IT Academy – Datos
Sprint 4 – 25/2/25
Lucía Cané

Descarga los archivos CSV, estudiales 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:

Nivel 1 - Ejercicio 1
Realiza una subconsulta que muestre a todos los usuarios con más de 30 transacciones utilizando al menos 2 tablas.

```
125 •   SELECT id, name
126     FROM users
127     WHERE id IN(SELECT user_id FROM transactions
128     GROUP BY user_id HAVING COUNT(user_id) > 30 );
```

Result Grid | Filter Rows: | Edit:

id	name
92	Lynn
267	Ocean
272	Hedwig
275	Kenyon
NULL	NULL

Nivel 1 - Ejercicio 2
Muestra la media de amount por IBAN de las tarjetas de crédito en la compañía Donec Ltd., utiliza por lo menos 2 tablas.

```
181     # Nivel 1 - Ejercico 2
182 •   SELECT c.iban AS IBAN, t.declined AS Declined, ROUND(AVG(t.amount),2) AS Amount
183     FROM transactions AS t
184     JOIN companies AS co ON co.company_id=t.business_id
185     JOIN creditcard AS c ON t.card_id=c.id
186     WHERE co.company_name= "Donec Ltd"
187     GROUP BY c.iban, c.id, co.company_name, c.iban, t.declined;
```

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

IBAN	Declined	Amount
PT87806228135092429456346	1	364.61
PT87806228135092429456346	0	42.82

Nivel 2 - Ejercicio 1

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:

¿Cuántas tarjetas están activas?

```sql
# Nivel 2 - Ejercico 1
CREATE TABLE creditcard_state (
card_id CHAR(8),
last3 INT,
state VARCHAR(50));

INSERT INTO creditcard_state (card_id, last3)
SELECT DISTINCT card_id, sum(declined) AS last3
FROM (SELECT card_id, declined, RANK() OVER (partition by card_id ORDER BY timestamp DESC) AS RN
FROM transactions) AS rankedtransactions
WHERE RN <=3
GROUP BY card_id;

UPDATE creditcard_state
SET state = CASE
    WHEN (last3) >= 3 THEN "INACTIVE"
    WHEN (last3) < 3 THEN "ACTIVE"
END;

SELECT count(*) AS Activecards
FROM creditcard_state
WHERE state = "ACTIVE";
```

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

Activecards
275

Nivel 3 - Ejercicio 1

Crea una tabla con la que podamos unir los datos del nuevo archivo products.csv con la base de datos creada, teniendo en cuenta que desde transaction tienes product_ids. Genera la siguiente consulta:

Necesitamos conocer el número de veces que se ha vendido cada producto.

```sql
# Nivel 3 - Ejercico 1

CREATE TABLE productspertransaction (
transaction_id VARCHAR(150),
product_id INT);

ALTER TABLE productspertransaction
ADD PRIMARY KEY(transaction_id, product_id);
ALTER TABLE productspertransaction
ADD FOREIGN KEY(transaction_id) REFERENCES transactions(id);
ALTER TABLE productspertransaction
ADD FOREIGN KEY (product_id) REFERENCES products(id);

CREATE TEMPORARY TABLE numbers AS
 ( select 1 as n
 union select 2 as n
 union select 3 as n
 union select 4 as n );

INSERT INTO productspertransaction (transaction_id, product_id)
SELECT
    t.id,
    SUBSTRING_INDEX(SUBSTRING_INDEX(t.product_ids, ',', n), ',', -1) AS product_id
FROM transactions t
JOIN numbers ON (CHAR_LENGTH(t.product_ids) - CHAR_LENGTH(REPLACE(t.product_ids, ',', '')) >= n - 1);

SELECT product_id, COUNT(transaction_id) AS UnitsSold
FROM productspertransaction
GROUP BY product_id
ORDER BY product_id;
```

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

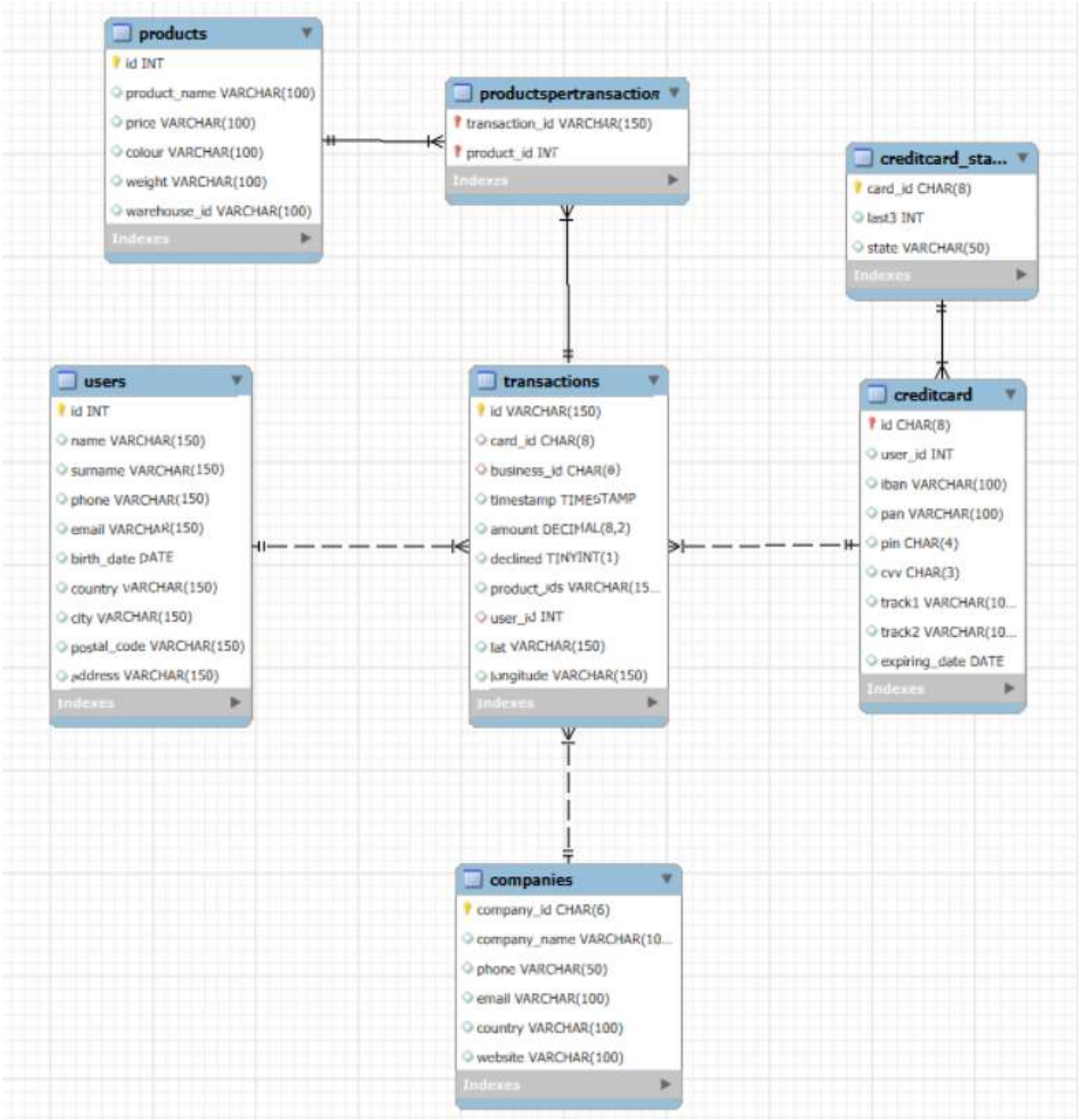
product_id	UnitsSold
1	61
2	65
3	51
5	49
7	54
11	48
13	60
17	61

Result 25

Output

Action Output

#	Time	Action	Message
115	13:20:36	SELECT product_id, COUNT(transaction_id) FROM productspertransaction GROUP BY product_id OR...	26 row(s) returned
116	13:23:33	SELECT product_id, COUNT(transaction_id) AS UnitsSold FROM productspertransaction GROUP BY p...	26 row(s) returned


products
id INT
product_name VARCHAR(100)
price VARCHAR(100)
colour VARCHAR(100)
weight VARCHAR(100)
warehouse_id VARCHAR(100)
Indexes
productspertransaction
transaction_id VARCHAR(150)
product_id INT
Indexes
creditcard_sta...
card_id CHAR(8)
last3 INT
state VARCHAR(50)
Indexes
users
id INT
name VARCHAR(150)
surname VARCHAR(150)
phone VARCHAR(150)
email VARCHAR(150)
birth_date DATE
country VARCHAR(150)
city VARCHAR(150)
postal_code VARCHAR(150)
address VARCHAR(150)
Indexes
transactions
id VARCHAR(150)
card_id CHAR(8)
business_id CHAR(6)
timestamp TIMESTAMP
amount DECIMAL(8,2)
declined TINYINT(1)
product_ids VARCHAR(15...
user_id INT
lat VARCHAR(150)
longitude VARCHAR(150)
Indexes
creditcard
id CHAR(8)
user_id INT
iban VARCHAR(100)
pan VARCHAR(100)
pin CHAR(4)
cvv CHAR(3)
track1 VARCHAR(10...
track2 VARCHAR(10...
expiring_date DATE
Indexes
companies
company_id CHAR(6)
company_name VARCHAR(10...
phone VARCHAR(50)
email VARCHAR(100)
country VARCHAR(100)
website VARCHAR(100)
Indexes