

CS186 Discussion Week 5 Solutions

SQL

Flights(flight_num, source_city, dest_city)
Departures(flight_num, date, plane_type)
Passengers(passenger_id, passenger_name, passenger_address)
Bookings(passenger_id, flight_num, date, seat_number)

Write SQL expressions for the following queries.

a) Find the passenger id of all passengers who have a seat booked on a plane of type "747" from San Francisco to New York. Do not return any duplicate values.

```
SELECT DISTINCT B.passenger_id
FROM Flights F, Departures D, Bookings B
WHERE B.flight_num = D.flight_num AND B.date = D.date AND F.flight_num = D.flight_num AND
F.source_city = "San Francisco" AND F.dest_city = New York AND D.plane_type = "747";
```

b) You want to figure out which cities are easy flights to warm weather. Find the cities that have direct (non-stop) flights to both Honolulu and Miami.

```
(SELECT source_city FROM Flights F WHERE F.dest_city = "Honolulu")
INTERSECT
(SELECT source_city FROM Flights F WHERE F.dest_city = "Miami");
```

c) You want to be the first to book and pick seats for a flight, so find the flight num and date of all flights for which there are no reservations. You also want the results sorted by earliest flight first.

```
SELECT flight_num, date
FROM Departures D
WHERE NOT EXISTS
    (SELECT * FROM Bookings B
     WHERE B.flight_num = D.flight_num AND B.date = D.date)
ORDER BY date ASC;
```

d) Find the number of departures for each type of plane for all flights that leave from Oakland.

```
SELECT D.plane_type, COUNT(*)
FROM Departures D, Flights F
WHERE D.flight_num = F.flight_num AND F.source_city = "Oakland"
GROUP BY D.plane_type;
```

e) You want to find the passengers who depart from San Francisco most frequently. Find the top 5 passenger names and the number of their flights which depart from San Francisco. Only include passengers who have departed from San Francisco at least 5 times.

```
SELECT P.passenger_name, COUNT(*) AS flights
FROM Passengers P, Bookings B, Flights F
WHERE P.passenger_id = B.passenger_id AND B.flight_num = F.flight_num AND F.source_city = "San Francisco"
GROUP BY P.passenger_name
HAVING flights >= 5
ORDER BY flights DESC
LIMIT 5;
```