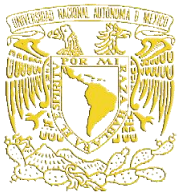
UNIVERSIDAD NACIONAL AUTÓNOMA DE MÉXICO



FACULTAD DE INGENIERÍA

Bases de datos

18. Serie de ejercicios SQL

Semestre: 2023-1

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CONSIDERACIONES

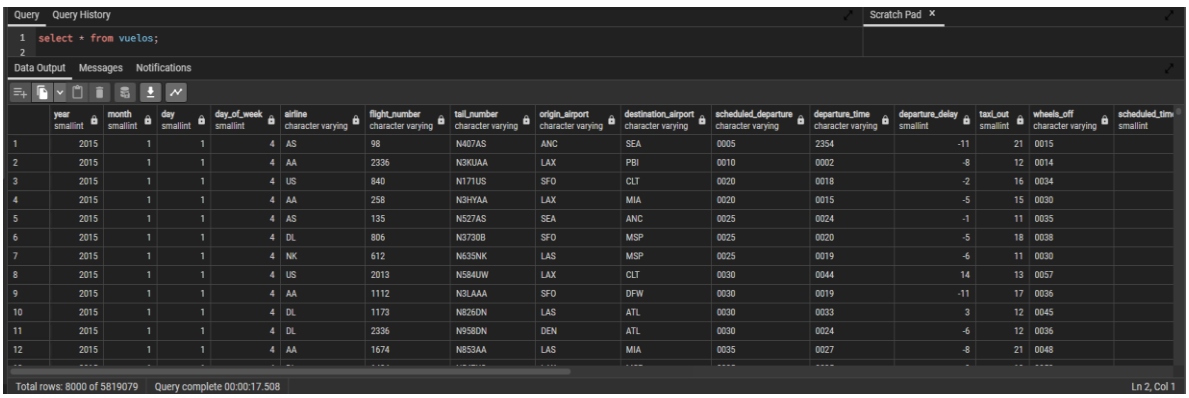
- En cada consulta, deberá mostrarse el tiempo que tomó en ejecutarse la consulta. (Investigar)
- Dentro del resultado de su consulta, deberá agregar una columna extra que incluya la fecha y hora del sistema y otra para el usuario que ejecutó la consulta. (Investigar)

TABLAS A TRABAJAR

De la base “registro_vuelos” se tienen 3 tablas con los registros:

```
registro_vuelos=# select * from aeropuertos;
 iata_code |                                airport                                |            city            | state | country | latitude | longitude
-----------+-----------------------------------------------------------------------+----------------------------+-------+---------+----------+-----------
 ABE       | Lehigh Valley International Airport                                   | Allentown                  | PA    | USA     | 40.65236 |   -75.4404
 ABI       | Abilene Regional Airport                                              | Abilene                    | TX    | USA     | 32.41132 |   -99.6819
 ABQ       | Albuquerque International Sunport                                     | Albuquerque                | NM    | USA     | 35.04022 | -106.60919
 ABR       | Aberdeen Regional Airport                                             | Aberdeen                   | SD    | USA     | 45.44906 |  -98.42183
 ABY       | Southwest Georgia Regional Airport                                    | Albany                     | GA    | USA     | 31.53552 |  -84.19447
 ACK       | Nantucket Memorial Airport                                            | Nantucket                  | MA    | USA     | 41.25305 |  -70.06018
 ACT       | Waco Regional Airport                                                 | Waco                       | TX    | USA     | 31.61129 |  -97.23052
 ACV       | Arcata Airport                                                        | Arcata/Eureka              | CA    | USA     | 40.97812 | -124.10862
 ACY       | Atlantic City International Airport                                   | Atlantic City              | NJ    | USA     | 39.45758 |  -74.57717
 ADK       | Adak Airport                                                          | Adak                       | AK    | USA     | 51.87796 | -176.64603
 ADQ       | Kodiak Airport                                                        | Kodiak                     | AK    | USA     | 57.74997 | -152.49386
 AEX       | Alexandria International Airport                                      | Alexandria                 | LA    | USA     | 31.32737 |  -92.54856
 AGS       | Augusta Regional Airport┬á(Bush Field)                                 | Augusta                    | GA    | USA     | 33.36996 |   -81.9645
 AKN       | King Salmon Airport                                                   | King Salmon                | AK    | USA     |  58.6768 | -156.64922
 ALB       | Albany International Airport                                          | Albany                     | NY    | USA     | 42.74812 |  -73.80298
 ALO       | Waterloo Regional Airport                                             | Waterloo                   | IA    | USA     | 42.55708 |  -92.40034
 AMA       | Rick Husband Amarillo International Airport                           | Amarillo                   | TX    | USA     | 35.21937 | -101.70593
 ANC       | Ted Stevens Anchorage International Airport                           | Anchorage                  | AK    | USA     | 61.17432 | -149.99619
 APN       | Alpena County Regional Airport                                        | Alpena                     | MI    | USA     | 45.07807 |  -83.56029
 ASE       | Aspen-Pitkin County Airport                                           | Aspen                      | CO    | USA     | 39.22316 | -106.86885
 ATL       | Hartsfield-Jackson Atlanta International Airport                      | Atlanta                    | GA    | USA     | 33.64044 |  -84.42694
 ATW       | Appleton International Airport                                        | Appleton                   | WI    | USA     | 44.25741 |  -88.51948
 AUS       | Austin-Bergstrom International Airport                                | Austin                     | TX    | USA     | 30.19453 |  -97.66987
 AVL       | Asheville Regional Airport                                            | Asheville                  | NC    | USA     | 35.43619 |  -82.54181
 AVP       | Wilkes-Barre/Scranton International Airport                           | Wilkes-Barre/Scranton      | PA    | USA     | 41.33815 |  -75.72427
 AZO       | Kalamazoo/Battle Creek International Airport                          | Kalamazoo                  | MI    | USA     | 42.23488 |  -85.55206
 BDL       | Bradley International Airport                                         | Windsor Locks              | CT    | USA     | 41.93887 |  -72.68323
 BET       | Bethel Airport                                                        | Bethel                     | AK    | USA     | 60.77978 |    -161.838
 BFL       | Meadows Field                                                         | Bakersfield                | CA    | USA     |  35.4336 | -119.05677
 BGM       | Greater Binghamton Airport                                            | Binghamton                 | NY    | USA     | 42.20848 |  -75.97961
 BGR       | Bangor International Airport                                          | Bangor                     | ME    | USA     | 44.80744 |  -68.82814
registro_vuelos=#
```

```
registro_vuelos=# select * from aerolineas;
 iata_code |          airline
-----------+----------------------------
 UA        | United Air Lines Inc.
 AA        | American Airlines Inc.
 US        | US Airways Inc.
 F9        | Frontier Airlines Inc.
 B6        | JetBlue Airways
 OO        | Skywest Airlines Inc.
 AS        | Alaska Airlines Inc.
 NK        | Spirit Air Lines
 WN        | Southwest Airlines Co.
 DL        | Delta Air Lines Inc.
 EV        | Atlantic Southeast Airlines
 HA        | Hawaiian Airlines Inc.
 MQ        | American Eagle Airlines Inc.
 VX        | Virgin America
(14 filas)
```



	year smallint	month smallint	day smallint	day_of_week smallint	airline character varying	flight_number character varying	tail_number character varying	origin_airport character varying	destination_airport character varying	scheduled_departure character varying	departure_time character varying	departure_delay smallint	taxi_out smallint	wheels_off character varying	scheduled_time smallint
1	2015	1	1	4	AS	98	N407AS	ANC	SEA	0005	2354	-11	21	0015	
2	2015	1	1	4	AA	2336	N3KUAA	LAX	PBI	0010	0002	-8	12	0014	
3	2015	1	1	4	US	840	N171US	SFO	CLT	0020	0018	-2	16	0034	
4	2015	1	1	4	AA	258	N3HYAA	LAX	MIA	0020	0015	-5	15	0030	
5	2015	1	1	4	AS	135	N527AS	SEA	ANC	0025	0024	-1	11	0035	
6	2015	1	1	4	DL	806	N3730B	SFO	MSP	0025	0020	-5	18	0038	
7	2015	1	1	4	NK	612	N635NK	LAS	MSP	0025	0019	-6	11	0030	
8	2015	1	1	4	US	2013	N584UW	LAX	CLT	0030	0044	14	13	0057	
9	2015	1	1	4	AA	1112	N3LAAA	SFO	DFW	0030	0019	-11	17	0036	
10	2015	1	1	4	DL	1173	N826DN	LAS	ATL	0030	0033	3	12	0045	
11	2015	1	1	4	DL	2336	N958DN	DEN	ATL	0030	0024	-6	12	0036	
12	2015	1	1	4	AA	1674	N853AA	LAS	MIA	0035	0027	-8	21	0048	

De la base “datos_clase” se tienen 3 tablas con los registros:

```
datos_clase=# select * from cliente;
  id_cliente   |                nombre                |                ap_pat                |                ap_mat                | estado
---------------+--------------------------------------+--------------------------------------+--------------------------------------+--------
 aksmvieoci125 | Luisa                                | Balderas                             |                                      | cdmx
 abcd          | mario                                | martinez                             |                                      | cdmx
 ejemplo       | Jaime                                | Cruz                                 | flores                               | nayarit
 aksmvieoci144 | Angela                               | Perez                                |                                      | nayarit
 aksmvieoci126 | Luis                                 | Lopez                                |                                      | cdmx
 aksmvieoci127 | Luis                                 | Valderrama                           |                                      | cdmx
 aksmvieoci137 | Luis                                 | Valderrama                           |                                      | cdmx
(7 filas)
```

```
datos_clase=# select * from articulo;
 num_articulo | nombre_articulo | precio | categoria
--------------+-----------------+--------+------------
            2 | gorra           |    120 | accesorios
            4 | lentes          |    400 | accesorios
            8 | bolsa           |    300 | accesorios
            9 | mochila         |    570 | accesorios
            1 | Reloj           |    600 | accesorios
            6 | bermuda         |    500 | ropa
            7 | jeans           |    650 | ropa
           10 | falda           |    450 | ropa
            3 | tenis           |    700 | calzado
            5 | zapatos         |    550 | calzado
(10 filas)
```

```
datos_clase=# select * from orden;
 id_orden |   fecha    |  id_cliente
----------+------------+---------------
        2 | 2020-04-16 | ejemplo
        1 | 2001-12-24 | abcd
        4 | 2020-04-21 | aksmvieoci125
(3 filas)
```

EJERCICIOS

1. **Indicar las ciudades que tienen más de un aeropuerto. Agregar su notación correspondiente en álgebra relacional.**

select city, COUNT(city),(select(NOW())),(select CURRENT_USER) from aeropuertos group by city having COUNT(city)>1 order by city asc;

```
registro_vuelos=# \timing
El despliegue de duración está activado.
registro_vuelos=# select city, COUNT(city),(select(NOW())),(select CURRENT_USER)  from aeropuertos group by city having COUNT(city)>1 order by city asc;
     city      | count |              now              | current_user
---------------+-------+-------------------------------+--------------
 Albany        |     2 | 2022-12-12 19:31:20.006573-06 | postgres
 Charleston    |     2 | 2022-12-12 19:31:20.006573-06 | postgres
 Chicago       |     2 | 2022-12-12 19:31:20.006573-06 | postgres
 Columbia      |     2 | 2022-12-12 19:31:20.006573-06 | postgres
 Columbus      |     2 | 2022-12-12 19:31:20.006573-06 | postgres
 Houston       |     2 | 2022-12-12 19:31:20.006573-06 | postgres
 Jackson       |     2 | 2022-12-12 19:31:20.006573-06 | postgres
 Jacksonville  |     2 | 2022-12-12 19:31:20.006573-06 | postgres
 New York      |     2 | 2022-12-12 19:31:20.006573-06 | postgres
 Portland      |     2 | 2022-12-12 19:31:20.006573-06 | postgres
 Rochester     |     2 | 2022-12-12 19:31:20.006573-06 | postgres
 San Diego     |     2 | 2022-12-12 19:31:20.006573-06 | postgres
 Springfield   |     2 | 2022-12-12 19:31:20.006573-06 | postgres
 Wilmington    |     2 | 2022-12-12 19:31:20.006573-06 | postgres
(14 filas)


Duración: 0.735 ms
```

$$R1 = \sigma_{COUNT(city)>1}(aeropuertos)$$

$$\Pi_{city,COUNT(city)}(R1)$$

2. **Nombre de las aerolíneas que no terminan en Inc. ni en Co. Agregar su notación correspondiente en álgebra relacional.**

select *,(select(NOW())),(select CURRENT_USER)

from aerolineas WHERE NOT airline LIKE'%Inc.' AND NOT airline LIKE '%Co.' ;

```
registro_vuelos=#
registro_vuelos=# select *,(select(NOW())),(select CURRENT_USER)   from aerolineas WHERE NOT airline LIKE'%Inc.' AND NOT airline LIKE '%Co.' ;
 iata_code |           airline           |              now              | current_user
-----------+-----------------------------+-------------------------------+--------------
 B6        | JetBlue Airways             | 2022-12-12 19:32:35.684176-06 | postgres
 NK        | Spirit Air Lines            | 2022-12-12 19:32:35.684176-06 | postgres
 EV        | Atlantic Southeast Airlines | 2022-12-12 19:32:35.684176-06 | postgres
 VX        | Virgin America              | 2022-12-12 19:32:35.684176-06 | postgres
(4 filas)


Duración: 1.792 ms
```

$$\sigma_{NOT(airline\ like'\%Inc.')\ AND\ NOT(airline\ like'\%Co.')}\ (aerolineas)$$

3. **Indicar los nombres de los aeropuertos que estuvieron implicados en el vuelo que presentó el mayor retraso de llegada**

select airport,(select(NOW())),(select CURRENT_USER)

from vuelos vu INNER JOIN aeropuertos ae ON ae.iata_code=vu.origin_airport OR ae.iata_code=vu.destination_airport

WHERE arrivale_delay = (select MAX(arrivale_delay) from vuelos);

```
registro_vuelos=# select airport,(select(NOW())),(select CURRENT_USER)
registro_vuelos-# from vuelos vu INNER JOIN aeropuertos ae ON ae.iata_code=vu.origin_airport OR ae.iata_code=vu.destination_airport
registro_vuelos-# WHERE arrivale_delay = (select MAX(arrivale_delay) from vuelos);
                  airport                  |              now              | current_user
-------------------------------------------+-------------------------------+--------------
 Birmingham-Shuttlesworth International Airport | 2022-12-12 19:34:18.164282-06 | postgres
 Dallas/Fort Worth International Airport        | 2022-12-12 19:34:18.164282-06 | postgres
(2 filas)


Duración: 1299.818 ms (00:01.300)
registro_vuelos=#
```

4. **Mostrar aquella categoría (tabla artículo) que tiene el precio mínimo. La información debe estar agrupada (Implica que la consulta no sale con sólo selects y wheres).**

select categoria, MIN(precio), (select(NOW())),(select CURRENT_USER)

from articulo group by categoria HAVING MIN(precio)=(select MIN(precio) from articulo);

```
datos_clase=#
datos_clase=# select categoria, MIN(precio), (select(NOW())),(select CURRENT_USER)
datos_clase-# from articulo group by categoria HAVING MIN(precio)=(select MIN(precio) from articulo);
 categoria  | min |              now              | current_user
------------+-----+-------------------------------+--------------
 accesorios | 120 | 2022-12-12 19:40:38.904376-06 | postgres
(1 fila)


Duración: 34.891 ms
datos_clase=#
```

5. **Se desea conocer el nombre de aquellas aerolíneas cuyo segundo carácter del iata_code termina en X ´o 9. Debe incluirse una columna que muestre dicha terminación.**

select aer.iata_code,aer.termi, aer.airline, (select(NOW())),(select CURRENT_USER) from

(

select iata_code,'X' as termi,airline from aerolineas where iata_code LIKE '_X'

UNION

select iata_code,'9' as termi,airline from aerolineas where iata_code LIKE '_9'

) AS aer ;

```
registro_vuelos=#
registro_vuelos=# select aer.iata_code,aer.termi, aer.airline, (select(NOW())),(select CURRENT_USER)  from
registro_vuelos-# (
registro_vuelos(# select iata_code,'X' as termi,airline from aerolineas where iata_code LIKE '_X'
registro_vuelos(# UNION
registro_vuelos(# select iata_code,'9' as termi,airline from aerolineas where iata_code LIKE '_9'
registro_vuelos(# ) AS aer ;
 iata_code | termi |        airline         |              now              | current_user
-----------+-------+------------------------+-------------------------------+--------------
 VX        | X     | Virgin America         | 2022-12-12 19:42:22.787365-06 | postgres
 F9        | 9     | Frontier Airlines Inc. | 2022-12-12 19:42:22.787365-06 | postgres
(2 filas)


Duración: 2.272 ms
registro_vuelos=#
```

6. **Proporcionar el nombre de los aeropuertos cuya latitud se encuentre entre 40 y 41, y su longitud sea menor que el promedio de la longitud. Nota: el promedio se toma de aquellas observaciones cuya latitud se encuentre entre 40 y 41.**

SELECT *,(select(NOW())),(select CURRENT_USER) FROM aeropuertos where latitude BETWEEN 40 AND 41

AND longitude<(select AVG(longitude) from aeropuertos where latitude BETWEEN 40 AND 41);

```
registro_vuelos=# SELECT *,(select(NOW())),(select CURRENT_USER)  FROM aeropuertos where latitude BETWEEN 40 AND 41
registro_vuelos-# AND longitude<( select AVG(longitude) from aeropuertos where latitude BETWEEN 40 AND 41);
 iata_code |                  airport                  |      city      | state | country | latitude | longitude  |              now              | current_user
-----------+-------------------------------------------+----------------+-------+---------+----------+------------+-------------------------------+--------------
 ACV       | Arcata Airport                            | Arcata/Eureka  | CA    | USA     | 40.97812 | -124.10862 | 2022-12-12 19:43:00.994961-06 | postgres
 EKO       | Elko Regional Airport                     | Elko           | NV    | USA     | 40.82493 |  -115.7917 | 2022-12-12 19:43:00.994961-06 | postgres
 GRI       | Central Nebraska Regional Airport         | Grand Island   | NE    | USA     | 40.96747 |  -98.30861 | 2022-12-12 19:43:00.994961-06 | postgres
 HDN       | Yampa Valley Airportтá(Yampa Valley Regional) | Hayden         | CO    | USA     | 40.48118 | -107.21766 | 2022-12-12 19:43:00.994961-06 | postgres
 LNK       | Lincoln Airportтá(Lincoln Municipal)      | Lincoln        | NE    | USA     | 40.85097 |  -96.75925 | 2022-12-12 19:43:00.994961-06 | postgres
 RDD       | Redding Municipal Airport                 | Redding        | CA    | USA     | 40.50898 |  -122.2934 | 2022-12-12 19:43:00.994961-06 | postgres
 SLC       | Salt Lake City International Airport      | Salt Lake City | UT    | USA     | 40.78839 | -111.97777 | 2022-12-12 19:43:00.994961-06 | postgres
 VEL       | Valdez Airport                            | Vernal         | UT    | USA     |  40.4409 | -109.50992 | 2022-12-12 19:43:00.994961-06 | postgres
(8 filas)


Duración: 19.205 ms
registro_vuelos=#
```

7. **¿Cuántos aviones por aerolínea y día, fueron cancelados saliendo del aeropuerto de Honolulu?**

select vu.airline,vu.day,vu.month,vu.year,COUNT(flight_number) aviones_cancelados, (select(NOW())),(select CURRENT_USER) from vuelos vu

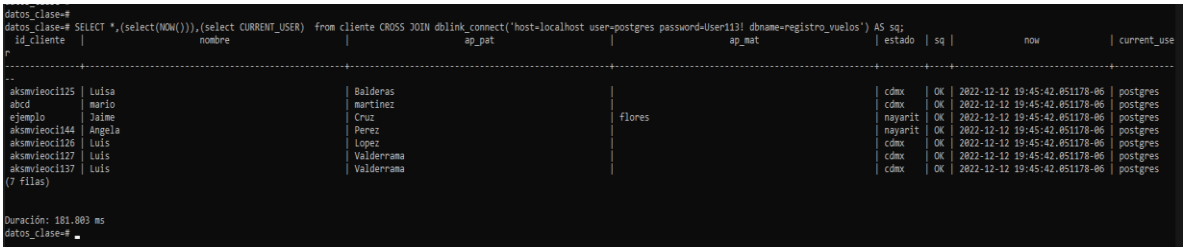
Inner JOIN aeropuertos ae ON vu.origin_airport=ae.iata_code where vu.cancelled is not null AND ae.city='Honolulu' GROUP BY airline,day,month,year Order by airline,day;

```
registro_vuelos=#
registro_vuelos=# select vu.airline,vu.day,vu.month,vu.year,COUNT(flight_number) aviones_cancelados, (select(NOW())),(select CURRENT_USER)  from vuelos vu
registro_vuelos-# Inner JOIN aeropuertos ae ON vu.origin_airport=ae.iata_code where vu.cancelled is not null AND ae.city='Honolulu'
registro_vuelos-# GROUP BY airline,day,month,year Order by airline,day;
 airline | day | month | year | aviones_cancelados |              now              | current_user
---------+-----+-------+------+--------------------+-------------------------------+--------------
 AA      |   1 |     1 | 2015 |                  7 | 2022-12-12 19:43:27.692983-06 | postgres
 AA      |   1 |     2 | 2015 |                  5 | 2022-12-12 19:43:27.692983-06 | postgres
 AA      |   1 |     3 | 2015 |                  6 | 2022-12-12 19:43:27.692983-06 | postgres
 AA      |   1 |     4 | 2015 |                  6 | 2022-12-12 19:43:27.692983-06 | postgres
 AA      |   1 |     5 | 2015 |                  6 | 2022-12-12 19:43:27.692983-06 | postgres
 AA      |   1 |     6 | 2015 |                  7 | 2022-12-12 19:43:27.692983-06 | postgres
 AA      |   1 |     7 | 2015 |                 10 | 2022-12-12 19:43:27.692983-06 | postgres
 AA      |   1 |     8 | 2015 |                 11 | 2022-12-12 19:43:27.692983-06 | postgres
 AA      |   1 |     9 | 2015 |                  8 | 2022-12-12 19:43:27.692983-06 | postgres
 AA      |   1 |    11 | 2015 |                  8 | 2022-12-12 19:43:27.692983-06 | postgres
 AA      |   1 |    12 | 2015 |                  6 | 2022-12-12 19:43:27.692983-06 | postgres
 AA      |   2 |     1 | 2015 |                  7 | 2022-12-12 19:43:27.692983-06 | postgres
 AA      |   2 |     2 | 2015 |                  5 | 2022-12-12 19:43:27.692983-06 | postgres
 AA      |   2 |     3 | 2015 |                  6 | 2022-12-12 19:43:27.692983-06 | postgres
 AA      |   2 |     4 | 2015 |                  6 | 2022-12-12 19:43:27.692983-06 | postgres
 AA      |   2 |     5 | 2015 |                  6 | 2022-12-12 19:43:27.692983-06 | postgres
 AA      |   2 |     6 | 2015 |                  7 | 2022-12-12 19:43:27.692983-06 | postgres
 AA      |   2 |     7 | 2015 |                 10 | 2022-12-12 19:43:27.692983-06 | postgres
 AA      |   2 |     8 | 2015 |                 10 | 2022-12-12 19:43:27.692983-06 | postgres
 AA      |   2 |     9 | 2015 |                  8 | 2022-12-12 19:43:27.692983-06 | postgres
 AA      |   2 |    11 | 2015 |                  7 | 2022-12-12 19:43:27.692983-06 | postgres
 AA      |   2 |    12 | 2015 |                  6 | 2022-12-12 19:43:27.692983-06 | postgres
 AA      |   3 |     1 | 2015 |                  7 | 2022-12-12 19:43:27.692983-06 | postgres
 AA      |   3 |     2 | 2015 |                  5 | 2022-12-12 19:43:27.692983-06 | postgres
 AA      |   3 |     3 | 2015 |                  5 | 2022-12-12 19:43:27.692983-06 | postgres
 AA      |   3 |     4 | 2015 |                  6 | 2022-12-12 19:43:27.692983-06 | postgres
 AA      |   3 |     5 | 2015 |                  6 | 2022-12-12 19:43:27.692983-06 | postgres
 AA      |   3 |     6 | 2015 |                  7 | 2022-12-12 19:43:27.692983-06 | postgres
 AA      |   3 |     7 | 2015 |                 10 | 2022-12-12 19:43:27.692983-06 | postgres
 AA      |   3 |     8 | 2015 |                 10 | 2022-12-12 19:43:27.692983-06 | postgres
 AA      |   3 |     9 | 2015 |                  8 | 2022-12-12 19:43:27.692983-06 | postgres
 AA      |   3 |    11 | 2015 |                  7 | 2022-12-12 19:43:27.692983-06 | postgres
 AA      |   3 |    12 | 2015 |                  7 | 2022-12-12 19:43:27.692983-06 | postgres
 AA      |   4 |     1 | 2015 |                  7 | 2022-12-12 19:43:27.692983-06 | postgres
 AA      |   4 |     2 | 2015 |                  5 | 2022-12-12 19:43:27.692983-06 | postgres
 AA      |   4 |     3 | 2015 |                  5 | 2022-12-12 19:43:27.692983-06 | postgres
 AA      |   4 |     4 | 2015 |                  7 | 2022-12-12 19:43:27.692983-06 | postgres
 AA      |   4 |     5 | 2015 |                  6 | 2022-12-12 19:43:27.692983-06 | postgres
 AA      |   4 |     6 | 2015 |                  7 | 2022-12-12 19:43:27.692983-06 | postgres
 AA      |   4 |     7 | 2015 |                 11 | 2022-12-12 19:43:27.692983-06 | postgres
 AA      |   4 |     8 | 2015 |                 10 | 2022-12-12 19:43:27.692983-06 | postgres
 AA      |   4 |     9 | 2015 |                  9 | 2022-12-12 19:43:27.692983-06 | postgres
 AA      |   4 |    11 | 2015 |                  7 | 2022-12-12 19:43:27.692983-06 | postgres
 AA      |   4 |    12 | 2015 |                  7 | 2022-12-12 19:43:27.692983-06 | postgres
 AA      |   5 |     1 | 2015 |                  7 | 2022-12-12 19:43:27.692983-06 | postgres
 AA      |   5 |     2 | 2015 |                  5 | 2022-12-12 19:43:27.692983-06 | postgres
 AA      |   5 |     3 | 2015 |                  6 | 2022-12-12 19:43:27.692983-06 | postgres
-- Más  --
```

8. **Hacer un cross join entre la tabla cliente y la tabla aerolíneas. Obviamente ambas tablas forman parte de distintas BDs, debe encontrar la forma de hacerlo.**

Se debe crear una extensión por medio de DBLINK, de aquí se genera un nuevo servidor con datos específicos para conectarse a otra base

SELECT *,(select(NOW())),(select CURRENT_USER) from cliente CROSS JOIN dblink_connect('host=localhost user=postgres password=’password’ dbname=registro_vuelos') AS sq;



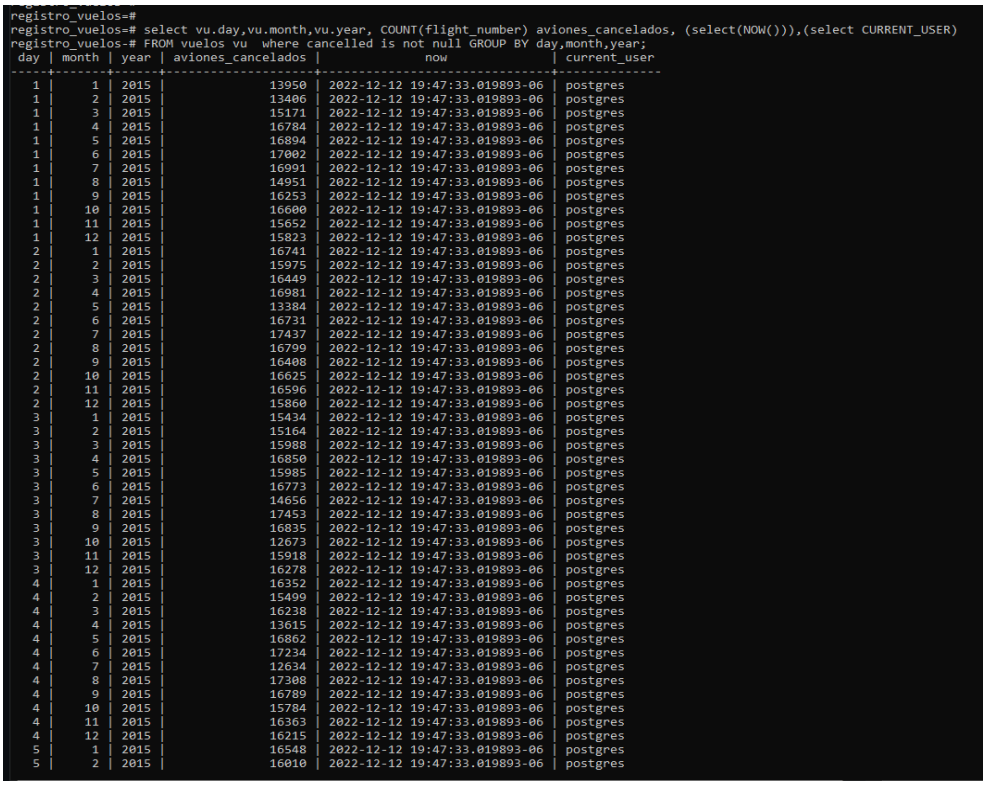
```
datos_clase=#
datos_clase=# SELECT *,(select(NOW())),(select CURRENT_USER)  from cliente CROSS JOIN dblink_connect('host=localhost user=postgres password=User113! dbname=registro_vuelos') AS sq;
  id_cliente   |                nombre                |                ap_pat                |                ap_mat                | estado  | sq |             now             | current_use
r
---------------+--------------------------------------+--------------------------------------+--------------------------------------+---------+----+-----------------------------+------------
--
 aksmvieoci125 | Luisa                                | Balderas                             |                                      | cdmx    | OK | 2022-12-12 19:45:42.051178-06 | postgres
 abcd          | mario                                | martinez                             |                                      | cdmx    | OK | 2022-12-12 19:45:42.051178-06 | postgres
 ejemplo       | Jaime                                | Cruz                                 | flores                               | nayarit | OK | 2022-12-12 19:45:42.051178-06 | postgres
 aksmvieoci144 | Angela                               | Perez                                |                                      | nayarit | OK | 2022-12-12 19:45:42.051178-06 | postgres
 aksmvieoci126 | Luis                                 | Lopez                                |                                      | cdmx    | OK | 2022-12-12 19:45:42.051178-06 | postgres
 aksmvieoci127 | Luis                                 | Valderrama                           |                                      | cdmx    | OK | 2022-12-12 19:45:42.051178-06 | postgres
 aksmvieoci137 | Luis                                 | Valderrama                           |                                      | cdmx    | OK | 2022-12-12 19:45:42.051178-06 | postgres
(7 filas)


Duración: 181.803 ms
datos_clase=#
```

9. **Cantidad de vuelos cancelados por día.**

select vu.day,vu.month,vu.year, COUNT(flight_number) aviones_cancelados, (select(NOW())),(select CURRENT_USER)

FROM vuelos vu where cancelled is not null GROUP BY day,month,year;



```
registro_vuelos=#
registro_vuelos=# select vu.day,vu.month,vu.year, COUNT(flight_number) aviones_cancelados, (select(NOW())),(select CURRENT_USER)
registro_vuelos-# FROM vuelos vu  where cancelled is not null GROUP BY day,month,year;
 day | month | year | aviones_cancelados |              now              | current_user
-----+-------+------+--------------------+-------------------------------+--------------
   1 |     1 | 2015 |              13950 | 2022-12-12 19:47:33.019893-06 | postgres
   1 |     2 | 2015 |              13406 | 2022-12-12 19:47:33.019893-06 | postgres
   1 |     3 | 2015 |              15171 | 2022-12-12 19:47:33.019893-06 | postgres
   1 |     4 | 2015 |              16784 | 2022-12-12 19:47:33.019893-06 | postgres
   1 |     5 | 2015 |              16894 | 2022-12-12 19:47:33.019893-06 | postgres
   1 |     6 | 2015 |              17002 | 2022-12-12 19:47:33.019893-06 | postgres
   1 |     7 | 2015 |              16991 | 2022-12-12 19:47:33.019893-06 | postgres
   1 |     8 | 2015 |              14951 | 2022-12-12 19:47:33.019893-06 | postgres
   1 |     9 | 2015 |              16253 | 2022-12-12 19:47:33.019893-06 | postgres
   1 |    10 | 2015 |              16600 | 2022-12-12 19:47:33.019893-06 | postgres
   1 |    11 | 2015 |              15652 | 2022-12-12 19:47:33.019893-06 | postgres
   1 |    12 | 2015 |              15823 | 2022-12-12 19:47:33.019893-06 | postgres
   2 |     1 | 2015 |              16741 | 2022-12-12 19:47:33.019893-06 | postgres
   2 |     2 | 2015 |              15975 | 2022-12-12 19:47:33.019893-06 | postgres
   2 |     3 | 2015 |              16449 | 2022-12-12 19:47:33.019893-06 | postgres
   2 |     4 | 2015 |              16981 | 2022-12-12 19:47:33.019893-06 | postgres
   2 |     5 | 2015 |              13384 | 2022-12-12 19:47:33.019893-06 | postgres
   2 |     6 | 2015 |              16731 | 2022-12-12 19:47:33.019893-06 | postgres
   2 |     7 | 2015 |              17437 | 2022-12-12 19:47:33.019893-06 | postgres
   2 |     8 | 2015 |              16799 | 2022-12-12 19:47:33.019893-06 | postgres
   2 |     9 | 2015 |              16408 | 2022-12-12 19:47:33.019893-06 | postgres
   2 |    10 | 2015 |              16625 | 2022-12-12 19:47:33.019893-06 | postgres
   2 |    11 | 2015 |              16596 | 2022-12-12 19:47:33.019893-06 | postgres
   2 |    12 | 2015 |              15860 | 2022-12-12 19:47:33.019893-06 | postgres
   3 |     1 | 2015 |              15434 | 2022-12-12 19:47:33.019893-06 | postgres
   3 |     2 | 2015 |              15164 | 2022-12-12 19:47:33.019893-06 | postgres
   3 |     3 | 2015 |              15988 | 2022-12-12 19:47:33.019893-06 | postgres
   3 |     4 | 2015 |              16850 | 2022-12-12 19:47:33.019893-06 | postgres
   3 |     5 | 2015 |              15985 | 2022-12-12 19:47:33.019893-06 | postgres
   3 |     6 | 2015 |              16773 | 2022-12-12 19:47:33.019893-06 | postgres
   3 |     7 | 2015 |              14656 | 2022-12-12 19:47:33.019893-06 | postgres
   3 |     8 | 2015 |              17453 | 2022-12-12 19:47:33.019893-06 | postgres
   3 |     9 | 2015 |              16835 | 2022-12-12 19:47:33.019893-06 | postgres
   3 |    10 | 2015 |              12673 | 2022-12-12 19:47:33.019893-06 | postgres
   3 |    11 | 2015 |              15918 | 2022-12-12 19:47:33.019893-06 | postgres
   3 |    12 | 2015 |              16278 | 2022-12-12 19:47:33.019893-06 | postgres
   4 |     1 | 2015 |              16352 | 2022-12-12 19:47:33.019893-06 | postgres
   4 |     2 | 2015 |              15499 | 2022-12-12 19:47:33.019893-06 | postgres
   4 |     3 | 2015 |              16238 | 2022-12-12 19:47:33.019893-06 | postgres
   4 |     4 | 2015 |              13615 | 2022-12-12 19:47:33.019893-06 | postgres
   4 |     5 | 2015 |              16862 | 2022-12-12 19:47:33.019893-06 | postgres
   4 |     6 | 2015 |              17234 | 2022-12-12 19:47:33.019893-06 | postgres
   4 |     7 | 2015 |              12634 | 2022-12-12 19:47:33.019893-06 | postgres
   4 |     8 | 2015 |              17308 | 2022-12-12 19:47:33.019893-06 | postgres
   4 |     9 | 2015 |              16789 | 2022-12-12 19:47:33.019893-06 | postgres
   4 |    10 | 2015 |              15784 | 2022-12-12 19:47:33.019893-06 | postgres
   4 |    11 | 2015 |              16363 | 2022-12-12 19:47:33.019893-06 | postgres
   4 |    12 | 2015 |              16215 | 2022-12-12 19:47:33.019893-06 | postgres
   5 |     1 | 2015 |              16548 | 2022-12-12 19:47:33.019893-06 | postgres
   5 |     2 | 2015 |              16010 | 2022-12-12 19:47:33.019893-06 | postgres
```

10. **Seleccionar el nombre de los aeropuertos cuya segunda letra del iata_code sea K ´o X, sin usar operadores and, not u or. Puede usar alguna función propia de postgres.**

select *,(select(NOW())),(select CURRENT_USER) from aeropuertos WHERE iata_code LIKE'_K%'

UNION

select *,(select(NOW())),(select CURRENT_USER) from aeropuertos WHERE iata_code LIKE'_X%';

```
registro_vuelos=#
registro_vuelos=# select *,(select(NOW())),(select CURRENT_USER)  from aeropuertos WHERE iata_code LIKE'_K%'
registro_vuelos-# UNION
registro_vuelos-# select *,(select(NOW())),(select CURRENT_USER)  from aeropuertos WHERE iata_code LIKE'_X%';
 iata_code |                airport                |     city      | state | country | latitude | longitude  |              now              | current_user
-----------+---------------------------------------+---------------+-------+---------+----------+------------+-------------------------------+--------------
 MKG       | Muskegon County Airport               | Muskegon      | MI    | USA     | 43.16949 |  -86.23822 | 2022-12-12 19:48:33.704854-06 | postgres
 AKN       | King Salmon Airport                   | King Salmon   | AK    | USA     |  58.6768 | -156.64922 | 2022-12-12 19:48:33.704854-06 | postgres
 MKE       | General Mitchell International Airport | Milwaukee     | WI    | USA     | 42.94722 |  -87.89658 | 2022-12-12 19:48:33.704854-06 | postgres
 EKO       | Elko Regional Airport                 | Elko          | NV    | USA     | 40.82493 |  -115.7917 | 2022-12-12 19:48:33.704854-06 | postgres
 TXK       | Texarkana Regional Airport┬á(Webb Field) | Texarkana     | AR    | USA     | 33.45371 |  -93.99102 | 2022-12-12 19:48:33.704854-06 | postgres
 OKC       | Will Rogers World Airport             | Oklahoma City | OK    | USA     | 35.39309 |  -97.60073 | 2022-12-12 19:48:33.704854-06 | postgres
 RKS       | Rock Springs-Sweetwater County Airport | Rock Springs  | WY    | USA     | 41.59422 | -109.06519 | 2022-12-12 19:48:33.704854-06 | postgres
(7 filas)


Duración: 19.722 ms
registro_vuelos=#
```

11. **Indicar el nombre(s) de la aerolínea cuya distancia de vuelo es la mayor.**

select DISTINCT ae.airline, (select(NOW())),(select CURRENT_USER) from vuelos vu INNER JOIN aerolineas ae

ON ae.iata_code=vu.airline where vu.distance=(select MAX(distance) from vuelos);

```
registro_vuelos=#
registro_vuelos=# select DISTINCT ae.airline, (select(NOW())),(select CURRENT_USER)  from vuelos vu INNER JOIN aerolineas ae
registro_vuelos-# ON ae.iata_code=vu.airline where vu.distance=(select MAX(distance) from vuelos);
        airline         |              now              | current_user
------------------------+-------------------------------+--------------
 Delta Air Lines Inc.   | 2022-12-12 19:49:21.070864-06 | postgres
 Hawaiian Airlines Inc. | 2022-12-12 19:49:21.070864-06 | postgres
(2 filas)


Duración: 1278.191 ms (00:01.278)
registro_vuelos=#
```

12. **Indicar el nombre del aeropuerto de origen donde se present´o el mayor tiempo de vuelo.**

select DISTINCT ae.airport, (select(NOW())),(select CURRENT_USER) from vuelos vu INNER JOIN aeropuertos ae

ON ae.iata_code=vu.origin_airport where vu.air_time=(select MAX(air_time) from vuelos);