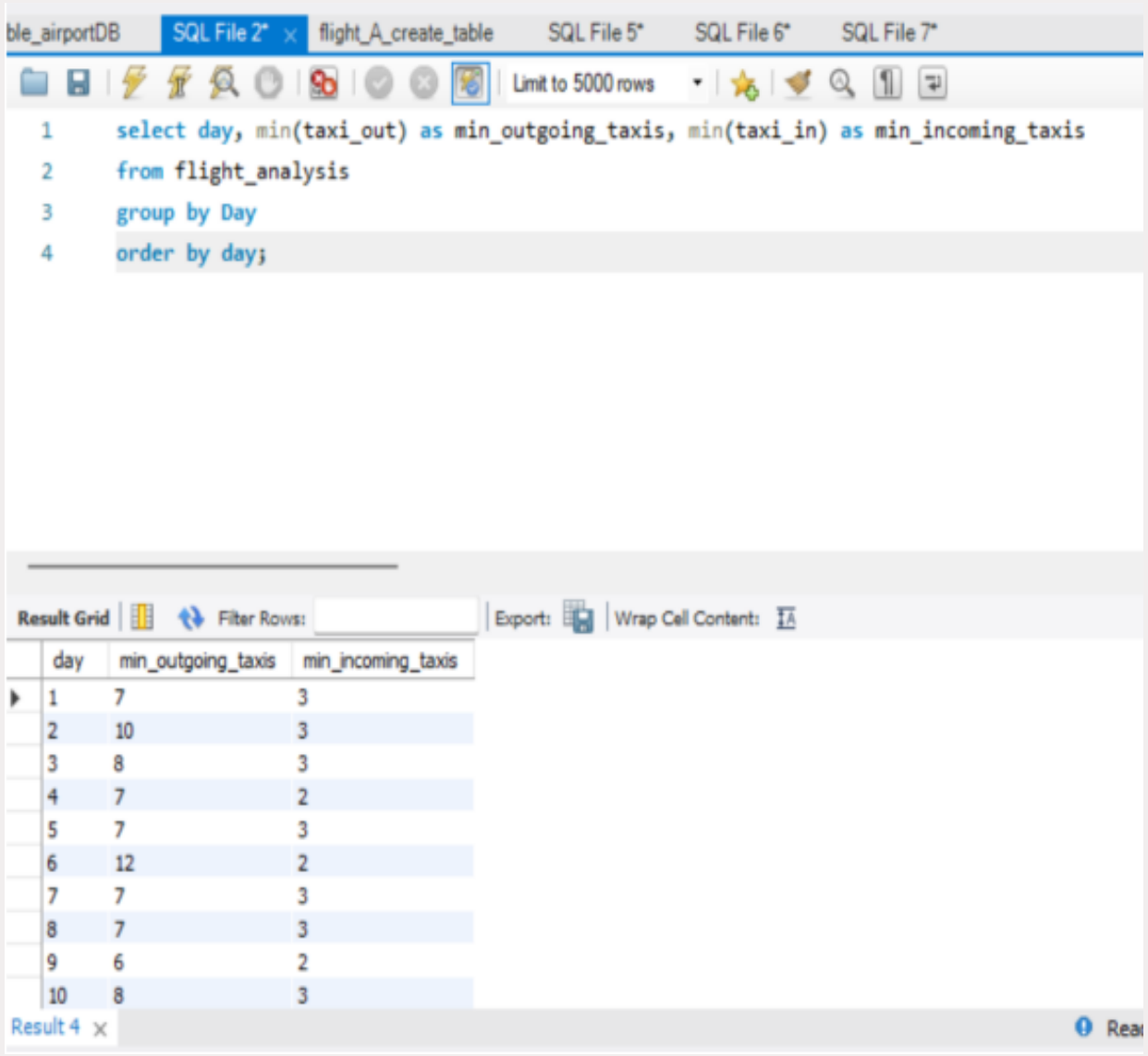
ID	TicketID	Name	Contact	Emergency_Contact	No_of_Flights	CUSTOMER_CATEGORY
12	1012	Ronan Lowe	(891) 827-8671	(623) 430-6858	100	EXCLUSIVE
8	1008	Jamie Avila	(477) 984-0428	(242) 579-0720	70	EXCLUSIVE
18	1018	Tomas Jefferson	(913) 830-6445	(439) 634-8933	67	EXCLUSIVE
14	1014	Alanna Mcmahon	(659) 828-6938	(808) 569-8055	56	EXCLUSIVE
17	1017	Reagan Hunt	(468) 427-1348	(922) 413-7226	48	PREMIUM
15	1015	Jamir Clay	(873) 712-1254	(203) 945-4414	30	PREMIUM
4	1004	Averie Bush	(985) 231-3342	(706) 461-8294	26	PREMIUM
7	1007	Cristina Bean	(349) 302-6802	(972) 214-0731	21	REGULAR
6	1006	Quinn Reid	(294) 938-0124	(247) 547-7028	20	REGULAR
5	1005	Andres Malone	(995) 592-4435	(522) 429-9555	13	REGULAR
16	1016	Katie Parrish	(396) 367-3121	(476) 647-7136	13	REGULAR
1	1001	Landyn Olson	(411) 626-7942	(737) 796-7583	12	REGULAR
3	1003	Damari Campbell	(445) 622-6424	(888) 971-1472	10	REGULAR
2	1002	Solomon James	(635) 961-7332	(242) 884-6519	9	REGULAR
10	1010	Cora Mclaughlin	(233) 704-4616	(728) 375-2188	9	REGULAR

Categorise the customers into Premium, Exclusive and Regular Customers

Analytics :

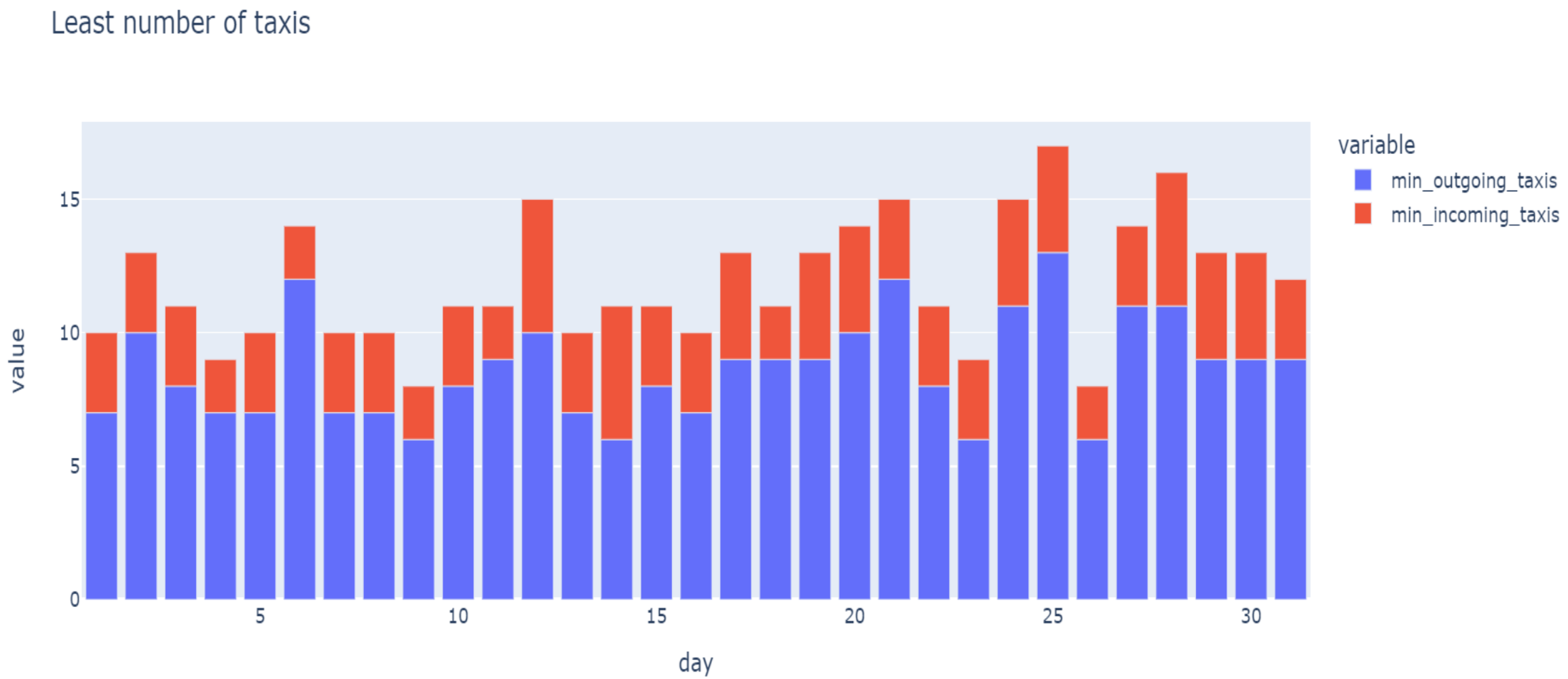

assign labels as premium customer (25<= no of flights<50), exclusive customer(50<no of fights)
No of Flights
100
80
60
40
20
0
label
REGULAR
PREMIUM
EXCLUSIVE
Landyn Olson
Solomon James
Damari Campbell
Andres Malone
Quinn Reid
Cristina Bean
Amara Patrick
Cora Mclaughlin
Miracle Bowers
Anabel Collier
Katie Parrish
Malakai Knox
Sheldon Sherman
Averie Bush
Jamir Clay
Reagan Hunt
Jamie Avila
Ronan Lowe
Alanna Mcmahon
Tomas Jefferson
Name

SQL QUERY

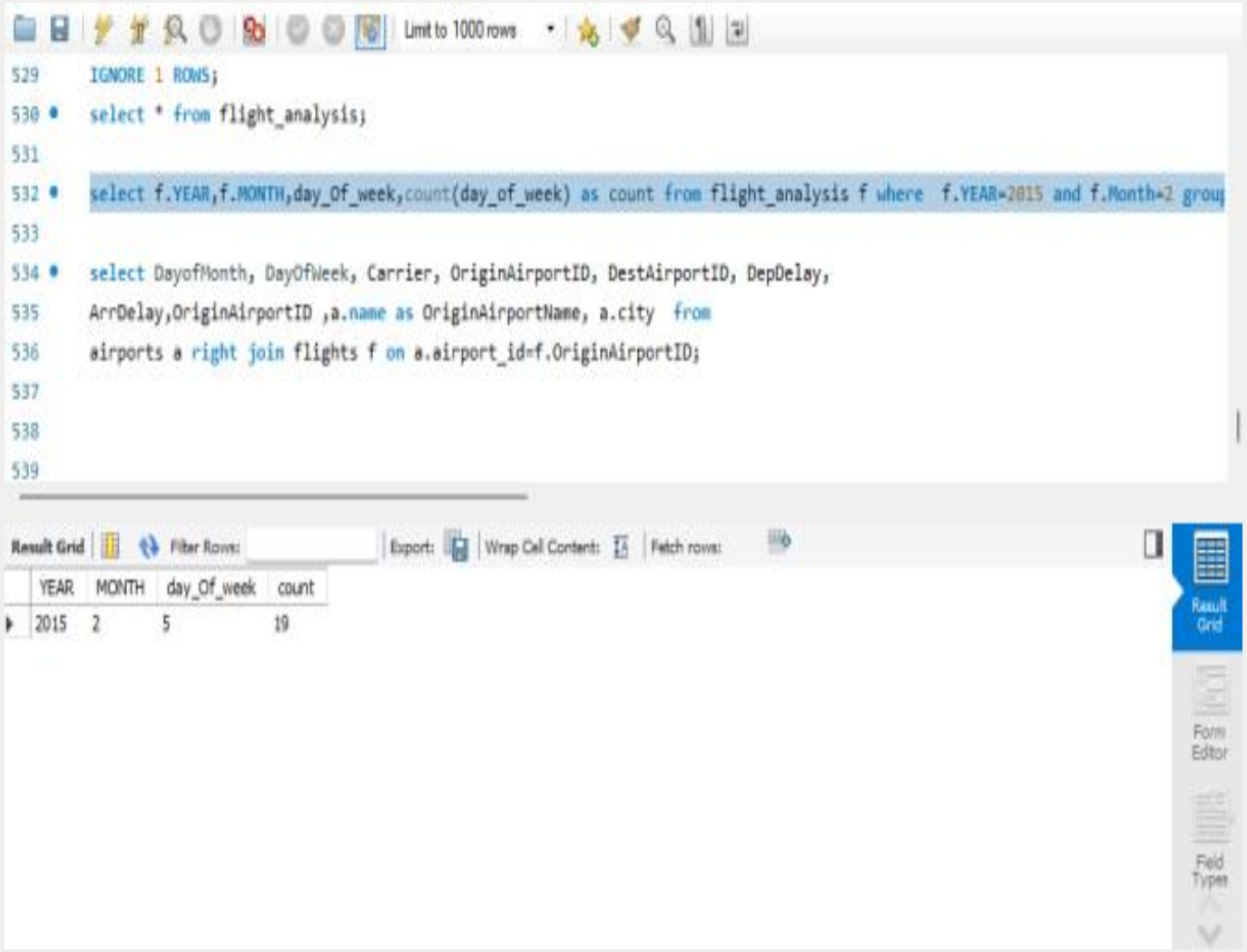


Least number of taxis arrived and went from the airport on a particular day of the month.

Analytics :


Least number of taxis
value
day
variable
min_outgoing_taxis
min_incoming_taxis
0
5
10
15
5
10
15
20
25
30

SQL QUERY



```
529    IGNORE 1 ROWS;
530 •  select * from flight_analysis;
531
532 •  select f.YEAR,f.MONTH,day_Of_week,count(day_of_week) as count from flight_analysis f where  f.YEAR=2015 and f.Month=2 grou
533
534 •  select DayofMonth, DayOfWeek, Carrier, OriginAirportID, DestAirportID, DepDelay,
535    ArrDelay,OriginAirportID ,a.name as OriginAirportName, a.city  from
536    airports a right join flights f on a.airport_id=f.OriginAirportID;
537
538
539
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content: | Fetch rows:

YEAR	MONTH	day_Of_week	count
2015	2	5	19

Result Grid | Form Editor | Field Types

Maximum number of flights on a particular day in the month of February 2015

Future Scope:

At higher levels, this model may be improved to forecast occurrences and generate alerts before an issue occurs.

Airport data can be combined with open linked data such as weather, population, and environment to predict early critical failures and maintenance needs, optimize flight paths, reschedule routes in real-time, improve operational efficiency, provide a seamless ground/air passenger experience, protect the environment, and monitor safety and risk threats

THANK YOU