# Week 2 Assignment

1. Which destination in the flight database is the furthest distance away?

**Query 1:-**

/\*

Farthest travelling from any origin

\*/

select distinct origin, dest, distance

from flights

where distance = (

select max(distance)

from flights

)

;

**Ans:-**

JFK TO HNL and EWR to HNL are the flights covering longest distance of 4,963 miles

**Query2 :-**

/\*

Farthest travelling per Origin

\*/

select distinct flights.origin, flights.dest, f.farthest

from flights

join

(select origin, max(distance) as farthest

from flights

group by origin

) as f on f.origin = flights.origin and f.farthest = flights.distance

order by flights.origin

;

**Result:-** By origin

|  |  |  |
| --- | --- | --- |
| Origin | Dest | Distance |
| EWR | HNL | 4963 |
| JFK | HNL | 4983 |
| LGA | DEN | 1620 |

1. What are the different numbers of engines in the planes table? For each number of engines, which aircraft have the most number of seats?

**Query:-**

/\*

Aircrats with most seats by number of engines

\*/

select distinct p.manufacturer, p.model as aircraft, p.engines, p.seats

from planes as p

join

(

select p.engines, max(seats) as Mostseats

from planes as p

group by p.engines

order by p.engines

) as p1 on p1.engines = p.engines and p1.MostSeats = p.Seats

order by p.engines

;

**Result:-**

|  |  |  |  |
| --- | --- | --- | --- |
| **Manufacturer** | **Aircraft** | **Engines** | **Seats** |
| DEHAVILLAND | OTTER DHC-3 | 1 | 16 |
| BOEING | 777-200 | 2 | 400 |
| BOEING | 777-222 | 2 | 400 |
| BOEING | 777-224 | 2 | 400 |
| BOEING | 777-232 | 2 | 400 |
| AIRBUS | A330-223 | 3 | 379 |
| BOEING | 747-451 | 4 | 450 |

1. What weather conditions are associated with New York City departure delays?

**Query**:-

/\*

Get the weather condition with newyork city departure delays. Weather data exists only for 2013

\*/

select distinct f.year, f.month, f.day, f.dep\_time/100 as dephour, f.dep\_time, dep\_delay, w.temp, w.dewp, w.humid, w.wind\_dir, w.wind\_speed, w.wind\_gust, w.precip, w.pressure, w.visib

from flights as f

join weather as w on w.origin = f.origin and w.year = f.year and w.month = f.month and w.day = f.day and w.hour = f.dep\_time/100

where f.origin in ('JFK', 'LGA')

and dep\_delay > 0 -- assuming < 0 = early departure

order by f.year, f.month, f.day, dephour

limit 1000;

**Result**:-

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Year** | **Month** | **Day** | **DepHour** | **DepTime** | **DepDelay** | **Temp** | **dewp** | **humid** | **winddir** | **windspeed** | **windgust** | **precip** | **pressure** | **visb** |
| 2013 | 2 | 20 | 19 | 1901 | 6 | 32 | 8.06 | 36.03 | 280 | 26.46794 | 30.45878 | 0 | 1011.2 | 10 |
| 2013 | 2 | 20 | 19 | 1903 | 48 | 32 | 8.06 | 36.03 | 280 | 26.46794 | 30.45878 | 0 | 1011.2 | 10 |
| 2013 | 2 | 20 | 19 | 1911 | 11 | 32 | 8.06 | 36.03 | 280 | 26.46794 | 30.45878 | 0 | 1011.2 | 10 |
| 2013 | 2 | 20 | 19 | 1930 | 85 | 32 | 8.06 | 36.03 | 280 | 26.46794 | 30.45878 | 0 | 1011.2 | 10 |
| 2013 | 2 | 20 | 19 | 1935 | 10 | 32 | 8.06 | 36.03 | 280 | 26.46794 | 30.45878 | 0 | 1011.2 | 10 |
| 2013 | 2 | 20 | 19 | 1938 | 33 | 32 | 8.06 | 36.03 | 280 | 26.46794 | 30.45878 | 0 | 1011.2 | 10 |
| 2013 | 2 | 20 | 19 | 1946 | 76 | 32 | 8.06 | 36.03 | 280 | 26.46794 | 30.45878 | 0 | 1011.2 | 10 |
| 2013 | 2 | 20 | 19 | 1956 | 11 | 32 | 8.06 | 36.03 | 280 | 26.46794 | 30.45878 | 0 | 1011.2 | 10 |
| 2013 | 7 | 2 | 11 | 1101 | 6 | 71.6 | 69.8 | 94.06 | 180 | 11.5078 | 13.24295 | 0 |  | 0.5 |
| 2013 | 7 | 2 | 11 | 1132 | 7 | 71.6 | 69.8 | 94.06 | 180 | 11.5078 | 13.24295 | 0 |  | 0.5 |
| 2013 | 7 | 2 | 11 | 1132 | 93 | 71.6 | 69.8 | 94.06 | 180 | 11.5078 | 13.24295 | 0 |  | 0.5 |
| 2013 | 7 | 2 | 11 | 1141 | 76 | 71.6 | 69.8 | 94.06 | 180 | 11.5078 | 13.24295 | 0 |  | 0.5 |
| 2013 | 7 | 2 | 13 | 1320 | 5 | 71.6 | 69.8 | 94.06 | 190 | 10.35702 | 11.91865 | 0 |  | 1 |
| 2013 | 7 | 2 | 13 | 1343 | 168 | 71.6 | 69.8 | 94.06 | 190 | 10.35702 | 11.91865 | 0 |  | 1 |
| 2013 | 7 | 2 | 13 | 1346 | 8 | 71.6 | 69.8 | 94.06 | 190 | 10.35702 | 11.91865 | 0 |  | 1 |
| 2013 | 7 | 31 | 6 | 633 | 3 | 71.06 | 55.04 | 56.93 | 320 | 8.05546 | 9.270062 | 0 | 1020.4 | 10 |
| 2013 | 7 | 31 | 6 | 644 | 24 | 71.06 | 55.04 | 56.93 | 320 | 8.05546 | 9.270062 | 0 | 1020.4 | 10 |
| 2013 | 7 | 31 | 6 | 647 | 7 | 71.06 | 55.04 | 56.93 | 320 | 8.05546 | 9.270062 | 0 | 1020.4 | 10 |
| 2013 | 7 | 31 | 6 | 649 | 44 | 71.06 | 55.04 | 56.93 | 320 | 8.05546 | 9.270062 | 0 | 1020.4 | 10 |
| 2013 | 7 | 31 | 6 | 656 | 1 | 71.06 | 55.04 | 56.93 | 320 | 8.05546 | 9.270062 | 0 | 1020.4 | 10 |
| 2013 | 8 | 22 | 22 | 2222 | 52 | 75.92 | 66.92 | 73.68 | 210 | 8.05546 | 9.270062 | 0 | 1011.9 | 10 |
| 2013 | 8 | 22 | 22 | 2222 | 82 | 75.92 | 66.92 | 73.68 | 210 | 8.05546 | 9.270062 | 0 | 1011.9 | 10 |
| 2013 | 8 | 22 | 22 | 2225 | 115 | 75.92 | 66.92 | 73.68 | 210 | 8.05546 | 9.270062 | 0 | 1011.9 | 10 |
| 2013 | 8 | 22 | 22 | 2233 | 177 | 75.92 | 66.92 | 73.68 | 210 | 8.05546 | 9.270062 | 0 | 1011.9 | 10 |
| 2013 | 8 | 22 | 22 | 2259 | 179 | 75.92 | 66.92 | 73.68 | 210 | 8.05546 | 9.270062 | 0 | 1011.9 | 10 |
| 2013 | 9 | 2 | 20 | 2003 | 2 | 75.2 | 73.4 | 94.14 | 200 | 4.60312 | 5.297178 | 0 |  | 4 |
| 2013 | 9 | 2 | 20 | 2003 | 33 | 75.2 | 73.4 | 94.14 | 200 | 4.60312 | 5.297178 | 0 |  | 4 |
| 2013 | 9 | 2 | 20 | 2005 | 65 | 75.2 | 73.4 | 94.14 | 200 | 4.60312 | 5.297178 | 0 |  | 4 |
| 2013 | 9 | 2 | 20 | 2006 | 26 | 75.2 | 73.4 | 94.14 | 200 | 4.60312 | 5.297178 | 0 |  | 4 |
| 2013 | 9 | 2 | 20 | 2006 | 66 | 75.2 | 73.4 | 94.14 | 200 | 4.60312 | 5.297178 | 0 |  | 4 |
| 2013 | 9 | 2 | 20 | 2014 | 89 | 75.2 | 73.4 | 94.14 | 200 | 4.60312 | 5.297178 | 0 |  | 4 |
| 2013 | 9 | 2 | 20 | 2016 | 41 | 75.2 | 73.4 | 94.14 | 200 | 4.60312 | 5.297178 | 0 |  | 4 |
| 2013 | 9 | 2 | 20 | 2016 | 66 | 75.2 | 73.4 | 94.14 | 200 | 4.60312 | 5.297178 | 0 |  | 4 |
| 2013 | 9 | 2 | 20 | 2024 | 169 | 75.2 | 73.4 | 94.14 | 200 | 4.60312 | 5.297178 | 0 |  | 4 |
| 2013 | 9 | 2 | 20 | 2039 | 39 | 75.2 | 73.4 | 94.14 | 200 | 4.60312 | 5.297178 | 0 |  | 4 |
| 2013 | 9 | 2 | 20 | 2043 | 103 | 75.2 | 73.4 | 94.14 | 200 | 4.60312 | 5.297178 | 0 |  | 4 |
| 2013 | 9 | 2 | 20 | 2045 | 85 | 75.2 | 73.4 | 94.14 | 200 | 4.60312 | 5.297178 | 0 |  | 4 |
| 2013 | 9 | 2 | 20 | 2054 | 98 | 75.2 | 73.4 | 94.14 | 200 | 4.60312 | 5.297178 | 0 |  | 4 |
| 2013 | 10 | 23 | 10 | 1021 | 6 | 48.92 | 39.02 | 68.51 | 60 | 4.60312 | 5.297178 | 0 | 1008.1 | 10 |
| 2013 | 10 | 23 | 10 | 1059 | 4 | 48.92 | 39.02 | 68.51 | 60 | 4.60312 | 5.297178 | 0 | 1008.1 | 10 |
| 2013 | 12 | 17 | 5 | 543 | 3 | 26.96 | 10.94 | 50.34 | 40 | 4.60312 | 5.297178 | 0 | 1023.9 | 10 |

1. Are older planes more likely to be delayed?

**Ans**:- No, delays are not caused by the age of the plane based on the chart below. In fact, newly manufactured flights display most delays.

**Query**:-

/\*

Delayed flights

\*/

select p.year as ManufacturedYear, count(1) as delayedflights

from flights as f

join planes as p on p.tailnum = f.tailnum

where f.dep\_delay > 0

and p.year is not null

group by p.year

order by p.year

1. What are the top 10 airlines who had best ontime flight departure with respect to their total flights in 2013?

**Query**:-

-- Top 10 airlines who had best ontime flight departure with respect to their total flights

select a.name, count(1) as flightcount, count(case when dep\_delay = 0 then 1 else null end) as flightwithoutdelay,

cast(count(case when dep\_delay = 0 then 1 else null end) /cast(count(1) as numeric(10,2)) as numeric(10,3)) as OnTimeFlightRatio

from flights as f

join airlines as a on a.carrier = f.carrier

where f.year = 2013

group by a.carrier

order by OnTimeFlightRatio desc

limit 10;

**Result:-**

|  |  |  |  |
| --- | --- | --- | --- |
| **Airline** | **TotalFlights** | **OnTimeFlightDep** | **OnTimeToTotalFlight** |
| Southwest Airlines Co. | 12275 | 987 | 0.08 |
| Virgin America | 5162 | 411 | 0.08 |
| Frontier Airlines Inc. | 685 | 44 | 0.064 |
| Delta Air Lines Inc. | 48110 | 2866 | 0.06 |
| United Air Lines Inc. | 58665 | 3397 | 0.058 |
| JetBlue Airways | 54635 | 2772 | 0.051 |
| Envoy Air | 26397 | 1307 | 0.05 |
| American Airlines Inc. | 32729 | 1607 | 0.049 |
| Hawaiian Airlines Inc. | 342 | 14 | 0.041 |
| AirTran Airways Corporation | 3260 | 132 | 0.04 |