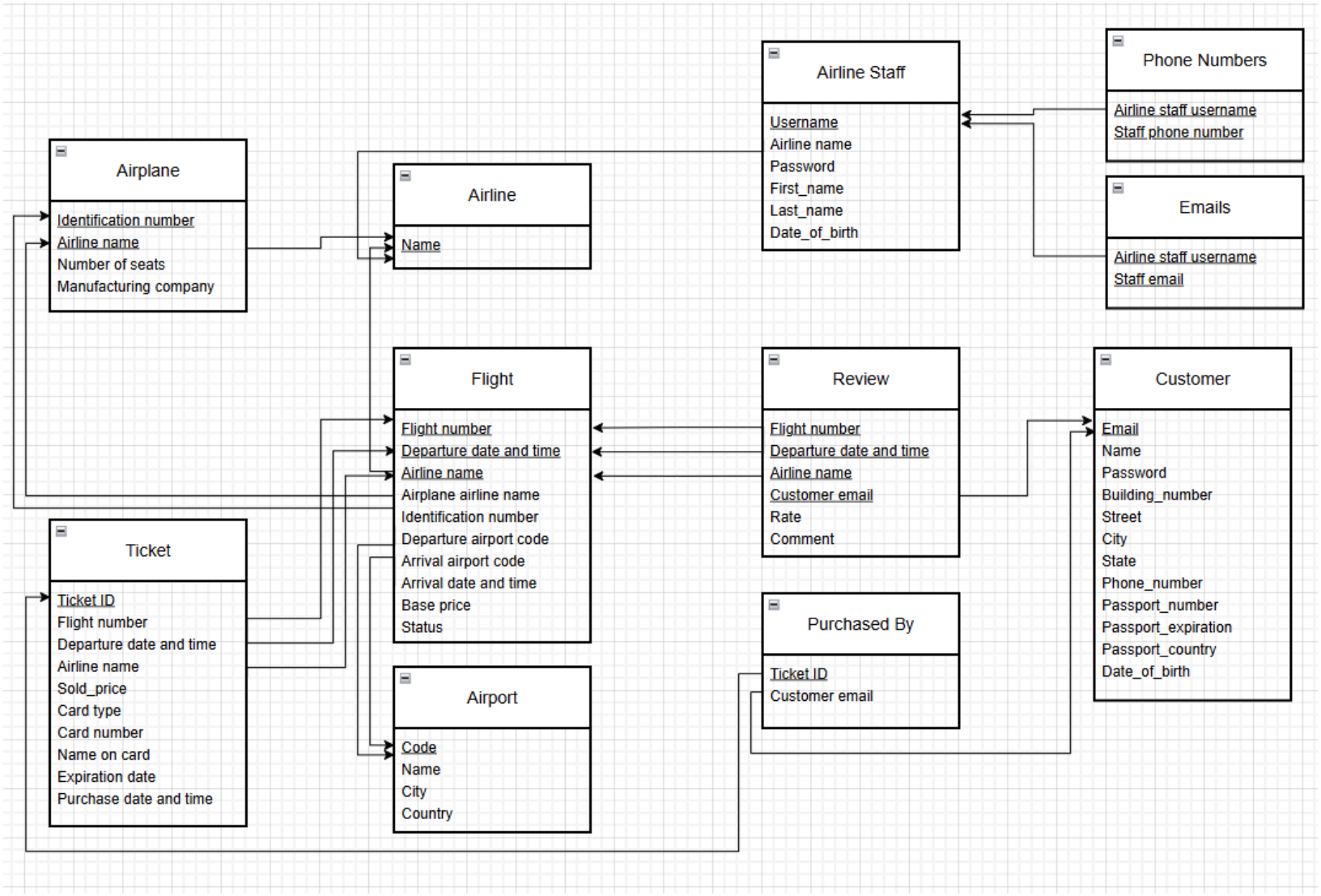
Part 2: Online Air Ticket Reservation System

1. Following the techniques we studied, derive a relational schema diagram from the Part 1's ER diagram. Remember to underline primary keys and use arrows from the referencing schema to the referenced schema to indicate foreign key constraints.



2. Write and execute SQL CREATE TABLE statements to create the tables. Choose reasonable types for the attributes.

Airline table:

```
SELECT * FROM `Airline`
```

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Name

Airline_Staff table:

```
SELECT * FROM `Airline_Staff`
```

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Username	Airline_name	Password	First_name	Last_name	Date_of_birth

Emails table:

```
SELECT * FROM `Emails`
```

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Airline_staff_username	Staff_email

Phone_Numbers table:

```
SELECT * FROM `Phone_Numbers`
```

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Airline_staff_username	Staff_phone_number

Airplane table:

```
SELECT * FROM `Airplane`
```

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Identification_number	Airline_name	Number_of_seats	Manufacturing_company

Airport table:

```
SELECT * FROM `Airport`
```

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Code	Name	City	Country

Customer table:

```
SELECT * FROM `Customer`
```

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Email	Name	Password	Building_number	Street	City	State	Phone_number	Passport_number	Passport_expiration	Passport_country	Date_of_birth

Flight table:

```
SELECT * FROM `Flight`
```

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Flight_number	Departure_date_time	Airline_name	Airplane_airline_name	Identification_number	Departure_airport_code	Arrival_airport_code	Arrival_date_time	Base_price	Flight_status

Purchased_By table:

```
SELECT * FROM `Purchased_By`
```

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Ticket_ID	Customer_email

Review table:

```
SELECT * FROM `Review`
```

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Flight_number	Departure_date_time	Airline_name	Customer_email	Rate	Comment

Ticket table:

```
SELECT * FROM `Ticket`
```

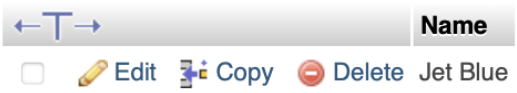
Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Ticket_ID	Flight_number	Departure_date_time	Airline_name	Sold_price	Card_type	Card_number	Name_on_card	Expiration_date	Purchase_date_time

3. Write and execute INSERT statements to insert data representing one airline's air ticket reservation system. As for example, you can insert data in the appropriate tables as follows or you can insert data for another airline or your own make up airline:

a. One Airline name "Jet Blue".

INSERT INTO Airline (Name) VALUES ('Jet Blue');

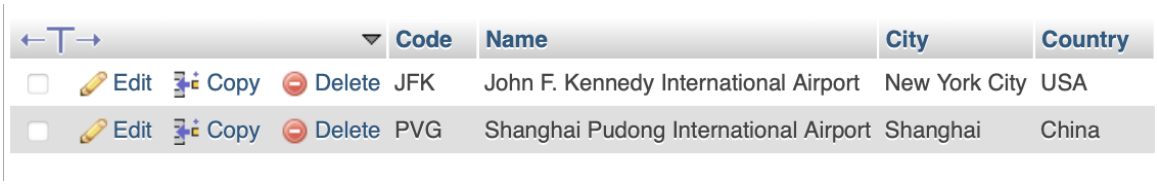


	Name
Edit Copy Delete	Jet Blue

b. At least Two airports named "JFK" in NYC and "PVG" in Shanghai.

INSERT INTO Airport(Code, Name, City, Country) VALUES ('JFK', 'John F. Kennedy International Airport', 'New York City', 'USA');

INSERT INTO Airport(Code, Name, City, Country) VALUES ('PVG', 'Shanghai Pudong International Airport', 'Shanghai', 'China');



	Code	Name	City	Country
Edit Copy Delete	JFK	John F. Kennedy International Airport	New York City	USA
Edit Copy Delete	PVG	Shanghai Pudong International Airport	Shanghai	China

c. Insert at least three customers with appropriate names and other attributes.

INSERT INTO Customer(Email, Name, Password, Building_number, Street, City, State, Phone_number, Passport_number, Passport_expiration, Passport_country, Date_of_birth) VALUES
('billybob@gmail.com', 'Billy Bob', 'ILoveBilly', 201, 'Fairfax St', 'New York', 'New York', '646 904 1132', '763478683', '2030-10-02', 'USA', '1970-02-17'),

('kellyclark@gmail.com', 'Kelly Clark', '18091970', 12, 'Lafayette St', 'New York', 'New York', '6456991123', '678249820', '2028-08-28', 'USA', '1980-02-11'),

('jim.fall@hotmail.com', 'Jimmy Fall', 'IHateKellyClark123', 3, 'Pine St', 'Seattle', 'Washington', '206 498 5014', '876544352', '2032-04-27', 'USA', '1974-09-19'),

('santa.claus@yahoo.com', 'Santa Claus', 'MerryChristmas', 123, 'Elf Road', 'North Pole', 'North Pole', '605 313 0691', '111114352', '2027-12-27', 'Finland', '1950-03-15');

	Email	Name	Password	Building_number	Street	City	State	Phone_number	Passport_number	Passport_expiration	Passport_country	Date_of_birth
Edit Copy Delete	billybob@gmail.com	Billy Bob	ILoveBilly	201	Fairfax St	New York	New York	646 904 1132	763478683	2030-10-02	USA	1970-02-17
Edit Copy Delete	jim.fall@hotmail.com	Jimmy Fall	IHateKellyClark123	3	Pine St	Seattle	Washington	206 498 5014	876544352	2032-04-27	USA	1974-09-19
Edit Copy Delete	kellyclark@gmail.com	Kelly Clark	18091970	12	Lafayette St	New York	New York	6456991123	678249820	2028-08-28	USA	1980-02-11
Edit Copy Delete	santa.claus@yahoo.com	Santa Claus	MerryChristmas	123	Elf Road	North Pole	North Pole	605 313 0691	111114352	2027-12-27	Finland	1950-03-15

d. Insert at least three airplanes.

INSERT INTO Airplane (Identification_number, Airline_name, Number_of_seats, Manufacturing_company) VALUES
('JB001', 'Jet Blue', 250, 'Airbus'),

('JB002', 'Jet Blue', 150, 'Boeing'),

('JB003', 'Jet Blue', 200, 'Embraer');

	Identification_number	Airline_name	Number_of_seats	Manufacturing_company
Edit Copy Delete	JB001	Jet Blue	250	Airbus
Edit Copy Delete	JB002	Jet Blue	150	Boeing
Edit Copy Delete	JB003	Jet Blue	200	Embraer

e. Insert At least One airline Staff working for Jet Blue.

INSERT INTO Airline_Staff(Username, Airline_name, Password, First_name, Last_name, Date_of_birth) VALUES ('cm3418', 'Jet Blue', 'vsjhgvss1234', 'Camilla', 'Menendez', '1972-04-28'), ('ha7378', 'Jet Blue', 'staff_mahmoud74', 'Hamoudi', 'AbuAntar', '1967-12-31');

INSERT INTO Phone_Numbers (Airline_staff_username, Staff_phone_number) VALUES ('cm3418', '800-555-1234');

INSERT INTO Emails (Airline_staff_username, Staff_email)
VALUES ('cm3418', 'camilla.menendez@jetblue.com');

INSERT INTO Emails (Airline_staff_username, Staff_email)
VALUES ('ha7378', 'hamoudi.abuantar@jetblue.com');

INSERT INTO Phone_Numbers (Airline_staff_username, Staff_phone_number) VALUES ('ha7378', '800-723-4321');

	Username	Airline_name	Password	First_name	Last_name	Date_of_birth
Edit Copy Delete	cm3418	Jet Blue	vsjhgvss1234	Camilla	Menendez	1972-04-28
Edit Copy Delete	ha7378	Jet Blue	staff_mahmoud74	Hamoudi	AbuAntar	1967-12-31

	Airline_staff_username	Staff_email
Edit Copy Delete	cm3418	camilla.menendez@jetblue.com
Edit Copy Delete	ha7378	hamoudi.abuantar@jetblue.com

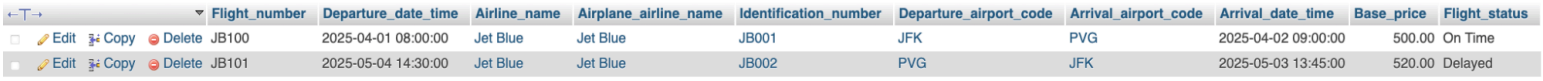
	Airline_staff_username	Staff_phone_number
Edit Copy Delete	cm3418	800-555-1234
Edit Copy Delete	ha7378	800-723-4321

f. Insert several flights with on-time, and delayed statuses.

INSERT INTO Flight(Flight_number, Departure_date_time, Airline_name, Airplane_airline_name, Identification_number, Departure_airport_code, Arrival_airport_code, Arrival_date_time, Base_price, Flight_status) VALUES

('JB100', '2025-04-01 08:00:00', 'Jet Blue', 'Jet Blue', 'JB001', 'JFK', 'PVG', '2025-04-02 09:00:00', 500.00, 'On Time'),

('JB101', '2025-05-04 14:30:00', 'Jet Blue', 'Jet Blue', 'JB002', 'PVG', 'JFK', '2025-05-03 13:45:00', 520.00, 'Delayed');



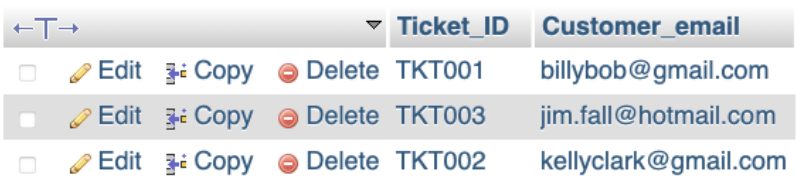
	Flight_number	Departure_date_time	Airline_name	Airplane_airline_name	Identification_number	Departure_airport_code	Arrival_airport_code	Arrival_date_time	Base_price	Flight_status
Edit Copy Delete	JB100	2025-04-01 08:00:00	Jet Blue	Jet Blue	JB001	JFK	PVG	2025-04-02 09:00:00	500.00	On Time
Edit Copy Delete	JB101	2025-05-04 14:30:00	Jet Blue	Jet Blue	JB002	PVG	JFK	2025-05-03 13:45:00	520.00	Delayed

g. Insert some tickets for corresponding flights and insert some purchase records (customers bought some tickets).

INSERT INTO Ticket (Ticket_ID, Flight_number, Departure_date_time, Airline_name, Sold_price, Card_type, Card_number, Name_on_card, Expiration_date, Purchase_date_time) VALUES
('TKT001', 'JB100', '2025-04-01 08:00:00', 'Jet Blue', 500.00, 'Visa', '1234567812345678', 'Billy Bob', '2028-06-30', '2025-04-02 10:00:00'),
('TKT002', 'JB100', '2025-04-01 08:00:00', 'Jet Blue', 500.00, 'MasterCard', '9876543298765432', 'Kelly Clark', '2027-12-31', '2025-04-02 10:30:00'),
('TKT003', 'JB101', '2025-05-04 14:30:00', 'Jet Blue', 520.00, 'Amex', '4567123445671234', 'Jimmy Fall', '2029-04-15', '2025-04-03 09:45:00');

INSERT INTO Purchased_By (Ticket_ID, Customer_email) VALUES
('TKT001', 'billybob@gmail.com'),
('TKT002', 'kellyclark@gmail.com'),
('TKT003', 'jim.fall@hotmail.com');

	Ticket_ID	Flight_number	Departure_date_time	Airline_name	Sold_price	Card_type	Card_number	Name_on_card	Expiration_date	Purchase_date_time
Edit Copy Delete	TKT001	JB100	2025-04-01 08:00:00	Jet Blue	500.00	Visa	1234567812345678	Billy Bob	2028-06-30	2025-04-02 10:00:00
Edit Copy Delete	TKT002	JB100	2025-04-01 08:00:00	Jet Blue	500.00	MasterCard	9876543298765432	Kelly Clark	2027-12-31	2025-04-02 10:30:00
Edit Copy Delete	TKT003	JB101	2025-05-04 14:30:00	Jet Blue	520.00	Amex	4567123445671234	Jimmy Fall	2029-04-15	2025-04-03 09:45:00

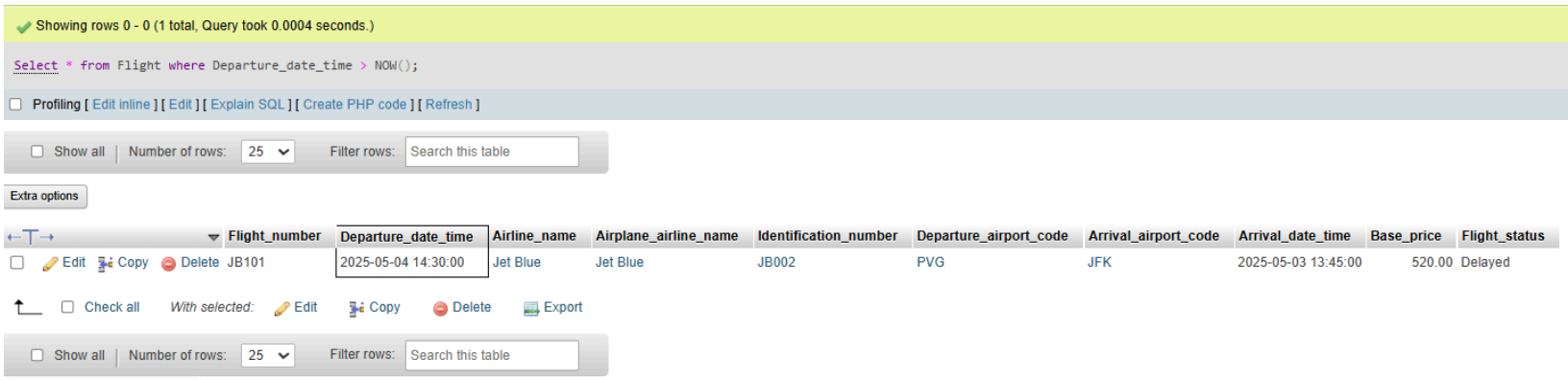


	Ticket_ID	Customer_email
Edit Copy Delete	TKT001	billybob@gmail.com
Edit Copy Delete	TKT003	jim.fall@hotmail.com
Edit Copy Delete	TKT002	kellyclark@gmail.com

4. Write SQL queries for executing following queries and show the results in your file (SQL query and corresponding answers):

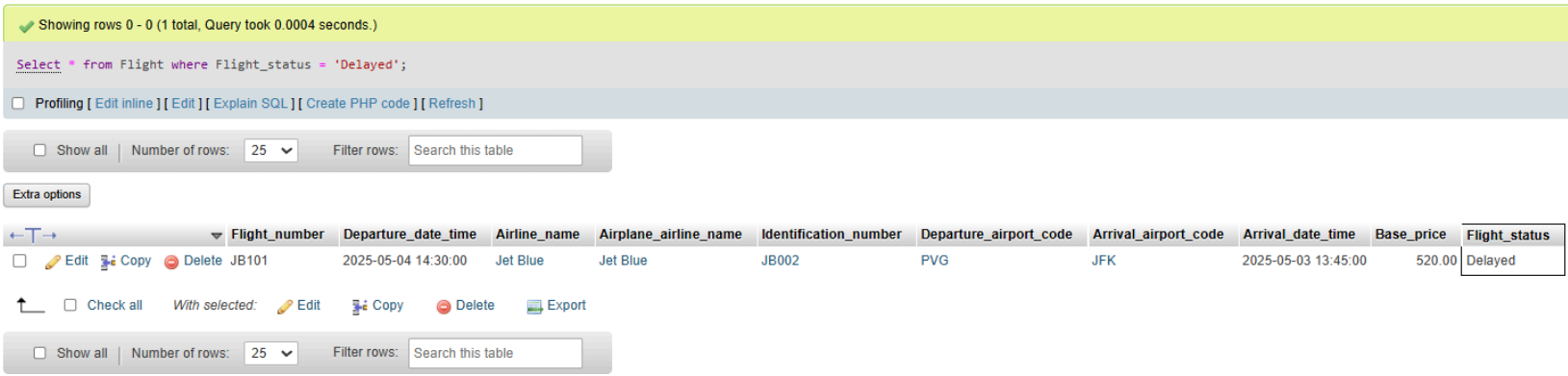
a. Show all the future flights in the system.

Select * from Flight where Departure_date_time > NOW();



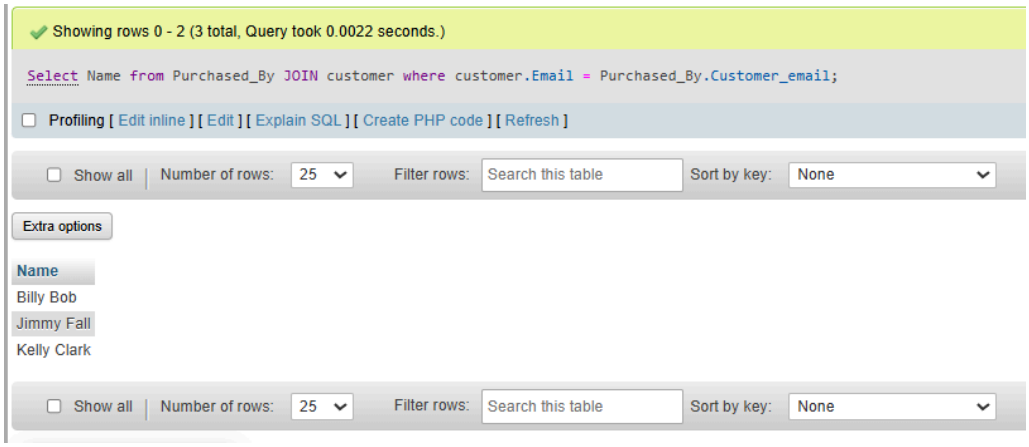
b. Show all of the delayed flights in the system.

Select * from Flight where Flight_status = 'Delayed';



c. Show the customer names who bought the tickets.

Select Name from Purchased_By JOIN customer where customer.Email = Purchased_By.Customer_email



d. Show all the airplanes owned by the airline Jet Blue.

Select * from Airplane where Airline_name = 'Jet Blue';