Case 2 – Flight Reservations

Business needs

- Record confirmed passenger reservation everyday
- Check the VIP status of different passenger to provide different special privileges, such as lounge, priority boarding and welcome drink
- Check the Food Allergies status of different passenger to prevent providing allergic meal to passenger and inform flight kitchens to prepare appropriate food
- List the Special Assistance status of different passenger to provide advanced action, such as prepare one more seats for assistance dog, pay attention to passenger who have medical device
- List the Special Requests status of different passenger on their flight to provide advanced action, such as provide child meal and vegetarian meal to passenger, prepare one more seats for wheel chair, provide advanced action to over-sized luggages and overweight luggages
- Provide the status summary including which flight is the most popular during a week

Database Design

Six Table and One Logical View

Table FLIGHT

Basic information of each flight,

Flight_No is primary key and provide the number of each flight

Flight_FromCity and Flight_DepartureTime provide departure time and city

Flight_ToCity and Flight_ArrivalTime provide arrival time and city

Flight_TotalTime provide total time of each flight

Flight_TotalSeats provide total seats of each flight

Table PASSENGER

Basic information of each passenger,

Passenger_No is primary key

Passenger_FirstName and Passenger_LastName provide the first name and last name of each passenger

Passenger_Gender provide the gender of each passenger

VIP_Code is a foreign key to link with table VIP to provide the level of VIP and special privileges

Passenger_PassportNumber provide the passport number of each passenger

Passenger_Nationality provide the nationality of each passenger

Passenger_Birthday provide the birthday of each passenger

Passenger_PhoneNumber provide the phone number of each passenger

Passenger_Email provide the email of each passenger

Passenger_AssistanceDog include a value either YES or No to determines the special need of assistance dog

FoodAllergies_Code is a foreign key to link with table FOODALLERGIES and provide information of food allergies on each passenger

Passenger_MedicalDevice include a value either YES or No to provide the special need to passenger who have medical device

Table CLASS

Basic information of each cabin,

Class_Code is primary key and provide the alphabet represent different cabin

Class_Cabin provide different cabin

Table VIP

Basic information of each VIP level,

VIP_Code is primary key and represent different VIP level

VIP_Lounge include a value either YES or No to determines the permission of entry the lounge on the airport

VIP_PriorityBoarding include a value either YES or No to determines the order of priority boarding between VIP and non-VIP

VIP_WelcomeDrink include a value either YES or No to provide the welcome drink to the VIP of 'Gold' level

Table FOODALLERGIES

Basic information of different food allergies,

FoodAllergies_Code is primary key and provide the special code to represent different allergic food

FoodAllergies_Food include different allergic food

Table INVOICE

Basic information of different invoice of different passenger,

Invoice_No is primary key and represent different number of invoice

Invoice_Date is the date of the flight

Flight_No is a foreign key and link to the primary key "Flight_No" of table FLIGHT and state the flight number which passenger will take

Passenger_No is a foreign key and link to the primary key "Passenger_No" of table PASSENGER in order to state the information of each passenger

Class_Code is a foreign key and link to the primary key "Class_Code" of table CLASS in order to state the class

Invoice_SeatRow provide the row of seat of each passenger on the flight

Invoice_SeatNo provide the no of seat of each passenger on the flight

Invoice_ChildMeal include a value either YES or No to determines the child meal of each passenger
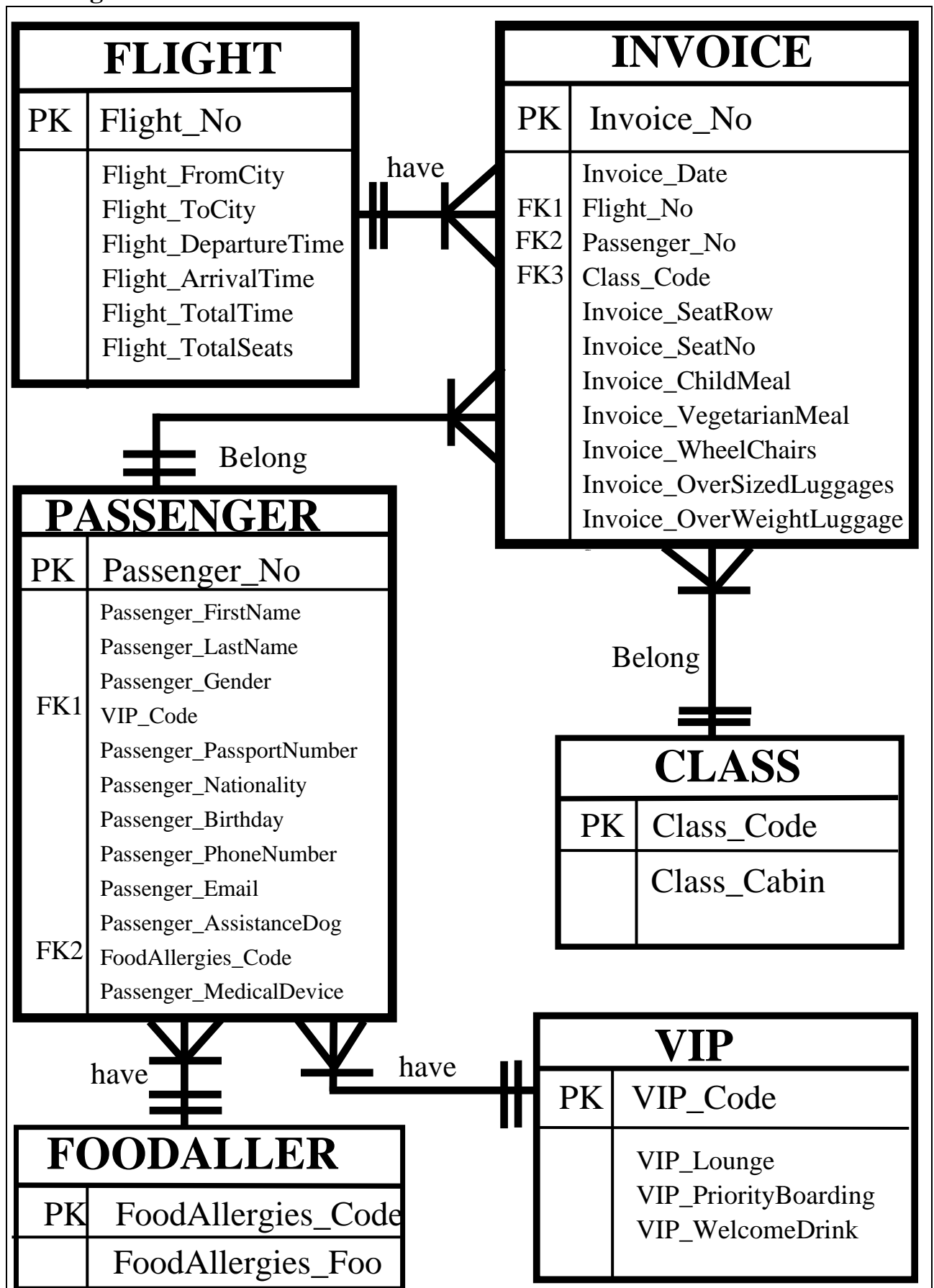
Invoice_VegetarianMeal include a value either YES or No to determines the vegetarian meal of each passenger

Invoice_WheelChairs include a value either YES or No to determines the special need of wheel chairs

Invoice_OverSizedLuggages include a value either YES or No to show the over sized luggages on each passenger

Invoice_OverWeightLuggages include a value either YES or No to determines the overweight luggages on each passenger

ER Diagram

FLIGHT

PK	Flight_No
	Flight_FromCity
	Flight_ToCity
	Flight_DepartureTime
	Flight_ArrivalTime
	Flight_TotalTime
	Flight_TotalSeats

have

INVOICE

PK	Invoice_No
	Invoice_Date
FK1	Flight_No
FK2	Passenger_No
FK3	Class_Code
	Invoice_SeatRow
	Invoice_SeatNo
	Invoice_ChildMeal
	Invoice_VegetarianMeal
	Invoice_WheelChairs
	Invoice_OverSizedLuggages
	Invoice_OverWeightLuggage

Belong

PASSENGER

PK	Passenger_No
	Passenger_FirstName
	Passenger_LastName
	Passenger_Gender
FK1	VIP_Code
	Passenger_PassportNumber
	Passenger_Nationality
	Passenger_Birthday
	Passenger_PhoneNumber
	Passenger_Email
	Passenger_AssistanceDog
FK2	FoodAllergies_Code
	Passenger_MedicalDevice

Belong

CLASS

PK	Class_Code
	Class_Cabin

have   have

VIP

PK	VIP_Code
	VIP_Lounge
	VIP_PriorityBoarding
	VIP_WelcomeDrink

FOODALLER

PK	FoodAllergies_Code
	FoodAllergies_Foo

Initial setup: Table PASSENGER: Basic information of each passenger

	Passenger_	Passenger	Passeng	Passeng	VIP_Cod	Passenger_Pas	Passenger_	Passenger_B	Passenger_	Passenger_Email	Passeng	FoodAlle	Passeng
1	TR364582	Ray	Trevors	M	Bronze	W314928756	UK	1956-08-12	34598763	RayTre@gmail.com	NO	0	NO
2	WA346528	Albert	Wong	M	Bronze	R8573341534	Hong Kong	2000-04-30	95875325	Albertwong0430@gmail.com	NO	2103	NO
3	SK602439	Kelvin	Smiths	M	Sliver	U3457675638	Brazil	2019-09-20	97823653	Kelvinsmiths@gmail.com	NO	0	YES
4	YH830168	Helen	Yeung	F	Bronze	R3214897654	Macau	2008-10-20	56764982	Helenyeung2008@gmail.com	NO	2109	NO
5	PE045262	Esther	Pang	F	Gold	U2473865423	Taiwan	2016-03-10	36476786	Estherpang0310@gmail.com	NO	0	NO
6	DL935347	Ludd	Davis	M	Sliver	Q1342536478	USA	1989-11-29	53142389	Davis1129@gmail.com	YES	0	NO
7	JW790524	Jack	Wong	M	Gold	J89101931051	Hong Kong	2001-11-05	55715066	jacky20011105@hotmail.com	NO	2103	NO
8	SJ234356	James	Smith	M	Bronze	G5473898734	USA	1989-04-05	21342546	Jamsmith0405@gmail.com	NO	0	NO
9	BW562337	WooSeok	Byeon	M	Gold	T5954738784	Korea	1991-10-31	34256788	BWS19911031@gmail.com	NO	2104	NO
10	JM967923	Mary	Johnson	F	Sliver	T5468918725	USA	2000-01-23	45364675	Marjohns@gmail.com	YES	0	NO
11	CP475013	Peter	Chan	M	Bronze	P4657738493	Hong Kong	2002-04-01	34587578	Chanpeter0401@gmail.com	NO	0	NO
12	CD346951	David	Cheung	M	Bronze	H3489743102	Macau	1991-04-23	3453667	Cheungdavi@gmail.com	NO	2107	NO
13	JD124768	Dorothy	Johnson	F	Bronze	H4975612356	UK	2000-12-31	86756234	Johnforthy@gmail.com	NO	0	NO
14	YJ687124	John	Yu	M	Sliver	U5469358769	Hong Kong	2001-02-06	98542345	Yukamshing0206@gmail.com	NO	2108	NO
15	DB589398	Brian	Davis	M	Bronze	T4359787531	UK	1999-11-19	23145789	Davisbrian1119@gmail.com	NO	0	YES
16	WP109675	Patricia	Williams	F	Bronze	P4259786412	USA	1992-06-09	65453897	paterwill69@gmail.com	NO	0	NO
17	LH809712	Horace	Lau	M	Sliver	Q2381406746	Hong Kong	1989-04-05	21389564	Horalau83985@gmail.com	YES	0	NO
18	MG547861	George	Miller	M	Bronze	V4598764355	UK	1985-07-25	59387422	Gm19850725@gmail.com	NO	2105	NO
19	BJ348396	Jennifer	Brown	F	Bronze	R4976521345	USA	1995-09-25	98762469	Jenniferbrown0925@gmail.com	NO	0	YES
20	CM578962	Marco	Chau	M	Bronze	W1348295764	Hong Kong	2001-04-08	34253643	Marcochau48@gmail.com	NO	0	NO
21	JP475399	Paul	Jones	M	Gold	R3589673456	UK	1993-10-01	34568675	Jonespaul1001@gmail.com	YES	0	NO
22	NT689712	Thomas	Ng	M	Bronze	E3142590885	Hong Kong	2001-03-10	45369786	Thomasng0310@gmail.com	NO	2101	NO
23	JL658728	Linda	Jones	F	Sliver	T3425365464	USA	1994-05-05	43258753	Lindajones@gmail.com	NO	0	NO
24	YU789561	Ugo	Yiu	M	Gold	R4238957544	Hong Kong	2001-09-10	86754563	Yuyiuyiu0910@gmail.com	YES	0	NO
25	BE689543	Edward	Brown	M	Bronze	B4895787936	Japan	1997-09-22	34255944	Browncakesgd@gmail.com	NO	2102	NO
26	CJ568971	Jacky	Chung	M	Gold	F3495083195	Hong Kong	2001-06-10	31425783	Jackytaiwanptbf@gmail.com	NO	0	NO
27	KT986543	TaeYeon	Kim	F	Bronze	F9485765731	Korea	1989-03-09	87656342	amaingstaurday0309@gmail.com	YES	0	NO
28	TJ458791	Jason	Tai	M	Bronze	J1987231454	Hong Kong	2001-08-29	56789873	Englandus@gmail.com	NO	2103	NO

Table FLIGHT: Basic information of each flight

	Flight_N	Flight_From	Flight_ToCi	Flight_D	Flight_A	Flight_TotalT	Flight_T
1	CFX36	Hong Kong	Manila	09:15	11:25	2hr 10mins	100
2	CFX37	Manila	Hong Kong	17:25	19:55	2hr 30mins	100
3	CFX82	Hong Kong	Bangkok	12:45	14:25	2hr 40mins	250
4	CFX83	Bangkok	Hong Kong	20:00	23:20	3hr 20mins	250
5	CFX45	Hong Kong	Tokyo	10:40	16:05	4hr 25mins	400
6	CFX46	Tokyo	Hong Kong	15:45	19:40	4hr 55mins	400
7	CFX52	Hong Kong	London	01:00	06:20	13hr 20mins	200
8	CFX53	London	Hong Kong	11:15	07:00	11hr 45mins	200
9	CFX58	Hong Kong	Taipei	08:10	10:00	1hr 50mins	200
10	CFX59	Taipei	Hong Kong	16:00	17:50	1hr 50mins	200
11	CFX67	Hong Kong	Jakarta	09:00	12:45	4hr 45mins	150
12	CFX68	Jakarta	Hong Kong	01:20	07:15	4hr 55mins	150
13	CFX75	Hong Kong	Seoul	02:00	06:40	3hr 40mins	200
14	CFX76	Seoul	Hong Kong	19:45	22:30	3hr 45mins	200

Table CLASS: Basic information of each cabin

	Class_Code	Class_Cabin
1	Y	Economy
2	F	First
3	B	Business

Total rows loaded: 3

Table VIP: Basic information of each VIP level
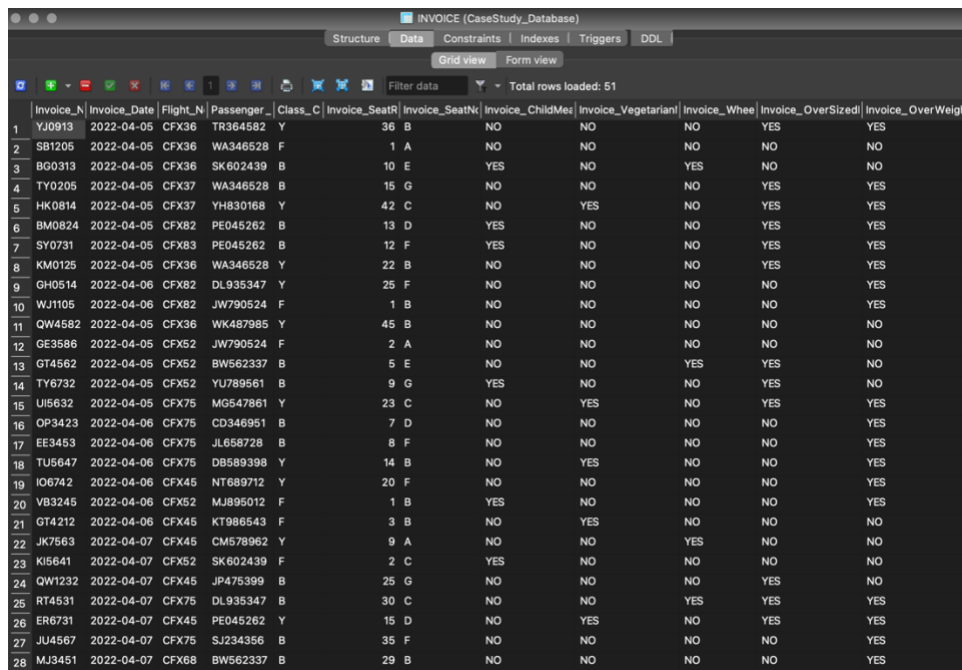
	VIP_Code	VIP_Lounge	VIP_PriorityBoarding	VIP_WelcomeDrink
1	Bronze	NO	YES	NO
2	Sliver	YES	YES	NO
3	Gold	YES	YES	YES

Total rows loaded: 3

Table FOODALLERGIES: Basic information of different food allergies

	FoodAllergies_Code	FoodAllergies_Food
1	2103	Milk
2	2109	Peanut
3	0	NULL
4	2102	Egg
5	2104	Nuts
6	2105	Shellfish
7	2108	Fish
8	2107	Soy
9	2106	Sesame
10	2101	Wheat

Total rows loaded: 10

Data entry by end-user:

INVOICE: Flight number, Seat row and number and different special requests

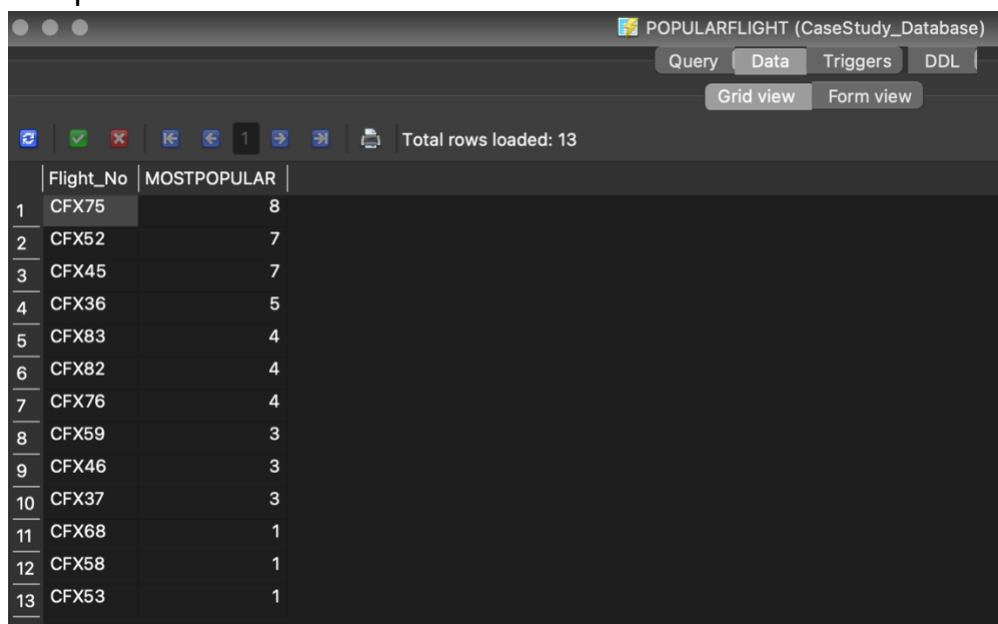## Logic View POPULARFLIGHT

CREATE VIEW POPULARFLIGHT AS

SELECT Flight_No, COUNT(Flight_No) AS MOSTPOPULAR

FROM INVOICE

GROUP BY Flight_No

ORDER BY MOSTPOPULAR DESC;

Sample results:

The most popular flight is CFX75, second popular flight are CFX52 and CFX45
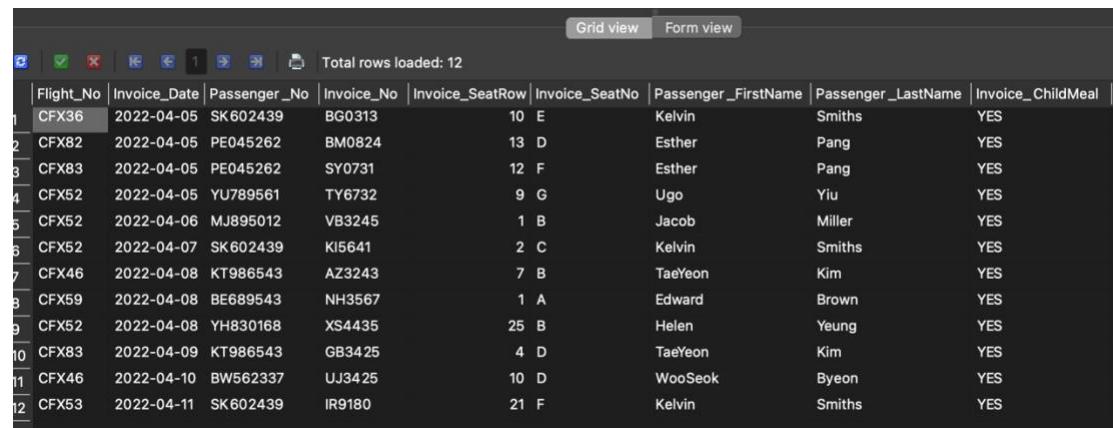
Test Result

(1) List each special requests during a week on different flight:

i.   Child meal:

select INVOICE.Flight_No, INVOICE.lnvoice_Date, INVOICE.Passenger_No,

INVOICE.Invoice_No, INVOICE.Invoice_SeatRow, INVOICE.Invoice_SeatNo,

PASSENGER.Passenger_FirstName, PASSENGER.Passenger_LastName,

INVOICE.Invoice_ChildMeal

from INVOICE, PASSENGER

where Invoice_ChildMeal like "YES" and INVOICE.Passenger_No =
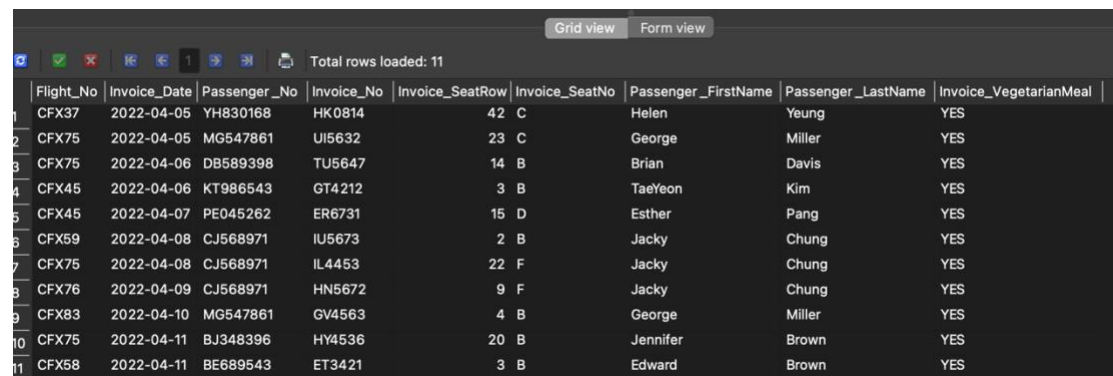
PASSENGER.Passenger_No;

Sample Results:

Grid view Form view

Total rows loaded: 12

	Flight_No	Invoice_Date	Passenger_No	Invoice_No	Invoice_SeatRow	Invoice_SeatNo	Passenger_FirstName	Passenger_LastName	Invoice_ChildMeal
1	CFX36	2022-04-05	SK602439	BG0313	10	E	Kelvin	Smiths	YES
2	CFX82	2022-04-05	PE045262	BM0824	13	D	Esther	Pang	YES
3	CFX83	2022-04-05	PE045262	SY0731	12	F	Esther	Pang	YES
4	CFX52	2022-04-05	YU789561	TY6732	9	G	Ugo	Yiu	YES
5	CFX52	2022-04-06	MJ895012	VB3245	1	B	Jacob	Miller	YES
6	CFX52	2022-04-07	SK602439	KI5641	2	C	Kelvin	Smiths	YES
7	CFX46	2022-04-08	KT986543	AZ3243	7	B	TaeYeon	Kim	YES
8	CFX59	2022-04-08	BE689543	NH3567	1	A	Edward	Brown	YES
9	CFX52	2022-04-08	YH830168	XS4435	25	B	Helen	Yeung	YES
10	CFX83	2022-04-09	KT986543	GB3425	4	D	TaeYeon	Kim	YES
11	CFX46	2022-04-10	BW562337	UJ3425	10	D	WooSeok	Byeon	YES
12	CFX53	2022-04-11	SK602439	IR9180	21	F	Kelvin	Smiths	YES

ii.   Vegetarian Meal:

select INVOICE.Flight_No, INVOICE.Invoice_Date, INVOICE.Passenger_No,

INVOICE.Invoice_No, INVOICE.Invoice_SeatRow, INVOICE.Invoice_SeatNo,

PASSENGER.Passenger_FirstName, PASSENGER.Passenger_LastName,

INVOICE.Invoice_VegetarianMeal

from INVOICE, PASSENGER

where Invoice_VegetarianMeal like "YES" and INVOICE.Passenger_No =
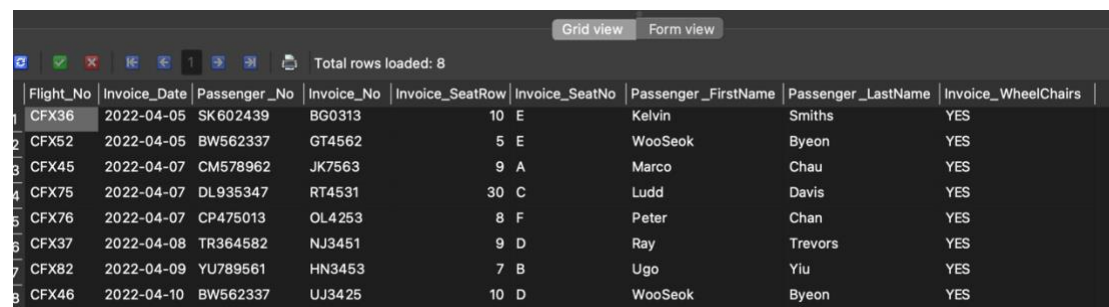
PASSENGER.Passenger_No;

Sample Results:

Grid view Form view

Total rows loaded: 11

	Flight_No	Invoice_Date	Passenger_No	Invoice_No	Invoice_SeatRow	Invoice_SeatNo	Passenger_FirstName	Passenger_LastName	Invoice_VegetarianMeal
1	CFX37	2022-04-05	YH830168	HK0814	42	C	Helen	Yeung	YES
2	CFX75	2022-04-05	MG547861	UI5632	23	C	George	Miller	YES
3	CFX75	2022-04-06	DB589398	TU5647	14	B	Brian	Davis	YES
4	CFX45	2022-04-06	KT986543	GT4212	3	B	TaeYeon	Kim	YES
5	CFX45	2022-04-07	PE045262	ER6731	15	D	Esther	Pang	YES
6	CFX59	2022-04-08	CJ568971	IU5673	2	B	Jacky	Chung	YES
7	CFX75	2022-04-08	CJ568971	IL4453	22	F	Jacky	Chung	YES
8	CFX76	2022-04-09	CJ568971	HN5672	9	F	Jacky	Chung	YES
9	CFX83	2022-04-10	MG547861	GV4563	4	B	George	Miller	YES
10	CFX75	2022-04-11	BJ348396	HY4536	20	B	Jennifer	Brown	YES
11	CFX58	2022-04-11	BE689543	ET3421	3	B	Edward	Brown	YES

iii.   Use of wheel chairs:

select INVOICE.Flight_No, INVOICE.Invoice_Date, INVOICE.Passenger_No, INVOICE.Invoice_No, INVOICE.Invoice_SeatRow, INVOICE.Invoice_SeatNo, PASSENGER.Passenger_FirstName, PASSENGER.Passenger_LastName, INVOICE.Invoice_WheelChairs

from INVOICE, PASSENGER

where Invoice_WheelChairs like "YES" and INVOICE.Passenger_No = PASSENGER.Passenger_No;
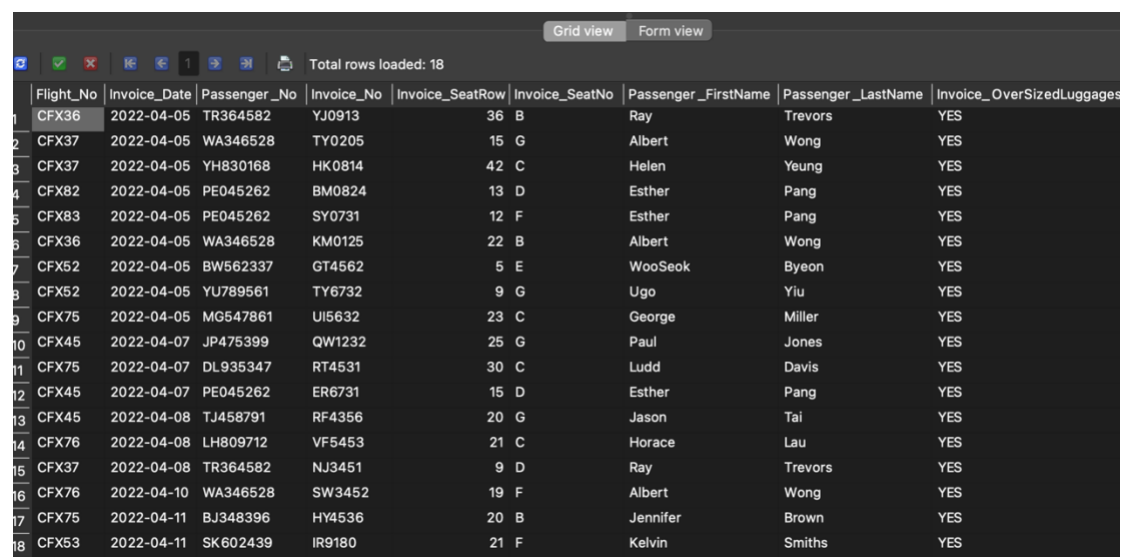
Sample Results:

Total rows loaded: 8

	Flight_No	Invoice_Date	Passenger_No	Invoice_No	Invoice_SeatRow	Invoice_SeatNo	Passenger_FirstName	Passenger_LastName	Invoice_WheelChairs
1	CFX36	2022-04-05	SK602439	BG0313	10	E	Kelvin	Smiths	YES
2	CFX52	2022-04-05	BW562337	GT4562	5	E	WooSeok	Byeon	YES
3	CFX45	2022-04-07	CM578962	JK7563	9	A	Marco	Chau	YES
4	CFX75	2022-04-07	DL935347	RT4531	30	C	Ludd	Davis	YES
5	CFX76	2022-04-07	CP475013	OL4253	8	F	Peter	Chan	YES
6	CFX37	2022-04-08	TR364582	NJ3451	9	D	Ray	Trevors	YES
7	CFX82	2022-04-09	YU789561	HN3453	7	B	Ugo	Yiu	YES
8	CFX46	2022-04-10	BW562337	UJ3425	10	D	WooSeok	Byeon	YES

iv.   Over-sized Luggages:

select INVOICE.Flight_No, INVOICE.Invoice_Date, INVOICE.Passenger_No, INVOICE.Invoice_No, INVOICE.Invoice_SeatRow, INVOICE.Invoice_SeatNo, PASSENGER.Passenger_FirstName, PASSENGER.Passenger_LastName, INVOICE.Invoice_OverSizedLuggages

from INVOICE, PASSENGER

where Invoice_OverSizedLuggages like "YES" and INVOICE.Passenger_No = PASSENGER.Passenger_No;

Sample Results:

Total rows loaded: 18

	Flight_No	Invoice_Date	Passenger_No	Invoice_No	Invoice_SeatRow	Invoice_SeatNo	Passenger_FirstName	Passenger_LastName	Invoice_OverSizedLuggages
1	CFX36	2022-04-05	TR364582	YJ0913	36	B	Ray	Trevors	YES
2	CFX37	2022-04-05	WA346528	TY0205	15	G	Albert	Wong	YES
3	CFX37	2022-04-05	YH830168	HK0814	42	C	Helen	Yeung	YES
4	CFX82	2022-04-05	PE045262	BM0824	13	D	Esther	Pang	YES
5	CFX83	2022-04-05	PE045262	SY0731	12	F	Esther	Pang	YES
6	CFX36	2022-04-05	WA346528	KM0125	22	B	Albert	Wong	YES
7	CFX52	2022-04-05	BW562337	GT4562	5	E	WooSeok	Byeon	YES
8	CFX52	2022-04-05	YU789561	TY6732	9	G	Ugo	Yiu	YES
9	CFX75	2022-04-05	MG547861	UI5632	23	C	George	Miller	YES
10	CFX45	2022-04-07	JP475399	QW1232	25	G	Paul	Jones	YES
11	CFX75	2022-04-07	DL935347	RT4531	30	C	Ludd	Davis	YES
12	CFX45	2022-04-07	PE045262	ER6731	15	D	Esther	Pang	YES
13	CFX45	2022-04-08	TJ458791	RF4356	20	G	Jason	Tai	YES
14	CFX76	2022-04-08	LH809712	VF5453	21	C	Horace	Lau	YES
15	CFX37	2022-04-08	TR364582	NJ3451	9	D	Ray	Trevors	YES
16	CFX76	2022-04-10	WA346528	SW3452	19	F	Albert	Wong	YES
17	CFX75	2022-04-11	BJ348396	HY4536	20	B	Jennifer	Brown	YES
18	CFX53	2022-04-11	SK602439	IR9180	21	F	Kelvin	Smiths	YES

v.   Overweight Luggages:

select INVOICE.Flight_No, INVOICE.Invoice_Date, INVOICE.Passenger_No, INVOICE.Invoice_No, INVOICE.Invoice_SeatRow, INVOICE.Invoice_SeatNo, PASSENGER.Passenger_FirstName, PASSENGER.Passenger_LastName, INVOICE.Invoice_OverWeightLuggages

from INVOICE, PASSENGER

where Invoice_OverWeightLuggages like "YES" and INVOICE.Passenger_No = PASSENGER.Passenger_No;

Sample Results:

Total rows loaded: 32

	Flight_No	Invoice_Date	Passenger_No	Invoice_No	Invoice_SeatRow	Invoice_SeatNo	Passenger_FirstName	Passenger_LastName	Invoice_OverWeightLuggages
1	CFX36	2022-04-05	TR364582	YJ0913	36	B	Ray	Trevors	YES
2	CFX37	2022-04-05	WA346528	TY0205	15	G	Albert	Wong	YES
3	CFX37	2022-04-05	YH830168	HK0814	42	C	Helen	Yeung	YES
4	CFX82	2022-04-05	PE045262	BM0824	13	D	Esther	Pang	YES
5	CFX83	2022-04-05	PE045262	SY0731	12	F	Esther	Pang	YES
6	CFX36	2022-04-05	WA346528	KM0125	22	B	Albert	Wong	YES
7	CFX82	2022-04-06	DL935347	GH0514	25	F	Ludd	Davis	YES
8	CFX82	2022-04-06	JW790524	WJ1105	1	B	Jack	Wong	YES
9	CFX75	2022-04-05	MG547861	UI5632	23	C	George	Miller	YES
10	CFX75	2022-04-06	CD346951	OP3423	7	D	David	Cheung	YES
11	CFX75	2022-04-06	JL658728	EE3453	8	F	Linda	Jones	YES
12	CFX75	2022-04-06	DB589398	TU5647	14	B	Brian	Davis	YES
13	CFX45	2022-04-06	NT689712	IO6742	20	F	Thomas	Ng	YES
14	CFX52	2022-04-06	MJ895012	VB3245	1	B	Jacob	Miller	YES
15	CFX75	2022-04-07	DL935347	RT4531	30	C	Ludd	Davis	YES
16	CFX45	2022-04-07	PE045262	ER6731	15	D	Esther	Pang	YES
17	CFX75	2022-04-07	SJ234356	JU4567	35	F	James	Smith	YES
18	CFX68	2022-04-07	BW562337	MJ3451	29	B	WooSeok	Byeon	YES
19	CFX76	2022-04-07	CP475013	OL4253	8	F	Peter	Chan	YES
20	CFX46	2022-04-08	KT986543	AZ3243	7	B	TaeYeon	Kim	YES
21	CFX76	2022-04-08	LH809712	VF5453	21	C	Horace	Lau	YES
22	CFX37	2022-04-08	TR364582	NJ3451	9	D	Ray	Trevors	YES
23	CFX75	2022-04-08	CJ568971	IL4453	22	F	Jacky	Chung	YES

Total rows loaded: 32

	Flight_No	Invoice_Date	Passenger_No	Invoice_No	Invoice_SeatRow	Invoice_SeatNo	Passenger_FirstName	Passenger_LastName	Invoice_OverWeightLuggages
10	CFX75	2022-04-06	CD346951	OP3423	7	D	David	Cheung	YES
11	CFX75	2022-04-06	JL658728	EE3453	8	F	Linda	Jones	YES
12	CFX75	2022-04-06	DB589398	TU5647	14	B	Brian	Davis	YES
13	CFX45	2022-04-06	NT689712	IO6742	20	F	Thomas	Ng	YES
14	CFX52	2022-04-06	MJ895012	VB3245	1	B	Jacob	Miller	YES
15	CFX75	2022-04-07	DL935347	RT4531	30	C	Ludd	Davis	YES
16	CFX45	2022-04-07	PE045262	ER6731	15	D	Esther	Pang	YES
17	CFX75	2022-04-07	SJ234356	JU4567	35	F	James	Smith	YES
18	CFX68	2022-04-07	BW562337	MJ3451	29	B	WooSeok	Byeon	YES
19	CFX76	2022-04-07	CP475013	OL4253	8	F	Peter	Chan	YES
20	CFX46	2022-04-08	KT986543	AZ3243	7	B	TaeYeon	Kim	YES
21	CFX76	2022-04-08	LH809712	VF5453	21	C	Horace	Lau	YES
22	CFX37	2022-04-08	TR364582	NJ3451	9	D	Ray	Trevors	YES
23	CFX75	2022-04-08	CJ568971	IL4453	22	F	Jacky	Chung	YES
24	CFX52	2022-04-08	YH830168	XS4435	25	B	Helen	Yeung	YES
25	CFX76	2022-04-09	CJ568971	HN5672	9	F	Jacky	Chung	YES
26	CFX82	2022-04-09	YU789561	HN3453	7	B	Ugo	Yiu	YES
27	CFX45	2022-04-10	MJ895012	GT7542	17	C	Jacob	Miller	YES
28	CFX46	2022-04-10	BW562337	UJ3425	10	D	WooSeok	Byeon	YES
29	CFX76	2022-04-10	WA346528	SW3452	19	F	Albert	Wong	YES
30	CFX75	2022-04-11	BJ348396	HY4536	20	B	Jennifer	Brown	YES
31	CFX53	2022-04-11	SK602439	IR9180	21	F	Kelvin	Smiths	YES
32	CFX52	2022-04-11	DL935347	CD4536	36	B	Ludd	Davis	YES

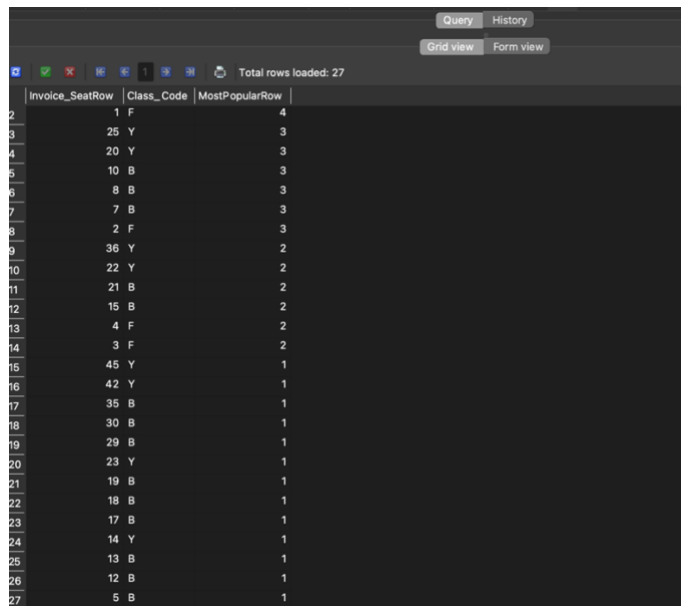**"Overweight Luggages" is the most requested during a week on flight reservation**

2. List the most popular row and seat that customer chosen

i.   **most popular row:**

select INVOICE.Invoice_SeatRow, INVOICE.Class_Code,

count(INVOICE.Invoice_SeatRow) as MostPopularRow

from INVOICE

GROUP BY INVOICE.Invoice_SeatRow

ORDER BY MostPopularRow DESC;

Sample Results:

Invoice_SeatRow	Class_Code	MostPopularRow
1	F	4
25	Y	3
20	Y	3
10	B	3
8	B	3
7	B	3
2	F	3
36	Y	2
22	Y	2
21	B	2
15	B	2
4	F	2
3	F	2
45	Y	1
42	Y	1
35	B	1
30	B	1
29	B	1
23	Y	1
19	B	1
18	B	1
17	B	1
14	Y	1
13	B	1
12	B	1
5	B	1

Total rows loaded: 27

The most popular row is Row 1 and Row 9.

ii.   **most popular seat:**

select INVOICE.Invoice_SeatNo, INVOICE.Class_Code,

count(INVOICE.Invoice_SeatNo) as MostPopularNo

from INVOICE

GROUP BY INVOICE.Invoice_SeatNo

ORDER BY MostPopularNo DESC;

Sample Results:

Invoice_SeatNo	Class_Code	MostPopularNo
B	Y	16
F	B	10
D	B	6
C	Y	6
A	F	6
G	B	5
E	B	2

Total rows loaded: 7

The most popular seat number is seat B.

3. List all passenger on the most popular flight(CFX75) in a week and its VIP special service

select INVOICE.Flight_No, INVOICE.Passenger_No,

PASSENGER.Passenger_FirstName, PASSENGER.Passenger_LastName,

PASSENGER.VIP_Code,

VIP.VIP_Lounge, VIP.VIP_PriorityBoarding, VIP.VIP_WelcomeDrink

from INVOICE, PASSENGER, VIP

where INVOICE.Flight_No like "CFX75" and INVOICE.Passenger_No =

PASSENGER.Passenger_No and PASSENGER.VIP_Code = VIP.VIP_Code;

Sample Results:

	Flight_No	Passenger_No	Passenger_FirstName	Passenger_LastName	VIP_Cod	VIP_Lounge	VIP_PriorityBoarding	VIP_WelcomeDrink
1	CFX75	MG547861	George	Miller	Bronze	NO	YES	NO
2	CFX75	CD346951	David	Cheung	Bronze	NO	YES	NO
3	CFX75	JL658728	Linda	Jones	Sliver	YES	YES	NO
4	CFX75	DB589398	Brian	Davis	Bronze	NO	YES	NO
5	CFX75	DL935347	Ludd	Davis	Sliver	YES	YES	NO
6	CFX75	SJ234356	James	Smith	Bronze	NO	YES	NO
7	CFX75	CJ568971	Jacky	Chung	Gold	YES	YES	YES
8	CFX75	BJ348396	Jennifer	Brown	Bronze	NO	YES	NO

Total rows loaded: 8

All of the passenger on the most popular flight both have "Priority Boarding".

4. List the total people of different food allergies

select PASSENGER.FoodAllergies_Code, COUNT(PASSENGER.FoodAllergies_Code) as

MostAllergiesFoodOnOurPassenger

from PASSENGER

GROUP BY PASSENGER.FoodAllergies_Code

ORDER BY MostAllergiesFoodOnOurPassenger DESC;

Sample Results:

	FoodAllergies_Code	MostAllergiesFoodOnOurPassenger
1	0	20
2	2103	3
3	2109	1
4	2108	1
5	2107	1
6	2105	1
7	2104	1
8	2102	1
9	2101	1

Total rows loaded: 9

"0" mean passenger don't have food allergies and most of passengers don't have food allergies but there are at least 3 passengers have milk allergy.

5. List all passenger who need to pay attention and tack care to them, such as medical device and assistance dog

i. medical device

select INVOICE.Invoice_Date, INVOICE.Flight_No, INVOICE.Passenger_No,

INVOICE.Invoice_SeatRow ,INVOICE.Invoice_SeatNo,

PASSENGER.Passenger_FirstName, PASSENGER.Passenger_LastName,

PASSENGER.Passenger_Gender, PASSENGER.Passenger_MedicalDevice

from PASSENGER, INVOICE

where INVOICE.Passenger_No = PASSENGER.Passenger_No and

PASSENGER.Passenger_MedicalDevice like "%yes%" ;

Sample Results:

	Invoice_Date	Flight_No	Passenger_No	Invoice_SeatRow	Invoice_SeatNo	Passenger_FirstName	Passenger_LastName	Passenger_Gender	Passenger_MedicalDevice
1	2022-04-05	CFX36	SK602439	10	E	Kelvin	Smiths	M	YES
2	2022-04-06	CFX75	DB589398	14	B	Brian	Davis	M	YES
3	2022-04-07	CFX52	SK602439	2	C	Kelvin	Smiths	M	YES
4	2022-04-11	CFX75	BJ348396	20	B	Jennifer	Brown	F	YES
5	2022-04-11	CFX53	SK602439	21	F	Kelvin	Smiths	M	YES

Total rows loaded: 5

ii. assistance dog

select INVOICE.Invoice_Date, INVOICE.Flight_No, INVOICE.Passenger_No,

INVOICE.Invoice_SeatRow ,INVOICE.Invoice_SeatNo,

PASSENGER.Passenger_FirstName, PASSENGER.Passenger_LastName,

PASSENGER.Passenger_Gender, PASSENGER.Passenger_AssistanceDog

from PASSENGER, INVOICE

where INVOICE.Passenger_No = PASSENGER.Passenger_No and
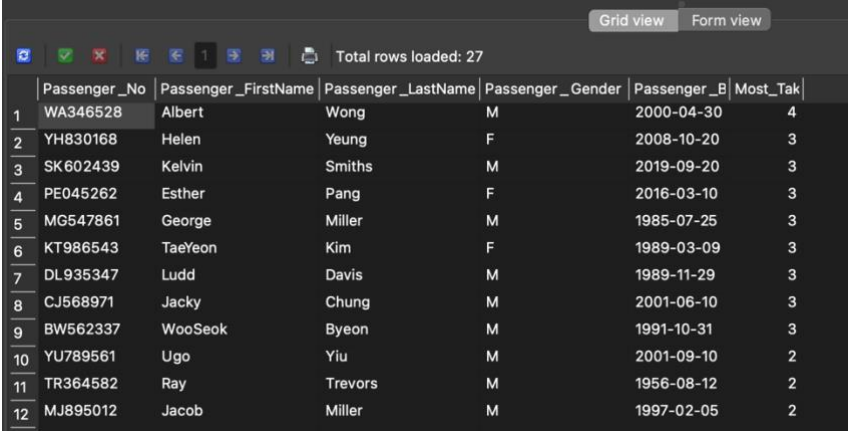
PASSENGER.Passenger_AssistanceDog like "%yes%" ;

Sample Results:

	Invoice_Date	Flight_No	Passenger_No	Invoice_SeatRow	Invoice_SeatNo	Passenger_FirstName	Passenger_LastName	Passenger_Gender	Passenger_AssistanceDog
1	2022-04-06	CFX82	DL935347	25	F	Ludd	Davis	M	YES
2	2022-04-05	CFX36	WK487985	45	B	Kevin	White	M	YES
3	2022-04-05	CFX52	YU789561	9	G	Ugo	Yiu	M	YES
4	2022-04-06	CFX45	KT986543	3	B	TaeYeon	Kim	F	YES
5	2022-04-07	CFX45	JP475399	25	G	Paul	Jones	M	YES
6	2022-04-07	CFX75	DL935347	30	C	Ludd	Davis	M	YES
7	2022-04-08	CFX46	KT986543	7	B	TaeYeon	Kim	F	YES
8	2022-04-08	CFX76	LH809712	21	C	Horace	Lau	M	YES
9	2022-04-09	CFX82	YU789561	7	B	Ugo	Yiu	M	YES
10	2022-04-09	CFX83	KT986543	4	D	TaeYeon	Kim	F	YES
11	2022-04-11	CFX52	DL935347	36	B	Ludd	Davis	M	YES

Total rows loaded: 11

6. Find the passenger who always take our company's flight

select INVOICE.Passenger_No, PASSENGER.Passenger_FirstName,

PASSENGER.Passenger_LastName, PASSENGER.Passenger_Gender,

PASSENGER.Passenger_Birthday, Count (INVOICE.Passenger_No) as

Most_TakeAFlight

from INVOICE,PASSENGER

where INVOICE.Passenger_No = PASSENGER.Passenger_No

GROUP BY INVOICE.Passenger_No

ORDER BY Most_TakeAFlight DESC;

Sample Results:

	Passenger _No	Passenger _FirstName	Passenger _LastName	Passenger _ Gender	Passenger _B	Most_Tak
1	WA346528	Albert	Wong	M	2000-04-30	4
2	YH830168	Helen	Yeung	F	2008-10-20	3
3	SK602439	Kelvin	Smiths	M	2019-09-20	3
4	PE045262	Esther	Pang	F	2016-03-10	3
5	MG547861	George	Miller	M	1985-07-25	3
6	KT986543	TaeYeon	Kim	F	1989-03-09	3
7	DL935347	Ludd	Davis	M	1989-11-29	3
8	CJ568971	Jacky	Chung	M	2001-06-10	3
9	BW562337	WooSeok	Byeon	M	1991-10-31	3
10	YU789561	Ugo	Yiu	M	2001-09-10	2
11	TR364582	Ray	Trevors	M	1956-08-12	2
12	MJ895012	Jacob	Miller	M	1997-02-05	2

Total rows loaded: 27 — Grid view / Form view

"Albert Wong" is always take our company's flight during a week which company can ask him about flight's service and why he choose our flights for improve our service and flight

7. List all the passenger information who take flight on 2022/4/5 using LEFT OUTER JOIN

select invoice.Invoice_No, invoice.Flight_No,

invoice.Invoice_Date, invoice.Passenger_No, Passenger.Passenger_FirstName,

Passenger.Passenger_LastName,

Passenger.Passenger_Gender, Passenger.Passenger_PhoneNumber,

Passenger.Passenger_Email

FROM invoice LEFT OUTER JOIN Passenger

on invoice.Passenger_No = Passenger.Passenger_No

where invoice.Invoice_Date = "2022-04-05" ;

Sample Results:

	Invoice_N	Flight_N	Invoice_Date	Passenger_	Passenger	Passeng	Passeng	Passenger_	Passenger_Email
1	YJ0913	CFX36	2022-04-05	TR364582	Ray	Trevors	M	34598763	RayTre@gmail.com
2	SB1205	CFX36	2022-04-05	WA346528	Albert	Wong	M	95875325	Albertwong0430@gmail.com
3	BG0313	CFX36	2022-04-05	SK602439	Kelvin	Smiths	M	97823653	Kelvinsmiths@gmail.com
4	TY0205	CFX37	2022-04-05	WA346528	Albert	Wong	M	95875325	Albertwong0430@gmail.com
5	HK0814	CFX37	2022-04-05	YH830168	Helen	Yeung	F	56764982	Helenyeung2008@gmail.com
6	BM0824	CFX82	2022-04-05	PE045262	Esther	Pang	F	36476786	Estherpang0310@gmail.com
7	SY0731	CFX83	2022-04-05	PE045262	Esther	Pang	F	36476786	Estherpang0310@gmail.com
8	KM0125	CFX36	2022-04-05	WA346528	Albert	Wong	M	95875325	Albertwong0430@gmail.com
9	QW4582	CFX36	2022-04-05	WK487985	Kevin	White	M	67439786	Whitekevin29@gmail.com
10	GE3586	CFX52	2022-04-05	JW790524	Jack	Wong	M	55715066	jacky20011105@hotmail.com
11	GT4562	CFX52	2022-04-05	BW562337	WooSeok	Byeon	M	34256788	BWS19911031@gmail.com
12	TY6732	CFX52	2022-04-05	YU789561	Ugo	Yiu	M	86756453	Yiuyiuyiu0910@gmail.com
13	UI5632	CFX75	2022-04-05	MG547861	George	Miller	M	59387422	Gm19850725@gmail.com

Total rows loaded: 13

Assumptions and Limitations

- All passengers have their flight during a period (2022/04/05 to 2022/04/11)
- If first time user booked a flight ticket on our flight reservations, it will become the basic VIP level – bronze level and record it on the database
- How Passenger use our Flight Reservations
  - Passenger will enter their information, such as name, gender, passport number, their VIP code and select their special needs (Assistance Dog, Food Allergies, Medical Device)
  - Then Passenger will choose their flight, Cabin, Seat Row and number, also select their special request (Child Meal, Vegetarian Meal, Use of wheel chairs, Over-sized Luggages, Overweight Luggages)
  - Above steps must not contain blank information and must not skip each step
- If a passenger didn't choose their flight, database will only save his/her information and will not have his/her own invoice
- If a flight was cancelled due to different cause and deleted on table FLIGHT, flight number on table INVOICE will be error and be confusing as they are no corresponding foreign key on table FLIGHT
- If a passenger have food allergies that do not include in table "FOODALLERGIES", it will not record it as the flight reservations only allow passenger choose the allergy food and they can't type it on the flight reservations. It neglect the real situation of different people.

Conclusion

This design basically supports the stated requirements. In future, this design should be enhanced to cater for:

- Passenger not entering some unimportant information
- Summary on passenger who have not use our flight reservation system in a year
- Summary on passenger who always use our flight reservation system in a year
- Summary on passenger who always requests different special requests in a year
- Summary on gold VIP level passenger and which flight is the most taken among gold VIP level passenger
- Summary on how passenger choose the cabin under different situation, such as total flight time, destinations
- Not enforcing passenger become a bronze level VIP after they use our flight reservation system, system can add a Non-VIP on VIP code
- System also can add a visitors function. Under the visitors function, visitors can browse our system to check the time or destination of flight without entering personal information and becoming a VIP
- Allow passenger enter their allergy food which is not include in our list to protect the health of passenger and flight company
- Allow passenger enter their special requests in a comment box which is not include in the part of special requests or add more new special requests, such as require a window seats or aisle seats, require to seat with his/her family member, passenger with wheelchair or with children require to priority boarding, require an emergency exit row seat to have more space, require a seat which is far away from toilet or close to the kitchen