

1. Combien y-a-t-il :

- D'aéroports en tout, de départ et de destination :

```
aeroporto=# SELECT
aeroporto=#      (SELECT COUNT(*) FROM airports) AS total_airports,
aeroporto=#      (SELECT COUNT(DISTINCT origin) FROM flights) AS departure_airports,
aeroporto=#      (SELECT COUNT(DISTINCT dest) FROM flights) AS destination_airports;
 total_airports | departure_airports | destination_airports 
-----+-----+-----
(1 row)          1462 |                3 |                103
```

- Combien y-a-t-il d'aéroports aux Etats-Unis où on ne passe pas à l'heure d'été (*indice : colonne dst : 23*) ? de fuseaux horaires (*10 voir colonne tzone dont une « /N »*)

```
aeroporto=# SELECT
aeroporto=#      COUNT(*) AS airports_without_dst
aeroporto=# FROM airports
aeroporto=# WHERE dst = 'N';
 airports_without_dst 
-----
(1 row)                23
```

```
aeroporto=#
aeroporto=# SELECT
aeroporto=#      COUNT(DISTINCT tz) AS time_zones
aeroporto=# FROM airports;
 time_zones 
-----
(1 row)                8
```

- De compagnies, d'avions, de vols annulés ?

```
aeroporto=# SELECT
aeroporto=#      (SELECT COUNT(*) FROM airlines) AS total_airlines,
aeroporto=#      (SELECT COUNT(*) FROM planes) AS total_planes,
aeroporto=#      (SELECT COUNT(*) FROM flights WHERE arr_delay IS NULL) AS cancelled_flights;
 total_airlines | total_planes | cancelled_flights 
-----+-----+-----
(1 row)          16 |          4039 |                0
```

2. Quel est l'aéroport de départ le plus emprunté ?

Quelles sont les 10 destinations les plus (moins) prisées (*en indiquant le nom complet des destinations et non juste le code correspondant et le % corresp pour chaque destination*) ?

Quelle sont les 10 avions qui ont le plus (moins) décollé ?

```
aeroporto=# -- Aéroport de départ le plus emprunté
aeroporto=# SELECT origin, COUNT(*) AS flight_count
aeroporto-# FROM flights
aeroporto-# GROUP BY origin
aeroporto-# ORDER BY flight_count DESC
aeroporto-# LIMIT 1;
 origin | flight_count
-----+-----
    EWR  |          91241
(1 row)
```

```
aeroporto=#
aeroporto=# -- 10 destinations les plus prisées
aeroporto=# SELECT dest, COUNT(*) AS flight_count
aeroporto-# FROM flights
aeroporto-# GROUP BY dest
aeroporto-# ORDER BY flight_count DESC
aeroporto-# LIMIT 10;
 dest | flight_count
-----+-----
    ATL |          12946
    ORD |          12654
    LAX |          11895
    BOS |          11560
    MCO |          10637
    CLT |          10448
    SFO |           9729
    FLL |           9443
    MIA |           8938
    DCA |           7386
(10 rows)
```

```
aeroporto=#
aeroporto=# -- 10 destinations les moins prisées
aeroporto=# SELECT dest, COUNT(*) AS flight_count
aeroporto-# FROM flights
aeroporto-# GROUP BY dest
aeroporto-# ORDER BY flight_count ASC
aeroporto-# LIMIT 10;
 dest | flight_count
-----+-----
    LEX |           1
    SBN |           4
    MTJ |          15
    HDN |          15
    TVC |          16
    EYW |          17
    PSP |          19
    BZN |          20
    JAC |          25
    CHO |          31
(10 rows)
```

3. Combien chaque compagnie a desservi de destination ;

```
aéroport=# SELECT carrier, COUNT(DISTINCT dest) AS destination_count
aéroport=# FROM flights
aéroport=# GROUP BY carrier;
 carrier | destination_count
-----+-----
 9E      |                47
 AA      |                19
 AS      |                 1
 B6      |                42
 DL      |                40
 EV      |                61
 F9      |                 1
 FL      |                 3
 HA      |                 1
 MQ      |                20
 OO      |                 4
 UA      |                45
 US      |                 5
 VX      |                 5
 WN      |                11
 YV      |                 3
(16 rows)
```

combien chaque compagnie a desservie de destination par aéroport d'origine.

```
aéroport=# SELECT carrier, origin, COUNT(DISTINCT
dest) AS destination_count
aéroport=# FROM flights
aéroport=# GROUP BY carrier, origin
aéroport=# ORDER BY carrier, origin;
 carrier | origin | destination_count
-----+-----+-----
 9E      | EWR    |                4
 9E      | JFK    |               34
 9E      | LGA    |               36
 AA      | EWR    |                 3
 AA      | JFK    |               17
 AA      | LGA    |                 5
 AS      | EWR    |                 1
 B6      | EWR    |                 7
 B6      | JFK    |               42
 B6      | LGA    |                 6
 DL      | EWR    |                 4
 DL      | JFK    |               29
 DL      | LGA    |               22
 EV      | EWR    |               53
 EV      | JFK    |                 3
 EV      | LGA    |               45
 F9      | LGA    |                 1
 FL      | LGA    |                 3
 HA      | JFK    |                 1
 MQ      | EWR    |                 1
 MQ      | JFK    |               11
 MQ      | LGA    |               12
 OO      | EWR    |                 2
 OO      | LGA    |                 2
 UA      | EWR    |               45
 UA      | JFK    |                 2
 UA      | LGA    |                 4
 US      | EWR    |                 2
 US      | JFK    |                 3
 US      | LGA    |                 4
 VX      | EWR    |                 2
 VX      | JFK    |                 5
 WN      | EWR    |                 9
 WN      | LGA    |                 8
 YV      | LGA    |                 3
(35 rows)
```

Reste plein d'autres vols...

Combien de compagnies desservent cette destination et combien d'avions "uniques" ?

```
aeroporto=# SELECT dest,  
aeroporto-#         COUNT(DISTINCT carrier) AS unique_carriers,  
aeroporto-#         COUNT(DISTINCT tailnum) AS unique_planes  
aeroporto-# FROM flights  
aeroporto-# GROUP BY dest;
```

dest	unique_carriers	unique_planes
ABQ	1	90
ACK	1	45
ALB	1	161
ATL	7	1124
AUS	6	873
AVL	2	120
BDL	2	171
BGR	2	45
BHM	1	45
BNA	5	910
BOS	7	1249
BQN	2	250
BTX	3	381
BUF	4	492
BUR	1	116
BWI	4	610
BZN	1	18
CAE	2	76
CAK	1	90
CHO	1	16
CHS	4	434
CLE	4	865
CLT	7	783
CMH	3	424
CRW	1	20
CVG	4	551
DAY	2	313
DCA	6	458
DEN	5	1197

5. Trouver le nombre de vols par destination ?

```
aeroport=# SELECT dest, COUNT(*) AS flight_count
aeroport=# FROM flights
aeroport=# GROUP BY dest
aeroport=# ORDER BY flight_count DESC;
 dest | flight_count
-----+-----
  ATL |         12946
  ORD |         12654
  LAX |         11895
  BOS |         11560
  MCO |         10637
  CLT |         10448
  SFO |          9729
  FLL |          9443
  MIA |          8938
  DCA |          7386
  DTW |          7009
  DFW |          6657
  RDU |          6198
  TPA |          5682
  IAH |          5438
```

Trier les vols suivant la destination, l'aéroport d'origine, la compagnie dans un ordre alphabétique croissant (en réalisant les jointures nécessaires pour obtenir les noms des explicites des aéroports) ?

```
aeroport=# SELECT f.flight_id, f.year, f.month, f.
day, f.origin, al.name AS origin_airport, f.dest,
a2.name AS dest_airport, al.name AS airline_name
aeroport=# FROM flights f
aeroport=# JOIN airports a1 ON f.origin = a1.faa
aeroport=# JOIN airports a2 ON f.dest = a2.faa
aeroport=# JOIN airlines al ON f.carrier = al.carr
ier
aeroport=# ORDER BY f.dest, f.origin, al.name;
 flight_id | year | month | day | origin | origi
n_airport | dest | dest_airport | airline_name
-----+-----+-----+-----+-----+-----+-----+-----+-----
 1814392 | 2021 |    10 |    4 | JFK    | John F Kennedy Intl | ABQ | Albuquerque International Sunport | JetBlue Airways
 1824504 | 2021 |    10 |   15 | JFK    | John F Kennedy Intl | ABQ | Albuquerque International Sunport | JetBlue Airways
 1815123 | 2021 |    10 |    5 | JFK    | John F Kennedy Intl | ABQ | Albuquerque International Sunport | JetBlue Airways
 1821630 | 2021 |    10 |   12 | JFK    | John F Kennedy Intl | ABQ | Albuquerque International Sunport | JetBlue Airways
 1817954 | 2021 |    10 |    8 | JFK    | John F Kennedy Intl | ABQ | Albuquerque International Sunport | JetBlue Airways
 1812411 | 2021 |    10 |    2 | JFK    | John F Kennedy Intl | ABQ | Albuquerque International Sunport | JetBlue Airways
 1828132 | 2021 |    10 |   19 | JFK    | John F Kennedy Intl | ABQ | Albuquerque International Sunport | JetBlue Airways
 1815980 | 2021 |    10 |    6 | JFK    | John F Kennedy Intl | ABQ | Albuquerque International Sunport | JetBlue Airways
 1827383 | 2021 |    10 |   18 | JFK    | John F Kennedy Intl | ABQ | Albuquerque International Sunport | JetBlue Airways
 1826403 | 2021 |    10 |   17 | JFK    | John F Kennedy Intl | ABQ | Albuquerque International Sunport | JetBlue Airways
 1813374 | 2021 |    10 |    3 | JFK    | John F Kennedy Intl | ABQ | Albuquerque International Sunport | JetBlue Airways
 1819870 | 2021 |    10 |   10 | JFK    | John F Kennedy Intl | ABQ | Albuquerque International Sunport | JetBlue Airways
 1825404 | 2021 |    10 |   16 | JFK    | John F Kennedy Intl | ABQ | Albuquerque International Sunport | JetBlue Airways
 1818910 | 2021 |    10 |    9 | JFK    | John F Kennedy Intl | ABQ | Albuquerque International Sunport | JetBlue Airways
nport | JetBlue Airways
 1844831 | 2021 |    11 |    6 | JFK    | John F Kennedy Intl | ABQ | Albuquerque International Sunport | JetBlue Airways 1845783 | 2021 |    11 |    7 | JFK    | Jo
Kennedy Intl | ABQ | Albuquerque International Sunport | JetBlue Airways 1870546 | 2021 |    12 |    4 | JFK    | John F Kennedy Intl | ABQ | Albuquerque Internatio
Sunport | JetBlue Airways 1830961 | 2021 |    10 |   22 | JFK    | John F Kennedy Intl | ABQ | Albuquerque International Sunport | JetBlue Airways 1887886 | 2021
12 |   23 | JFK    | John F Kennedy Intl | ABQ | Albuquerque International Sunport | JetBlue Airways 1881360 | 2021 |    12 |   16 | JFK    | John F Kennedy Intl | A
| Albuquerque International Sunport | JetBlue Airways 1873992 | 2021 |    12 |    8 | JFK    | John F Kennedy Intl | ABQ | Albuquerque International Sunport | JetB
Airways 1852343 | 2021 |    11 |   14 | JFK    | John F Kennedy Intl | ABQ | Albuquerque International Sunport | JetBlue Airways 1866605 | 2021 |    11 |   30 | JFK
John F Kennedy Intl | ABQ | Albuquerque International Sunport | JetBlue Airways 1865797 | 2021 |    11 |   29 | JFK    | John F Kennedy Intl | ABQ | Albuquerque Int
tional Sunport | JetBlue Airways 1829974 | 2021 |    10 |   21 | JFK    | John F Kennedy Intl | ABQ | Albuquerque International Sunport | JetBlue Airways 1888711
021 |    12 |   24 | JFK    | John F Kennedy Intl | ABQ | Albuquerque International Sunport | JetBlue Airways 1868589 | 2021 |    12 |    2 | JFK    | John F Kennedy I
| ABQ | Albuquerque International Sunport | JetBlue Airways 1889425 | 2021 |    12 |   25 | JFK    | John F Kennedy Intl | ABQ | Albuquerque International Sunport
```

6. Quelles sont les compagnies qui n'opèrent pas sur tous les aéroports d'origine ?

```
aeroport=# SELECT carrier
aeroport=# FROM airline_airport_routes
aeroport=# GROUP BY carrier
aeroport=# HAVING COUNT(DISTINCT faa) < (SELECT CO
UNT(*) FROM airports);
 carrier
-----
(0 rows)
```

7. Quelles sont les compagnies qui desservent l'ensemble de destinations ?

```
aeroport=# SELECT carrier
aeroport=# FROM airline_airport_routes
aeroport=# GROUP BY carrier
aeroport=# HAVING COUNT(DISTINCT faa) = (SELECT CO
UNT(DISTINCT faa) FROM airports);
carrier
-----
(0 rows)
```

Faire un tableau où l'on récupère l'ensemble des origines et des destinations pour l'ensemble des compagnies.

```
aeroport=# SELECT DISTINCT a.origin, a.dest, l.name AS airline_name
aeroport=# FROM airline_airport_routes r
aeroport=# JOIN airlines l ON r.carrier = l.carrier
aeroport=# JOIN flights a ON r.faa = a.origin;
origin | dest | airline_name
-----+-----+-----
(0 rows)
```

7. Quelles sont les destinations qui sont exclusives à certaines ?

```
aeroport=# SELECT dest
aeroport=# FROM flights
aeroport=# GROUP BY dest
aeroport=# HAVING COUNT(DISTINCT carrier) = 1;
dest
-----
ABQ
ACK
ALB
BHM
BUR
BZN
CAK
CHO
CRW
EYW
GSO
HDN
ILM
LEX
LGB
MDW
MSN
MTJ
MYR
OAK
OKC
PSE
PSP
PVD
SAV
SBN
SMF
SNA
TUL
(29 rows)
```

8. Filtrer le vol pour trouver ceux exploités par United, American ou Delta ?

[illegible]