sql project part3

Create

```
CREATE TABLE airline ( NAME VARCHAR ( 25 ), PRIMARY KEY ( NAME ) );
CREATE TABLE airline_staff (
  username VARCHAR ( 25 ),
  PASSWORD VARCHAR ( 25 ),
  f_name VARCHAR ( 25 ),
  l_name VARCHAR ( 25 ),
  birth_date datetime,
  airline_name VARCHAR ( 25 ),
  PRIMARY KEY ( username ),
  FOREIGN KEY ( airline_name ) REFERENCES airline ( NAME )
);
CREATE TABLE staff_phone (
  username VARCHAR ( 25 ),
  phone_number VARCHAR ( 25 ),
  PRIMARY KEY ( phone_number, username ),
  FOREIGN KEY ( username ) REFERENCES airline_staff ( username )
);
CREATE TABLE airport (
  CODE VARCHAR ( 25 ),
  NAME VARCHAR ( 100 ),
  city VARCHAR ( 25 ),
  country VARCHAR ( 25 ),
  type VARCHAR ( 25 ) CHECK (
  type IN ( 'domestic', 'international', 'both' )),
  PRIMARY KEY ( CODE )
);
CREATE TABLE airplane (
  airline_name VARCHAR ( 25 ),
  airplane_id VARCHAR ( 25 ),
  seat_number INT UNSIGNED,
  manufacturer VARCHAR ( 25 ),
  age INT UNSIGNED,
  PRIMARY KEY ( airplane_id, airline_name ),
  FOREIGN KEY ( airline_name ) REFERENCES airline ( NAME )
);
CREATE TABLE customer (
  email VARCHAR ( 25 ),
  NAME VARCHAR ( 25 ),
  PASSWORD VARCHAR ( 25 ),
  building_number INT UNSIGNED,
  street VARCHAR ( 25 ),
  city VARCHAR ( 25 ),
  state VARCHAR ( 25 ),
  phone_number VARCHAR ( 25 ),
  passport_number VARCHAR ( 25 ),
```

```
  passport_expiration date,
  passport_country VARCHAR ( 25 ),
  date_of_birth date,
  PRIMARY KEY ( email )
);
CREATE TABLE flight (
  airline_name VARCHAR ( 25 ),
  flight_number VARCHAR ( 25 ),
  dep_date_time datetime,
  dept_airport VARCHAR ( 25 ),
  arr_airport VARCHAR ( 25 ),
  arr_date_time datetime,
  base_price INT UNSIGNED,
  plane_id VARCHAR ( 25 ),
  STATUS VARCHAR ( 25 ) CHECK (
  STATUS IN ( 'on-time', 'delayed', 'canceled' )),
  PRIMARY KEY ( dep_date_time, flight_number, airline_name ),
  FOREIGN KEY ( airline_name ) REFERENCES airline ( NAME ),
  FOREIGN KEY ( dept_airport ) REFERENCES airport ( CODE ),
  FOREIGN KEY ( arr_airport ) REFERENCES airport ( CODE ),
  FOREIGN KEY ( plane_id ) REFERENCES airplane ( airplane_id )
);
CREATE TABLE ticket (
  ticket_ID VARCHAR ( 25 ),
  email VARCHAR ( 25 ),
  airline_name VARCHAR ( 25 ),
  flight_number VARCHAR ( 25 ),
  dep_date_time datetime,
  travel_class VARCHAR ( 25 ) CHECK (
  travel_class IN ( 'first class', 'business class', 'economy class' )),
  sold_price INT UNSIGNED,
  card_type VARCHAR ( 25 ) CHECK (
  card_type IN ( 'debit', 'credit' )),
  card_number VARCHAR ( 25 ),
  name_on_card VARCHAR ( 25 ),
  exp_date VARCHAR ( 25 ),
  purchase_date_time datetime,
  PRIMARY KEY ( ticket_ID ),
  FOREIGN KEY ( email ) REFERENCES customer ( email ),
  FOREIGN KEY ( airline_name ) REFERENCES airline ( NAME ),
  FOREIGN KEY ( flight_number, dep_date_time ) REFERENCES flight ( flight_number, dep_date
_time )
);
CREATE TABLE rate_comment (
  airline_name VARCHAR ( 25 ),
  flight_number VARCHAR ( 25 ),
  dep_date_time datetime,
  email VARCHAR ( 25 ),
  rate VARCHAR ( 25 ),
  COMMENT VARCHAR ( 25 ),
  PRIMARY KEY ( airline_name, flight_number, dep_date_time, email ),
  FOREIGN KEY ( airline_name ) REFERENCES airline ( NAME ),
  FOREIGN KEY ( flight_number, dep_date_time ) REFERENCES flight ( flight_number, dep_date
_time ),
```

```
FOREIGN KEY ( email ) REFERENCES customer ( email )
);
```

Insert

```
#2022 may 5
INSERT INTO airline
VALUES
  ( 'China Eastern' );
INSERT INTO airline
VALUES
  ( 'Delta' );
INSERT INTO airline
VALUES
  ( 'Japan' );

INSERT INTO customer
VALUES
  ( 'ys4325@nyu.edu', 'Yifan Sun', 'yifan_pwd', 123, 'Jackson Ave', 'New York', 'NY', '646
7778888', '12345', '2027-08-01', 'China', '2000-10-10' );

INSERT INTO customer
VALUES
  ( 'kz1340@nyu.edu', 'Kaixin Zheng', 'kaixin_pwd', 222, 'hunter st', 'New York', 'NY', '6
468889999', '23456', '2039-06-01', 'China', '1999-12-23' );

INSERT INTO customer
VALUES
  ( 'yl7401@nyu.edu', 'Yize Liu', 'yuze_pwd', 341, 'w4 st', 'New York', 'NY', '646771999
9', '34567', '2033-07-01', 'China', '2000-12-10' );

INSERT INTO customer
VALUES
('ah123@nyu.edu', 'andy ho', 'andy_pwd', 541, '7TH st', 'New York', 'NY', '6467719949', '3
4267', '2035-07-01', 'China', '2000-12-12' );

INSERT INTO customer
VALUES
('TONY@nyu.edu', 'TONY STARK', 'TONY_pwd', 641, '5TH st', 'New York', 'NY', '6460719949',
 '34267', '2037-07-01', 'US', '1970-12-12' );

INSERT INTO customer
VALUES
('masa@nyu.edu', 'chef masa', 'chef_pwd', 771, 'madison ave', 'New York', 'NY', '646776994
1', '34227', '2031-07-01', 'JAPAN', '1950-12-12' );

INSERT INTO airplane
VALUES
```

```
  ( 'China Eastern', 'B123', 164, 'The Boeing Company', 1 );

INSERT INTO airplane
VALUES
  ( 'China Eastern', 'B122', 164, 'The Boeing Company', 2 );

INSERT INTO airplane
VALUES
  ( 'China Eastern', 'B121', 164, 'The Boeing Company', 3 );

INSERT INTO airplane
VALUES
  ( 'delta', 'D123', 167, 'The Boeing Company', 3 );

INSERT INTO airplane
VALUES
  ( 'delta', 'D122', 162, 'The Boeing Company', 9 );

INSERT INTO airplane
VALUES
  ( 'delta', 'D121', 168, 'The Boeing Company', 4 );

INSERT INTO airplane
VALUES
  ( 'japan', 'j123', 174, 'airbus', 2 );

INSERT INTO airplane
VALUES
  ( 'japan', 'j122', 184, 'airbus', 7 );

INSERT INTO airplane
VALUES
  ( 'japan', 'j121', 194, 'airbus', 11 );


INSERT INTO airline_staff
VALUES
  ( 'staff_1', '12345', 'andy', 'smith', '1990-12-10', 'delta' );

INSERT INTO airline_staff
VALUES
  ( 'staff_2', '12345', 'johnny', 'sins', '1980-1-15', 'delta' );


INSERT INTO airline_staff
VALUES
  ( 'staff_3', '12345', 'yue', 'liu', '1978-12-08', 'China Eastern' );


INSERT INTO airline_staff
VALUES
  ( 'staff_4', '12345', 'yan', 'liu', '1970-07-10', 'China Eastern' );
```

```
INSERT INTO airline_staff
VALUES
  ( 'staff_5', '12345', 'daxiong', 'yebi', '1930-1-17', 'japan' );

INSERT INTO airline_staff
VALUES
  ( 'staff_6', '12345', 'duola', 'ameng', '1930-10-10', 'japan' );

INSERT INTO flight
VALUES
  ( 'China Eastern', 'MU588', '2023-04-06 03:00', 'JFK', 'PVG', '2023-04-06 13:00', 3000,
 'B123', 'on-time' );

INSERT INTO flight
VALUES
  ( 'China Eastern', 'MU588', '2023-04-08 03:00', 'JFK', 'PVG', '2023-04-08 13:00', 3000,
 'B122', 'delayed' );

INSERT INTO flight
VALUES
  ( 'China Eastern', 'MU582', '2023-04-09 03:00', 'JFK', 'PVG', '2023-04-09 13:00', 3000,
 'B121', 'canceled'  );

INSERT INTO flight
VALUES
  ( 'japan', 'JAL6', '2023-04-06 03:00', 'hnd', 'jfk', '2023-04-06 13:00', 4000, 'J123',
 'on-time' );

INSERT INTO flight
VALUES
  ( 'japan', 'JAL6', '2023-04-08 03:00', 'hnd', 'jfk', '2023-04-08 13:00', 4000, 'J122',
 'delayed' );

INSERT INTO flight
VALUES
  ( 'JAPAN', 'JAL6', '2023-04-09 03:00', 'hnd', 'jfk', '2023-04-09 13:00', 4000, 'J121',
 'canceled'  );

INSERT INTO flight
VALUES
  ( 'DELTA', 'DL308', '2023-04-06 03:00', 'jfk',"PVG", '2023-04-06 13:00', 4000, 'D123',
 'on-time' );

INSERT INTO flight
VALUES
  ( 'DELTA', 'DL318', '2023-04-08 03:00', 'jfk',"PVG", '2023-04-08 13:00', 4000, 'D122',
 'delayed' );

INSERT INTO flight
VALUES
  ( 'DELTA', 'DL308', '2023-04-09 03:00', 'jfk',"PVG", '2023-04-09 13:00', 4000, 'D121',
 'canceled'  );

INSERT INTO ticket
```

```
VALUES
  ( '123', 'ys4325@nyu.edu', 'China Eastern', 'MU588','2023-04-06 03:00', 'first class', 5
000, 'credit', '12345678908765', 'Yifan Sun', '09/26', '2022-03-03 21:00' );

INSERT INTO ticket
VALUES
  ( '124', 'kz1340@nyu.edu', 'China Eastern', 'MU582','2023-04-09 03:00', 'business clas
s', 3000, 'credit', '12345678908999', 'kaixin zheng', '09/16', '2022-03-04 21:00' );

INSERT INTO ticket
VALUES
  ( '125', 'kz1340@nyu.edu', 'China Eastern', 'MU588','2023-04-08 03:00', 'economy class',
2000, 'credit', '12345678908999', 'kaixin zheng', '09/16', '2022-03-07 21:00' );

INSERT INTO ticket
VALUES
  ( '126', 'tony125@nyu.edu', 'delta', 'dl308','2023-04-06 03:00', 'economy class', 2000,
 'credit', '12040678908999', 'tony stark', '08/26', '2022-01-08 21:00' );

INSERT INTO ticket
VALUES
  ( '127', 'tony125@nyu.edu', 'delta', 'dl318','2023-04-06 03:00', 'economy class', 2100,
 'credit', '12040678908999', 'tony stark', '08/26', '2022-02-08 21:00' );


INSERT INTO ticket
VALUES
  ( '128', 'MASA@nyu.edu', 'JAPAN', 'JAL6','2023-04-06 03:00', 'FIRST class', 12100, 'cred
it', '73040678908999', 'CHEF MASA', '01/26', '2022-02-18 21:00' );

INSERT INTO ticket
VALUES
  ( '129', 'MASA@nyu.edu', 'JAPAN', 'JAL6','2023-04-08 03:00', 'FIRST class', 22100, 'cred
it', '73040678908999', 'tony stark', '01/26', '2022-02-18 21:00' );

insert into airport
values
(
  "pvg",
  "pudong airport",
  "shanghai",
  "china",
  "both"
);
insert into airport
values
(
  "jfk",
  "John F. Kennedy International Airport",
  "new york",
  "US",
  "both"
);
insert into airport
```

```
values
(
  "HND",
  "Haneda Airport Passenger Terminal",
  "TOKYO",
  "JAPAN",
  "both"
);


#may 5
INSERT INTO ticket
VALUES
  ( '226', 'ys4325@nyu.edu', 'delta', 'dl308','2023-04-06 03:00', 'economy class', 2000,
 'credit', '12345678908765', 'Yifan Sun', '09/26', '2022-01-08 21:00' );

INSERT INTO ticket
VALUES
  ( '227', 'ys4325@nyu.edu', 'delta', 'dl318','2023-04-06 03:00', 'economy class', 2100,
 'credit', '12345678908765', 'Yifan Sun', '09/26', '2022-02-08 21:00' );


INSERT INTO ticket
VALUES
  ( '228', 'ys4325@nyu.edu', 'JAPAN', 'JAL6','2023-04-06 03:00', 'FIRST class', 12100, 'cr
edit', '12345678908765', 'Yifan Sun', '09/26', '2022-02-18 21:00' );

INSERT INTO ticket
VALUES
  ( '229', 'ys4325@nyu.edu', 'JAPAN', 'JAL6','2023-04-08 03:00', 'FIRST class', 22100, 'cr
edit', '12345678908765', 'Yifan Sun', '09/26', '2022-02-18 21:00' );

#old flights
INSERT INTO flight
VALUES
  ( 'China Eastern', 'MU588', '2021-07-08 03:00', 'JFK', 'PVG', '2021-07-08 13:00', 3000,
 'B122', 'delayed' );

INSERT INTO flight
VALUES
  ( 'China Eastern', 'MU582', '2021-08-09 03:00', 'JFK', 'PVG', '2021-08-09 13:00', 3000,
 'B121', 'canceled'  );

INSERT INTO flight
VALUES
  ( 'japan', 'JAL6', '2021-09-06 03:00', 'hnd', 'jfk', '2021-09-06 13:00', 4000, 'J123',
 'on-time' );

INSERT INTO flight
VALUES
  ( 'China Eastern', 'MU588', '2022-03-08 03:00', 'JFK', 'PVG', '2022-03-08 13:00', 3000,
 'B122', 'delayed' );

INSERT INTO flight
```

```
VALUES
  ( 'China Eastern', 'MU582', '2022-03-29 03:00', 'JFK', 'PVG', '2022-03-29 13:00', 3000,
 'B121', 'canceled'  );

INSERT INTO flight
VALUES
  ( 'japan', 'JAL6', '2022-05-02 03:00', 'hnd', 'jfk', '2022-05-02 13:00', 4000, 'J123',
 'on-time' );
```

Query

```
/*future flights*/
#search for all future flights
SELECT
  airline_name,
  flight_number,
  dep_date_time
FROM
  flight
WHERE
  flight.dep_date_time > now()


/*delayed flights*/
#search for all flights delayed
SELECT
  airline_name,
  flight_number,
  dep_date_time
FROM
  flight
WHERE
  STATUS = "delayed"


/*customer bought ticket*/
SELECT DISTINCT NAME
FROM
  customer
  NATURAL JOIN ticket


/*all airplanes owned by "china eastern"*/
SELECT
  airplane_id,
  airline_name AS OWNER
FROM
  airplane
WHERE
  airline_name = 'China Eastern'
```

Project_sql

```
# not logged in
#1.a search by departure code/city and arrival code/city
#input_dept is input for departure, input_arr is input for arrival
#following code is for single trip. use twice is round trip
#airport table are named twice and joined twice to select city of departure and city of ar
rival seperately
SELECT
  airline_name as "airline",
  flight_number as "flight number",
  dep_date_time as "departure date and time",
  dept_airport as "departure airport",
  t1.city as "departure city",
  ARR_DATE_TIME as "arrival date and time",
  arr_airport as "arrival airport",
  t2.city as "arrival city"
FROM flight
join airport as t1 on flight.dept_airport=t1.code
join airport as t2 on flight.arr_airport=t2.code
where
flight.dep_date_time >now()
and
(flight.dept_airport=input_dept or t1.city=input_dept)
and
(flight.arr_airport=input_arr or t2.city=input_arr)

#b check flight status by airline, flight number, arr/dept date
#input_dept is input for departure, input_arr is input for arrival
SELECT
  airline_name,
  flight_number,
  dep_date_time,
  arr_date_time,
  dept_airport,
  arr_airport,
  status
FROM
  flight
WHERE
  airline_name=input_name
  AND
  flight_number=input_number
  AND
  (dep_date_time = input_dept OR arr_date_time = input_arr)

#2 register
#customer
#when register one new customer, one tuple of personal info is inserted to customer table
```

```
INSERT INTO customer
VALUES
(email,name, password,building_n,st_name, city, state, phone, passport_n, exp_date, nation
allity, b_day );
#staff
INSERT INTO airline_staff
VALUES
  ( username, pword, fname, lname, bday, airline );

#3 this part for useres have logged in
#customer case
#1 view flight all future flight of one customer
select
  airline_name,
  flight_number,
  dep_date_time,
  dept_airport,
  arr_airport
from flight natural join ticket
where
dep_date_time>now()
and
ticket.email=input_email
#2search
#search future flights of one customer based on arrival city/time, departure city/time
select
  airline_name,
  flight_number,
  dep_date_time,
  dept_airport,
  dep.city
  arr_date_time,
  arr_airport
  arr.city
from flight
natural join ticket
join airport as DEP on dep.code=dept_airport
join airport as arr on arr.code=arr_airport
where
flight.dep_date_time>now()
and
ticket.email=input_email
and
(dept_airport=input_dept or dep.city=input_dept)
and
(arr_airport=input_arr or arr.city=input_arr)
and
arr_date_time=input_arr_time
and
dep_date_time=input_dep_time

#3purchase
#insert tuple of ticket info into table
insert into ticket
```

```
values
(ticket_ID,
email,
airline_name,
flight_number,
sold_price,
card_type,
card_number,
name_on_card,
exp_date,
purachse_date_time,
travel_class)

#4cancel
#delete tuple based on primary key of ticket
delete from ticket
where ticket_id=input_id
and
dep_date_time <adddate(now(),interval 1 day)

#5
#search previous flight by compare departure date and time now
#search is restricted to one airline and one customer identified by email
select
flight_number,dep_date_time
from flight natural join ticket
where
dep_date_time<now()
and
email=input_email
and
airline=input_airline

#insert comment as tuple
insert into rate_comment
values
(airlne_name,
flight_number,
dep_date_time,
email,
rate,
comment)

#6 track spending of customer in tickets in one year
select
sum(sold_price) as "one year spending"
from ticket
where
ticket.email=input_email
and
adddate(purchase_date_time, interval 1 year)>now()
# track spending of customer in previous 6 months and show spending each month
select month(purchase_date_time) as mn,sum(sold_price)
from ticket
```

```
where
email=input_email
and
adddate(purchase_date_time, interval 6 month)>now()
group by mn;

#track spending of customer in tickets in given range
select
sum(sold_price) as "specify amount"
from ticket
where
ticket.email=input_email
and
purchase_date_time<up_input
and
purchase_date_time>low_input
#track spending of customer in tickets in given range and shown by each month
select month(purchase_date_time) as mn,sum(sold_price)
from ticket
where
email=input_email
and
purchase_date_time<up_input
and
purchase_date_time>low_input
group by mn;


#Staff cases

#1
#Default show flight info, where statement to restrict time in 30 days and future
SELECT
  airline_name,
  flight_number,
  dep_date_time,
  dept_airport,
  arr_airport
FROM
  flight
WHERE
  flight.dep_date_time > now()
  AND
  flight.dep_date_time < DATE_ADD(now(),INTERVAL 30 day)
#view based on date / airports:
SELECT
  airline_name,
  flight_number,
  dep_date_time,
  dept_airport,
  arr_airport,
  DEP.NAME as "Departure Airport",
  ARR.NAME as "Arrival Airport"
FROM
```

```
  flight
JOIN airport as dep on flight.dept_airport=dep.code
JOIN airport as ARR on flight.arr_airport=arr.code
WHERE
  (flight.dept_airport= INPUT_DEP OR DEP.city =INPUT_DEP)
  AND
  (flight.arr_airport= INPUT_arr OR arr.city =INPUT_arr)
  AND
  dep_date_time = INPUT_DATE

#see all customers
#up_time and low_time are upper bound and lower bound of search range, SQL show all custom
er name and email who are in certain flight
SELECT
  customer.NAME,
  customer.email,
FROM
  ticket natural JOIN customer
WHERE
  flight_number =input_fn
  AND
  airline_name = input al
  AND
  dep_date_time <up_time
  and
  dep_date_time>low_time

#2 New Flight
#insert flight info as a tuple to the table flight
INSERT INTO
flight
VALUES
(airline_name,
flight_number,
dep_date_time,
dept_airport,
arr_airport,
arr_date_time,
base_price,
plane_id,
status)

#3 Change Status
#alter status of flight. flight is identified by all of 3 primary keys, departure time, ai
rline and flight number
UPDATE flight
SET STATUS = INPUT_STATUS
WHERE
flight.flight_number = INPUT_FLIGHT_NO
and
airline=default_co
and
dep_date_time=input_time
```

```
#4
#insert tuple of airplane info into table of airplane
insert into airplane
values
(airline_name,
airplane_id,
seat_number,
manufacturer,
age)

#5
#insert tuple of airport info into table of airplane
insert into airport
values
(code,
name,
city,
country,
type)

#6
#avearage rating is sum of rating divided by rating times, sum(rate)/count(rate)
#only input airline,flight number and datetime are selected
SELECT
  flight_number,
  dep_date_time,
  sum(rate) / COUNT(rate) AS "Average Rating",
    rate,
    comment
FROM
  rate_comment
WHERE
airline_name=default_n AND
flight_number=input_n AND
dep_date_time=input_t

#7
#frequent customer
#tickets are sorted by email(customer) and counted times of each customer purchase tickets
then select the email
#time is restricted in one year
SELECT
  MAX(freq), email, name
FROM
    (SELECT
        count(email) AS freq,
      email
    FROM
        ticket
  where
ticket.dep_date_time>subdate(now(),interval 1 year)
    GROUP BY
        email
        ) AS freq_count
```

```
#all flights of the same customer email in the input airline
SELECT
  *
FROM
  ticket
WHERE
  email = input_e
and
airline=input_air

#8 total amounts of tickets sold in given range from small time to large time
SELECT
  COUNT(ticket_ID)
FROM
  ticket
WHERE
  dep_date_time<large
and dep_date_time>small

#9
#in one month the total income from selling tickets
SELECT
  SUM(sold_price) AS "Revenue Last Month"
FROM
  ticket
WHERE
  purchase_date_time < now()
  AND
  DATE_ADD(purchase_date_time,INTERVAL 1 month) > now()
#in one year the total income from selling tickets
SELECT
  SUM(sold_price) AS "Revenue Last Year"
FROM
  ticket
WHERE
  purchase_date_time < now()
  AND
  DATE_ADD(purchase_date_time,INTERVAL 1 year) > now()

#10 view income from selling tickets in one class
SELECT
  SUM(sold_price) AS "Revenue By Class",
  travel_class
FROM
  ticket
WHERE
  travel_class = INPUT

#11 show 3 most popular destinations
#show last 3 months top 3 destinations, we use group by then order by to ensure counts eac
h destination seperately
SELECT arr_airport, count(*)
FROM ticket natural join flight
```

```
where
dep_date_time<now()
and
adddate(dep_date_time,interval 3 month) >now()
GROUP BY arr_airport
ORDER BY count(*) DESC
LIMIT 3;

#show last 3 months top 3 destinations, we seu group by then order by to ensure counts eac
h destination seperately
SELECT arr_airport, count(*)
FROM ticket natural join flight
where
dep_date_time<now()
and
adddate(dep_date_time,interval 1 year) >now()
GROUP BY arr_airport
ORDER BY count(*) DESC
LIMIT 3;


#12
#log out is for HTML part
```