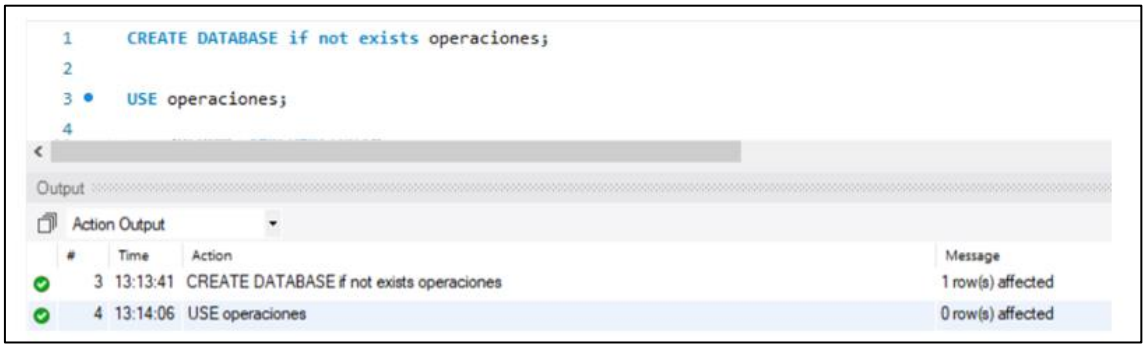
SPRINT 4 *Tarea S4.01. Creación de Base de Datos*

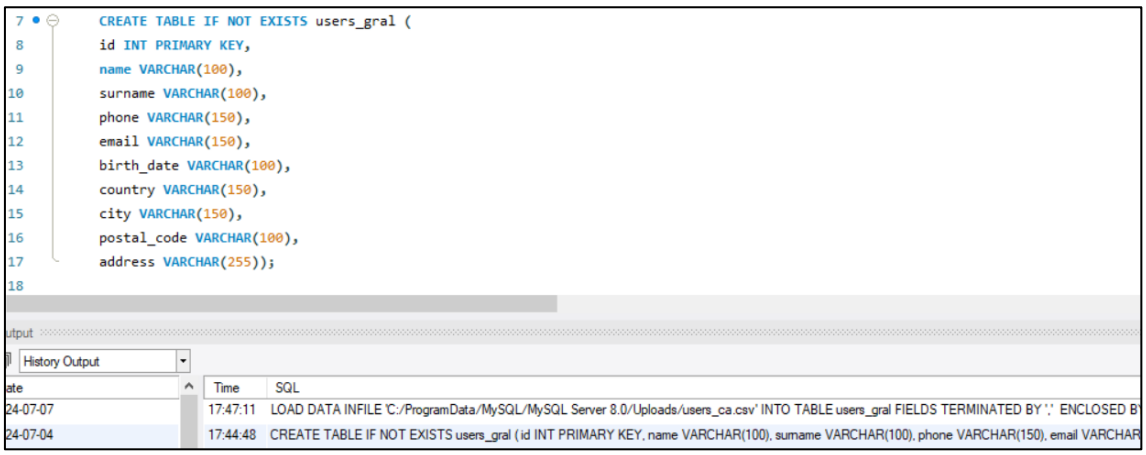
NIVEL 1

"Descarga los archivos CSV, estudialos y diseña una base de datos con un esquema de estrella que contenga, al menos 4 tablas de las que puedas realizar las siguientes consultas:"

Primer paso, creo la base de datos sobre la que vamos a trabajar, la llamaré operaciones.



Paso a crear la tabla de usuarios general (users_gral), que tendrá los datos de los usuarios de los distintos países. Es importante mencionar que las tablas user_uk, user_usa y user_ca comparten la misma estructura, lo que justifica una tabla unificada.



Creación de la estructura de las tablas ***credit_cards, products, companies***

```sql
CREATE TABLE IF NOT exists credit_cards (
id VARCHAR(15) PRIMARY KEY,
user_id INT,
iban VARCHAR(80),
pan VARCHAR(80),
pin CHAR(4),
cvv CHAR(4),
track1 VARCHAR(70),
track2 VARCHAR(70),
expiring_date VARCHAR(80),
FOREIGN KEY (user_id) REFERENCES users_gral(id)
);
```

```sql
CREATE TABLE IF NOT EXISTS products (
id VARCHAR(50) PRIMARY KEY,
product_name VARCHAR(50),
price DECIMAL(8,2),
colour CHAR(7),
weight SMALLINT,
warehouse_id VARCHAR(10));
```

```sql
100  CREATE TABLE IF NOT EXISTS companies (
101  company_id VARCHAR(15) PRIMARY KEY,
102  company_name VARCHAR(255),
103  phone VARCHAR(15),
104  email VARCHAR(100),
105  country VARCHAR(100),
106  website VARCHAR(255)
107  );
108
```

Paso a crear la tabla de hechos (tabla de transacciones)

```sql
CREATE TABLE IF NOT EXISTS transacciones (
id VARCHAR(255) PRIMARY KEY,
card_id VARCHAR(15) REFERENCES credit_cards(id),
business_id VARCHAR(15) REFERENCES companies(company_id),
timestamp TIMESTAMP,
amount DECIMAL(10, 2),
declined BOOLEAN,
product_ids VARCHAR(50),
user_id INT REFERENCES users_gral(id),
lat FLOAT,
longitude FLOAT
);
```

Output

Action Output

#	Time	Action	Message
14	12:09:25	CREATE TABLE IF NOT EXISTS companies (company_id VARCHAR(15) PRIMARY KEY, company_nam...	0 row(s) affected
15	12:12:49	CREATE TABLE IF NOT EXISTS transacciones (id VARCHAR(255) PRIMARY KEY, card_id VARCHAR(1...	0 row(s) affected

Me he dado cuenta más tarde, luego de haber creado la tabla transacciones, de que no había creado las claves foráneas. Por lo que paso a establecer las claves foráneas que harán de vínculo con las tablas de dimensiones respectivas (tabla companies, tabla users_gral y tabla credit_cards).

```sql
###--- agregar clave foranea, me olvide de agregrarlas cuando creer la tabla transacciones

ALTER TABLE transacciones
ADD CONSTRAINT fk_card_id
FOREIGN KEY (card_id) REFERENCES credit_cards(id),
ADD CONSTRAINT fk_business_id
FOREIGN KEY (business_id) REFERENCES companies(company_id);
```

Ahora para poder ingresar los datos en formato CSV, aplico *SHOW VARIABLES LIKE 'secure_file_priv';* para que me pueda aparecer la ruta de acceso en donde debo poner los archivos para luego poder cargar los datos. Esa ruta de acceso la copio para utilizarla en la línea LOAD DATA INFILE.

Carga datos tabla ***companies***

```sql
SHOW VARIABLES LIKE 'secure_file_priv';

LOAD DATA INFILE 'C:/ProgramData/MySQL/MySQL Server 8.0/Uploads/companies.csv'
INTO TABLE companies
FIELDS TERMINATED BY ','
ENCLOSED BY '"'
LINES TERMINATED BY '\n'
IGNORE 1 ROWS;

select *
from companies;
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

company_id	company_name	phone	email	country	website
b-2222	Ac Fermentum Incorporated	06 85 56 52 33	donec.porttitor.tellus@yahoo.net	Germany	https://instagram.com/site
b-2226	Magna A Neque Industries	04 14 44 64 62	risus.donec.nibh@icloud.org	Australia	https://whatsapp.com/group/9
b-2230	Fusce Corp.	08 14 97 58 85	risus@protonmail.edu	United States	https://pinterest.com/sub/cars
b-2234	Convallis In Incorporated	06 66 57 29 50	mauris.ut@aol.couk	Germany	https://cnn.com/user/110
b-2238	Ante Iaculis Nec Foundation	08 23 04 99 53	sed.dictum.proin@outlook.ca	New Zealand	https://netflix.com/settings
b-2242	Donec Ltd	01 25 51 37 37	at.iaculis@hotmail.couk	Norway	https://nytimes.com/user/110
b-2246	Sed Nunc Ltd	02 62 64 73 48	nibh@yahoo.org	United Kingdom	https://cnn.com/one
b-2250	Amet Nulla Donec Corporation	07 15 25 14 74	mattis.integer.eu@protonmail.net	Italy	https://netflix.com/sub/cars
b-2254	Nascetur Ridiculus Mus Inc.	06 26 87 61 84	suspendisse.dui@icloud.net	United States	https://ebay.com/sub

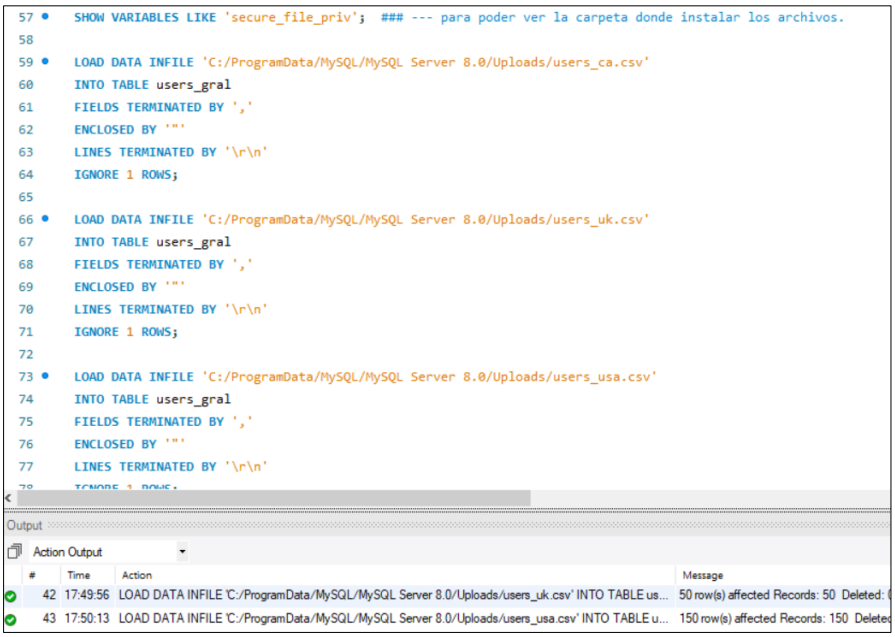
companies 2

Output

Action Output

#	Time	Action	Message
20	13:14:10	LOAD DATA INFILE 'C:/ProgramData/MySQL/MySQL Server 8.0/Uploads/companies.csv' INTO TABLE ...	100 row(s) affected Records: 100 Deleted: 0 Skipped: 0 Warn
21	13:14:25	select * from companies	100 row(s) returned

Cargar los datos de usuarios en tabla ***users_gral*** *(de los diferentes archivos de user como tienen la misma estructura, lo dejo unificado en una tabla de users_gral)*



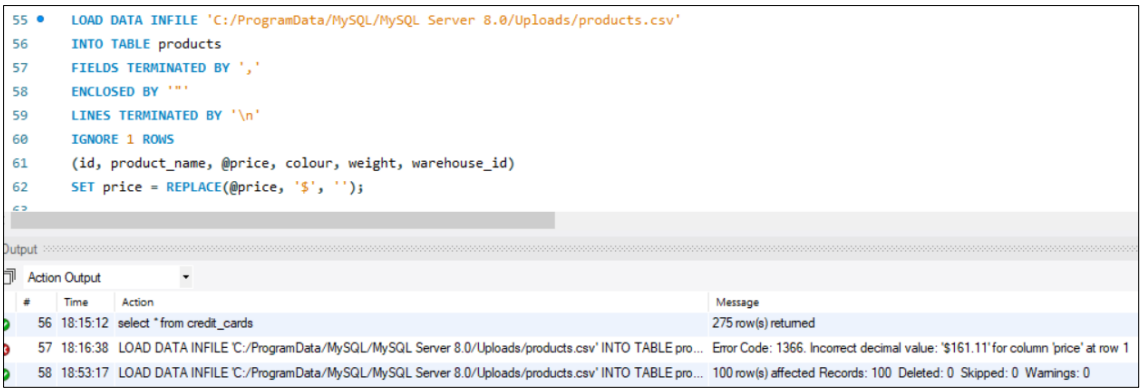
```
SHOW VARIABLES LIKE 'secure_file_priv';  ### --- para poder ver la carpeta donde instalar los archivos.

LOAD DATA INFILE 'C:/ProgramData/MySQL/MySQL Server 8.0/Uploads/users_ca.csv'
INTO TABLE users_gral
FIELDS TERMINATED BY ','
ENCLOSED BY '"'
LINES TERMINATED BY '\r\n'
IGNORE 1 ROWS;

LOAD DATA INFILE 'C:/ProgramData/MySQL/MySQL Server 8.0/Uploads/users_uk.csv'
INTO TABLE users_gral
FIELDS TERMINATED BY ','
ENCLOSED BY '"'
LINES TERMINATED BY '\r\n'
IGNORE 1 ROWS;

LOAD DATA INFILE 'C:/ProgramData/MySQL/MySQL Server 8.0/Uploads/users_usa.csv'
INTO TABLE users_gral
FIELDS TERMINATED BY ','
ENCLOSED BY '"'
LINES TERMINATED BY '\r\n'
```

Output

Action Output

#	Time	Action	Message
42	17:49:56	LOAD DATA INFILE 'C:/ProgramData/MySQL/MySQL Server 8.0/Uploads/users_uk.csv' INTO TABLE us...	50 row(s) affected Records: 50 Deleted:
43	17:50:13	LOAD DATA INFILE 'C:/ProgramData/MySQL/MySQL Server 8.0/Uploads/users_usa.csv' INTO TABLE u...	150 row(s) affected Records: 150 Delete

Respecto a la carga de dato de la tabla ***products***, al tener la columna price formato decimal, y el archivo figurar con símbolo "$", se aplica el comando: *SET price = REPLACE(@price, '$', '')* para que me limpie ese carácter y se pueda cargar el tipo de dato como decimal.



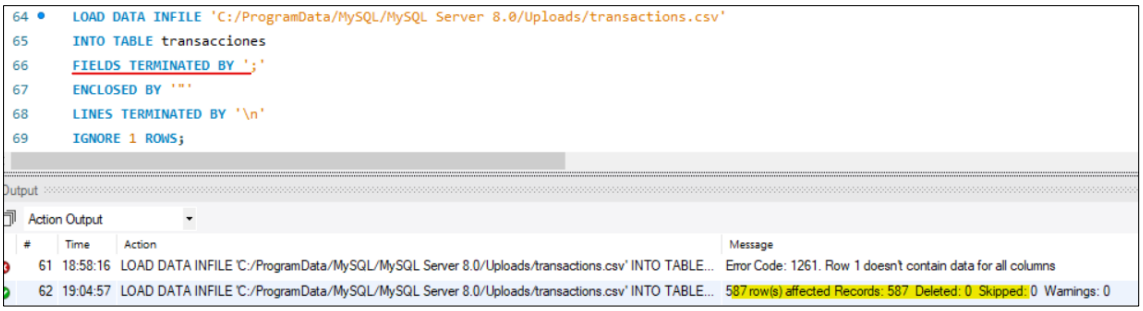
```
LOAD DATA INFILE 'C:/ProgramData/MySQL/MySQL Server 8.0/Uploads/products.csv'
INTO TABLE products
FIELDS TERMINATED BY ','
ENCLOSED BY '"'
LINES TERMINATED BY '\n'
IGNORE 1 ROWS
(id, product_name, @price, colour, weight, warehouse_id)
SET price = REPLACE(@price, '$', '');
```

Output

Action Output

#	Time	Action	Message
56	18:15:12	select * from credit_cards	275 row(s) returned
57	18:16:38	LOAD DATA INFILE 'C:/ProgramData/MySQL/MySQL Server 8.0/Uploads/products.csv' INTO TABLE pro...	Error Code: 1366. Incorrect decimal value: '$161.11' for column 'price' at row 1
58	18:53:17	LOAD DATA INFILE 'C:/ProgramData/MySQL/MySQL Server 8.0/Uploads/products.csv' INTO TABLE pro...	100 row(s) affected Records: 100 Deleted: 0 Skipped: 0 Warnings: 0

Paso a cargar los datos de tabla ***transacciones***, en este caso tengo que poner delimitidor el "punto y coma", ya que el archivo CSV, tiene como carácter separador el "punto y coma".



```
LOAD DATA INFILE 'C:/ProgramData/MySQL/MySQL Server 8.0/Uploads/transactions.csv'
INTO TABLE transacciones
FIELDS TERMINATED BY ';'
ENCLOSED BY '"'
LINES TERMINATED BY '\n'
IGNORE 1 ROWS;
```

Output

Action Output

#	Time	Action	Message
61	18:58:16	LOAD DATA INFILE 'C:/ProgramData/MySQL/MySQL Server 8.0/Uploads/transactions.csv' INTO TABLE...	Error Code: 1261. Row 1 doesn't contain data for all columns
62	19:04:57	LOAD DATA INFILE 'C:/ProgramData/MySQL/MySQL Server 8.0/Uploads/transactions.csv' INTO TABLE...	587 row(s) affected Records: 587 Deleted: 0 Skipped: 0 Warnings: 0

- EJERCICIO 1

"Realiza una subconsulta que muestre a todos los usuarios con más de 30 transacciones utilizando al menos 2 tablas."

```
126 •   SELECT distinct t.user_id, u.name, u.surname, count(user_id) AS nro_transacc
127     FROM transacciones t
128     JOIN users_gral as u
129     ON t.user_id =u.id
130     WHERE t.user_id IN (
131         SELECT t1.user_id
132         FROM transacciones AS t1
133         GROUP BY t1.user_id
134         HAVING COUNT(user_id) >= 30
135     )
136     group by t.user_id;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

user_id	name	surname	nro_transacc
92	Lynn	Riddle	39
267	Ocean	Nelson	52
272	Hedwig	Gilbert	76
275	Kenyon	Hartman	48

Result 13

Output

Action Output

#	Time	Action	Message
1	13:24:38	SELECT distinct t.user_id, u.name, u.surname, count(user_id) AS nro_transacc FROM transacciones t JOIN us...	4 row(s) returned

- EJERCICIO 2

"Muestra la media de amount por IBAN de las tarjetas de crédito a la compañía Donec Ltd, utiliza al menos 2 tablas."

```
92 •    SELECT c.id, c.iban, AVG(t.amount)
93      FROM transacciones AS t
94      JOIN credit_cards AS c
95      ON t.card_id = c.id
96      WHERE t.business_id = (
97                  SELECT c1.company_id
98                  FROM companies as c1
99                  WHERE c1.company_name = "Donec Ltd")
100     group by c.id, c.iban;
101
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

id	iban	AVG(t.amount)
CcU-2973	PT87806228135092429456346	203.715000

Result 63

Output

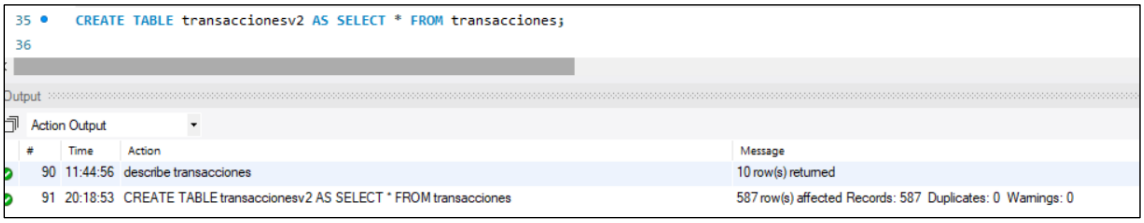
Action Output

#	Time	Action
1	14:35:44	SELECT c.id, c.iban, AVG(t.amount) FROM transacciones AS t JOIN credit_cards AS c ON t

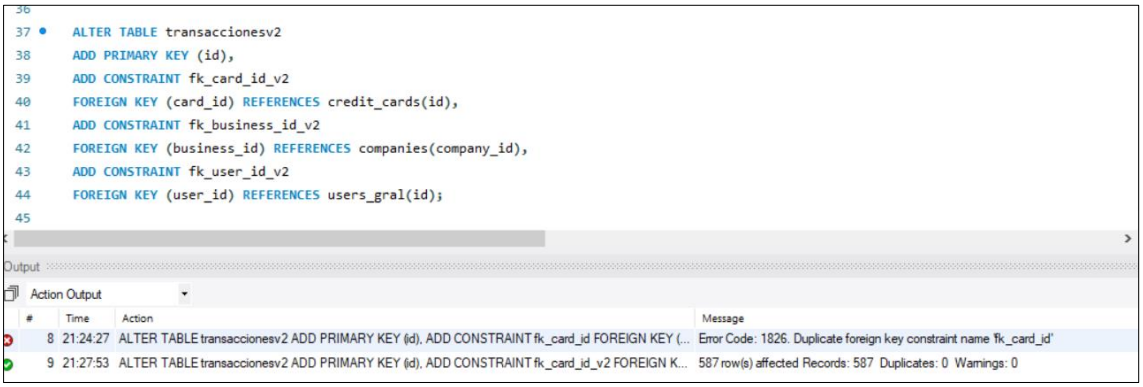
NIVEL 2

"Crea una nueva tabla que refleje el estado de las tarjetas de crédito basado en si las últimas tres transacciones fueron declinadas y genera la siguiente consulta:"

Para crear una nueva tabla, opto por duplicar la tabla transacciones ya existente, y comenzar a trabajar sobre la nueva tabla duplicada.



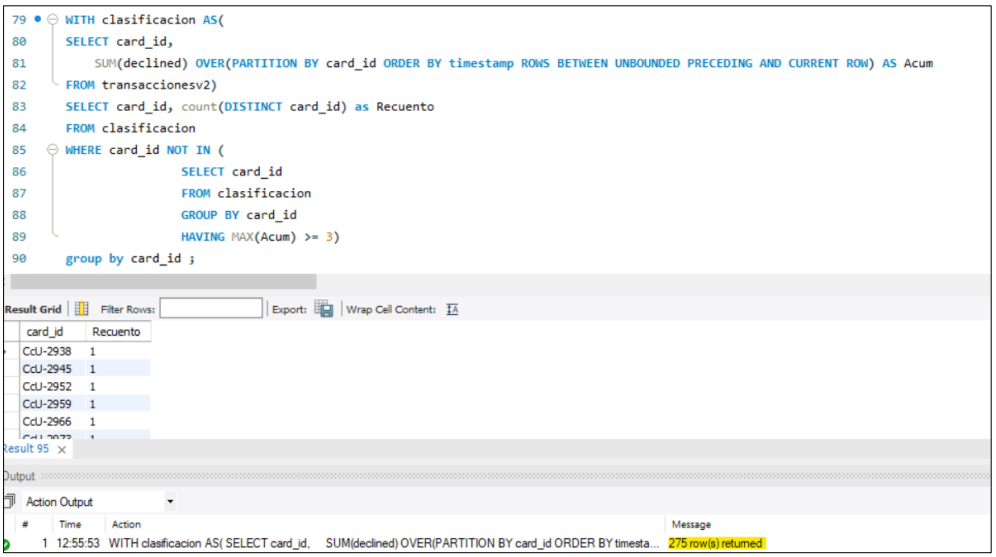
Agrego las claves primarias y secundarias a esta nueva tabla de transacciones.



- EJERCICIO 1

¿Cuántas tarjetas están activas?

Y para verificar si la consulta cumple con el requerimiento solicitado



He agregado otros registros a la tabla transaccionesv2, de forma tal que el acumulado de decline llegara a 3, y poder comprobar si la consulta me aparta a un lado dicha credit_card, y así ha sido.

```
INSERT INTO transaccionesv2
(id, card_id, business_id, timestamp, amount, declined, product_ids, user_id, lat, longitude)
VALUES
('69D90229-AD26-43C3-5AAF-8D332D3B3E63', 'CcU-2959', 'b-2362', '2022-03-17 14:01:00', 100, 1, '67, 29', 92, 40753650688, 1297231412224),
('69D90229-AD26-43C3-5AAF-8D332D3B3E64', 'CcU-2959', 'b-2362', '2022-03-18 14:01:00', 100, 1, '67, 29', 92, 40753650688, 1297231412224),
('69D90229-AD26-43C3-5AAF-8D332D3B3E65', 'CcU-2959', 'b-2362', '2022-03-19 14:01:00', 100, 1, '67, 29', 92, 40753650688, 1297231412224);
```

Ejemplo, al agregar nuevas operaciones declined a la credit_card CcU-2959, supera las 3 operaciones declined, y luego de ejecutar la consulta, no la considera, ya la deja afuera del resultado final.

```
WITH clasificacion AS(
SELECT card_id,
    SUM(declined) OVER(PARTITION BY card_id ORDER BY timestamp ROWS BETWEEN UNBOUNDED PRECEDING AND CURRENT ROW) AS Acum
FROM transaccionesv2)
SELECT card_id, count(DISTINCT card_id)
FROM clasificacion
WHERE card_id NOT IN (
                SELECT card_id
                FROM clasificacion
                GROUP BY card_id
                HAVING MAX(Acum) >= 3)
group by card_id ;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

card_id	count(DISTINCT card_id)
CcU-2938	1
CcU-2945	1
CcU-2952	1
CcU-2966	1
CcU-2973	1

Result 92

Output

Action Output

#	Time	Action	Message
1	12:44:14	WITH clasificacion AS(SELECT card_id, SUM(declined) OVER(PARTITION BY card_id ORDER BY timesta...	274 row(s) returned