



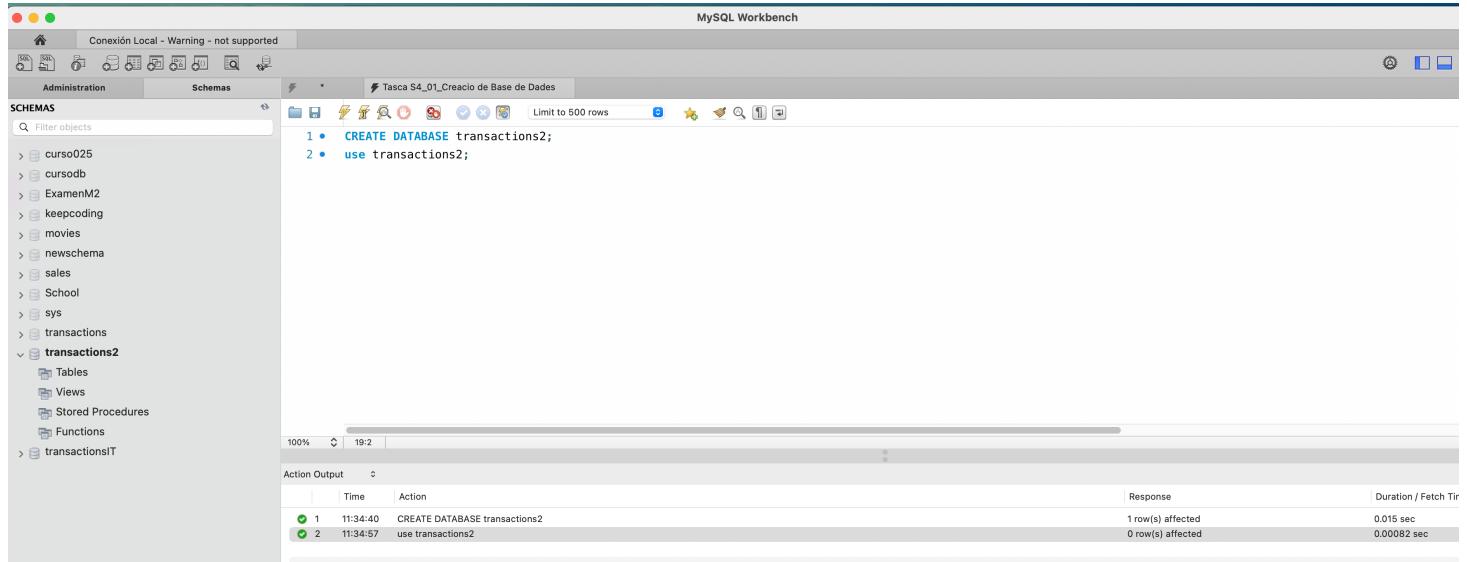
SPRINT 4: CREACIÓ DE BASE DE DADES

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Nivell 1

Descàrrega els arxius CSV, estudia'ls i dissenya una base de dades amb un esquema d'estrella que contingui, almenys 4 taules de les quals puguis realitzar les següents consultes:

Creación base de datos



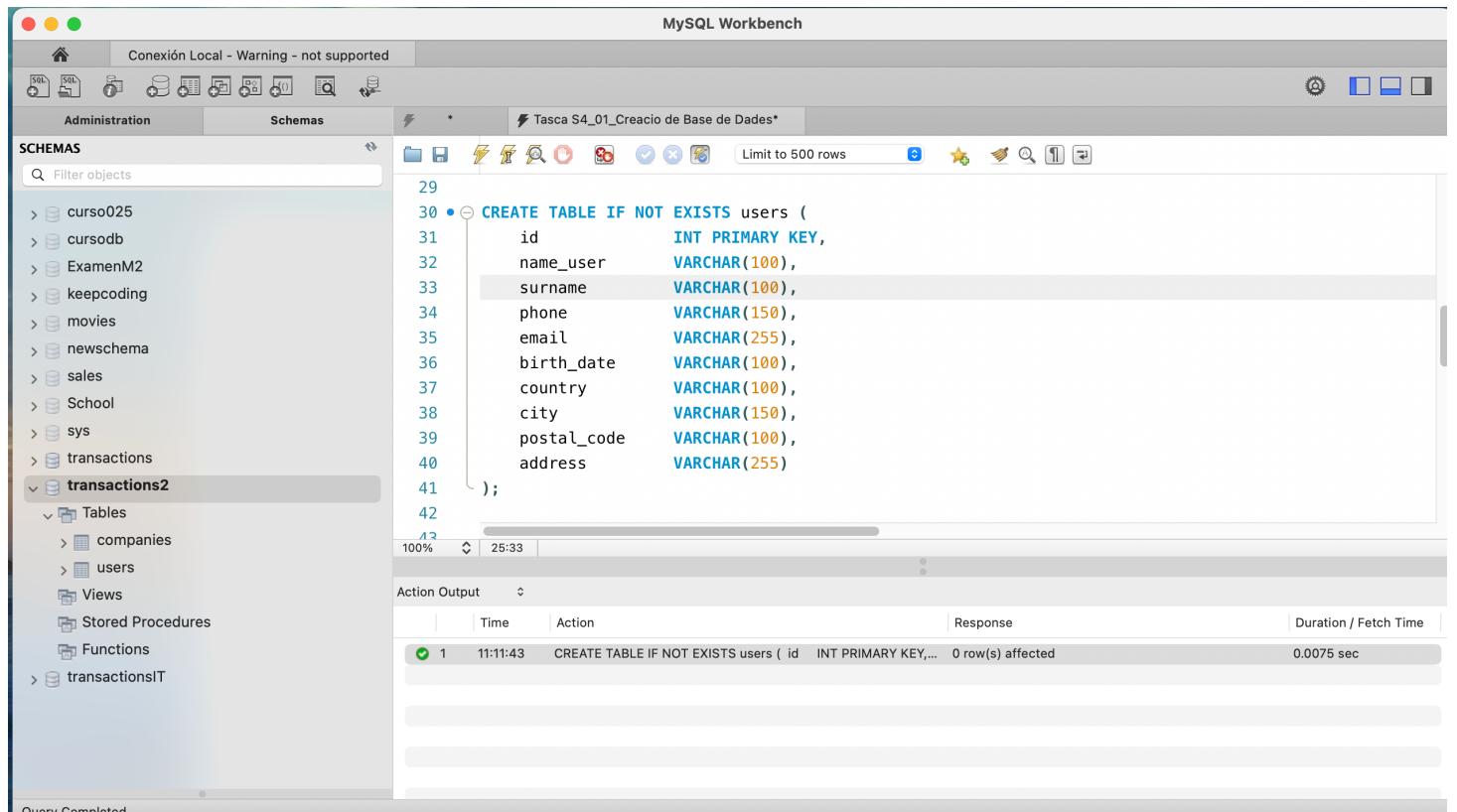
The screenshot shows the MySQL Workbench interface. In the top navigation bar, there is a warning message: "Conexión Local - Warning - not supported". The main area is titled "Tasca S4_01_Creacio de Base de Dades". The left sidebar shows the "Schemas" tree, which includes "curso025", "cursodb", "ExamenM2", "keepcoding", "movies", "newschema", "sales", "School", "sys", "transactions", and a selected schema "transactions2". The "Tables", "Views", "Stored Procedures", and "Functions" nodes under "transactions2" are also visible. The central pane displays the following SQL code:

```
1 • CREATE DATABASE transactions2;
2 • use transactions2;
```

Below the code, the "Action Output" pane shows the execution results:

Action	Time	Response	Duration / Fetch Time
CREATE DATABASE transactions2	11:34:40	1 row(s) affected	0.015 sec
use transactions2	11:34:57	0 row(s) affected	0.00082 sec

Creación tabla users



The screenshot shows the MySQL Workbench interface. In the top navigation bar, there is a warning message: "Conexión Local - Warning - not supported". The main area is titled "Tasca S4_01_Creacio de Base de Dades*". The left sidebar shows the "Schemas" tree, which includes "curso025", "cursodb", "ExamenM2", "keepcoding", "movies", "newschema", "sales", "School", "sys", "transactions", and a selected schema "transactions2". The "Tables" node under "transactions2" is expanded, showing "companies" and "users". The "Views", "Stored Procedures", and "Functions" nodes are also visible. The central pane displays the following SQL code:

```
29
30 • CREATE TABLE IF NOT EXISTS users (
31     id          INT PRIMARY KEY,
32     name_user   VARCHAR(100),
33     surname     VARCHAR(100),
34     phone       VARCHAR(150),
35     email       VARCHAR(255),
36     birth_date  VARCHAR(100),
37     country     VARCHAR(100),
38     city        VARCHAR(150),
39     postal_code VARCHAR(100),
40     address     VARCHAR(255)
41 );
42
```

Below the code, the "Action Output" pane shows the execution results:

Action	Time	Response	Duration / Fetch Time
CREATE TABLE IF NOT EXISTS users (id INT PRIMARY KEY,...	11:11:43	0 row(s) affected	0.0075 sec

Creación tabla credit_card

MySQL Workbench

Conexión Local - Warning - not supported

Administration Schemas

SCHEMAS

- curso025
- cursodb
- ExamenM2
- keepcoding
- movies
- newschema
- sales
- School
- sys
- transactions
- transactions2**

Tables

- companies
- credit_card
- users

Views

Stored Procedures

Functions

transactionsIT

Tasca S4_01_Creacio de Base de Dades*

```

45
46 • CREATE TABLE IF NOT EXISTS credit_card (
47     id          VARCHAR(20) PRIMARY KEY UNIQUE,
48     user_id    INT,
49     iban        VARCHAR(100),
50     pan         VARCHAR(30),
51     pin         VARCHAR(4),
52     cvv         VARCHAR(3),
53     track1      VARCHAR(100),
54     track2      VARCHAR(100),
55     expiring_date VARCHAR(8),
56     FOREIGN KEY (user_id) REFERENCES users(id)
57 );
58

```

Action Output

	Time	Action	Response	Duration / Fetch Time
1	11:12:41	CREATE TABLE IF NOT EXISTS credit_card (id VARCHAR(...	0 row(s) affected	0.011 sec

Query Completed

Creación tabla transactions

MySQL Workbench

Conexión Local - Warning - not supported

Administration Schemas

SCHEMAS

- curso025
- cursodb
- ExamenM2
- keepcoding
- movies
- newschema
- sales
- School
- sys
- transactions
- transactions2**

Tables

- companies
- credit_card
- transactions**
- users

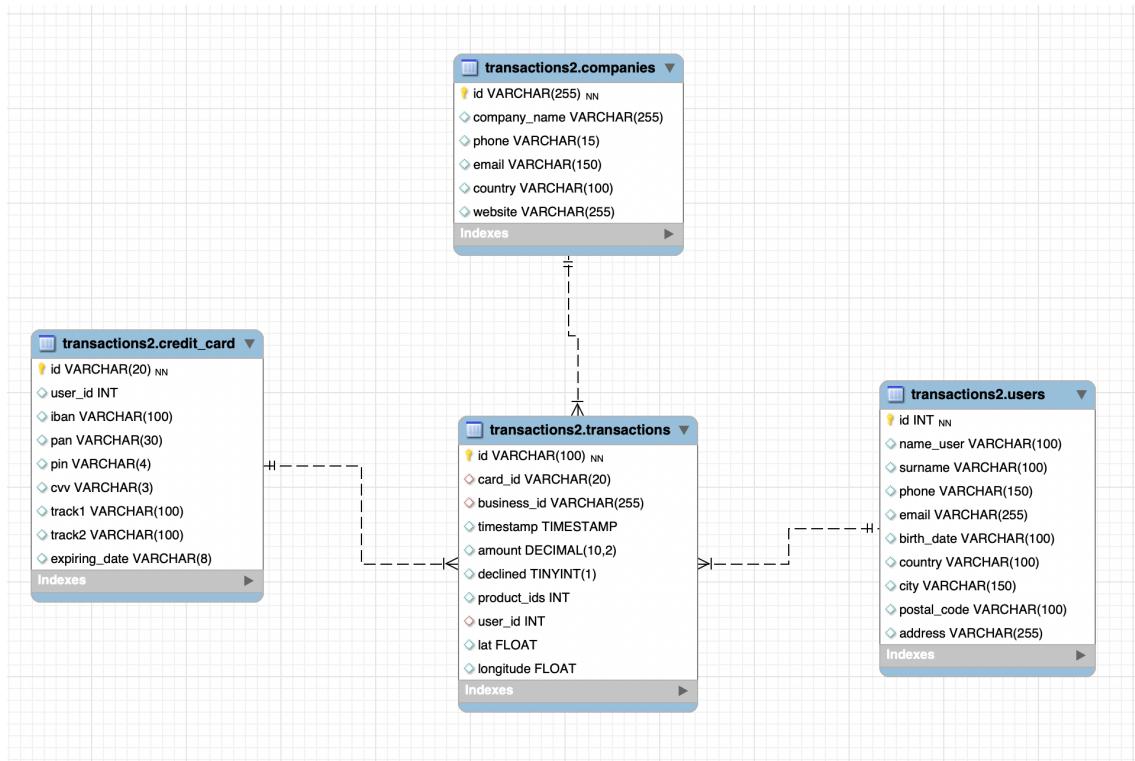
Tasca S4_01_Creacio de Base de Dades*

```

41
42
43 • CREATE TABLE IF NOT EXISTS transactions (
44     id          VARCHAR(100) PRIMARY KEY UNIQUE,
45     card_id    VARCHAR(20),
46     business_id VARCHAR(255),
47     timestamp   TIMESTAMP,
48     amount      DECIMAL(10, 2),
49     declined    BOOLEAN,
50     product_ids VARCHAR(255),
51     user_id    INT,
52     lat         FLOAT,
53     longitude   FLOAT,
54     FOREIGN KEY (card_id) REFERENCES credit_card(id),
55     FOREIGN KEY (business_id) REFERENCES companies(id),
56     FOREIGN KEY (user_id) REFERENCES users(id)
57 );
58
59

```

Diagrama Entidad Relación



• Exercici 1

Realitza una subconsulta que mostri tots els usuaris amb més de 30 transaccions utilitzant almenys 2 taules.

Untitled - MySQL Workbench

Administration Schemas Filter objects

SCHEMAS

```

61 #####
62 ##### NIVEL 1 #####
63 #   Exercici 1
64 # Realitza una subconsulta que mostri tots els usuaris amb més de 30 transaccions utilitzant almenys 2 taules.
65
66
67 • SELECT name_user
68   , surname
69   , country
70   FROM users
71   WHERE id IN ( SELECT user_id
72                 FROM transactions
73                 GROUP BY user_id
74                 HAVING (COUNT(user_id) >30)
75               );
76
77
78
79
  
```

Result Grid

name_user	surname	country
Lynn	Riddle	United States
Ocean	Nelson	Canada
Hedwig	Gilbert	Canada
Kenyon	Hartman	Canada

Action Output

Time	Action	Response	Duration / f
18:08:57	SELECT name_user , surname , country... 4 row(s) returned		0.0023 sec

- **Exercici 2**

Mostra la mitjana d'amount per IBAN de les targetes de crèdit a la companyia Donec Ltd, utilitza almenys 2 taules.

The screenshot shows the MySQL Workbench interface with the following details:

- Schemas:** The current schema is "Tasca S4_01_Creacio de Base de Dades".
- Query Editor:** The code entered is:

```
83
84
85 # Exercici 2
86 # Mostra la mitjana d'amount per IBAN de les targetes de crèdit a la companyia Donec Ltd, utilitza almenys 2 taules.
87 #con subquery
88
89 • SELECT ROUND(AVG(amount),2) AS Media
  FROM transactions
 WHERE business_id IN (
    SELECT id
    FROM companies c
    WHERE company_name = 'Donec Ltd');
90
91
92
93
94
95
96
97
98
99
```
- Result Grid:** The result of the query is displayed in a grid:

Media
203.72
- Action Output:** The log shows the execution details:

Action	Time	Response
1	18:41:36	SELECT ROUND(AVG(amount),2) AS Medi... 1 row(s) returned

Nivell 2

Crea una nova taula que reflecteixi l'estat de les targetes de crèdit basat en si les últimes tres transaccions van ser declinades i genera la següent consulta:

Untitled - MySQL Workbench

Administration Schemas Tasca S4_01_Creacio de Base de Dades* companies credit_card transactions users credit_card products transaction_products

Schemas

Filter objects

```

97 ##### NIVEL 2 #####
98
99 ## Crea una nova taula que reflecteixi l'estat de les targetes de crèdit basat en si les últimes tres transaccions
100 #van ser declinades i genera la següent consulta:
101
102     #OBTENGO LAS TARGETAS EN ORDEN DESC DE FECHAS, LA COLUMNA DECLINES Y LA EL ID, AGRUPADAS POR CARD_ID
103
104 • DROP TABLE IF EXISTS estado_tarjetas;
105 • CREATE TABLE estado_tarjetas AS
106     WITH ranking_transaction AS (
107         SELECT card_id
108             , declined
109             , timestamp
110             , ROW_NUMBER() OVER(PARTITION BY card_id ORDER BY timestamp DESC) AS ranking
111         FROM transactions
112         INNER JOIN credit_card
113             ON transactions.card_id = credit_card.id
114         GROUP BY card_id, timestamp, declined
115         ORDER BY card_id , timestamp DESC
116     )
117
118     # FILTRO SI ALGUNA DE LAS ULTIMAS 3 TRANSACCIONES HA SIDO RECHAZADA
119     SELECT card_id
120         , IF (SUM(declined)>=3, "No", "Si") AS Declinada
121         FROM ranking_transaction
122         WHERE ranking <=3
123         GROUP BY card_id
124         ORDER BY card_id DESC;
125

```

Action Output

	Time	Action	Response	Duration / Fetch
1	17:01:02	CREATE TABLE...	275 row(s) affected Records: 275 Duplicates: 0 Warnings: 0	0.017 sec

- **Exercici 1**
Quantes targetes estan actives?

The screenshot shows the MySQL Workbench interface with the title bar "Untitled - MySQL Workbench". The left sidebar lists several schemas: curso025, cursodb, ExamenM2, keepcoding, movies, newschema, sales, School, sys, transactions, and transactions2. The transactions2 schema is expanded to show Tables (companies, credit_card, products, transaction_products, transactions, users), Views, Stored Procedures, and Functions. The transaction_products table is selected. The main pane displays a script titled "Tasca S4_01_Creacio de Base de Dades*" containing the following SQL code:

```

131  #  Exercici 1
132
133  #Quantes targetes estan actives?
134 • SELECT COUNT(*) AS Estan_Activas
135      FROM estado_tarjetas
136      WHERE Activas = 'Si';
137
138
139

```

The Result Grid shows a single row with the value 275 under the column "Estan_Activas". The Action Output pane shows a log entry:

Action	Time	Response
SELECT COUNT(*) AS Estan_Activas FRO...	17:07:10	1 row(s) returned

Nivell 3

Crea una taula amb la qual puguem unir les dades del nou arxiu products.csv amb la base de dades creada, tenint en compte que des de transaction tens product_ids. Genera la següent consulta:

MySQL Workbench

Conexión Local - Warning - not supported

Administration Schemas Query 1 Tasca_S4_01_Creacio de Base de Dades* Tasca_S3_01_Manipulació_de_taules Tasca_S2_01_Nocions_SQL

SCHEMAS

Filter objects

```

143
144
145 ##### NIVEL 3 #####
146
147 #Crea una taula amb la qual puguem unir les dades del nou arxiu products.csv amb la base de dades creada, tenint en compte que des de transaction tens product_ids.
148
149
150 • CREATE TABLE IF NOT EXISTS products (
151     id          INT PRIMARY KEY,
152     product_name VARCHAR(200),
153     price        VARCHAR(10),
154     colour       VARCHAR(7),
155     weight       DECIMAL(2,2),
156     warehouse_id VARCHAR(10)
157 );
158
159
160

```

Action Output

Action	Time	Response	Duration / Fetch Time
CREATE TABLE IF NOT EXISTS products (id... 0 row(s) affected	11:37:33		0.0086 sec

MySQL Workbench

Conexión Local - Warning - not supported

Administration Schemas Query 1 Tasca_S4_01_Creacio de Base de Dades* Tasca_S3_01_Manipulació_de_taules Tasca_S2_01_Nocions_SQL M2-AF6.3-SandyRodriguez

SCHEMAS

Filter objects

```

#La relación entre la tabla transactions y products es N:M, creo otra tabla intermedia para cada producto y transactions.
#Tengo en cuenta que en la tabla transactions hay un campo con más de un id de producto

# creo la tabla intermedia, la tabla que se crea de la relación N:M
CREATE TABLE IF NOT EXISTS transaction_products (
    transaction_id VARCHAR(100),
    product_id INT,
    PRIMARY KEY (transaction_id, product_id),
    FOREIGN KEY (transaction_id) REFERENCES transactions(id),
    FOREIGN KEY (product_id) REFERENCES products(id)
);

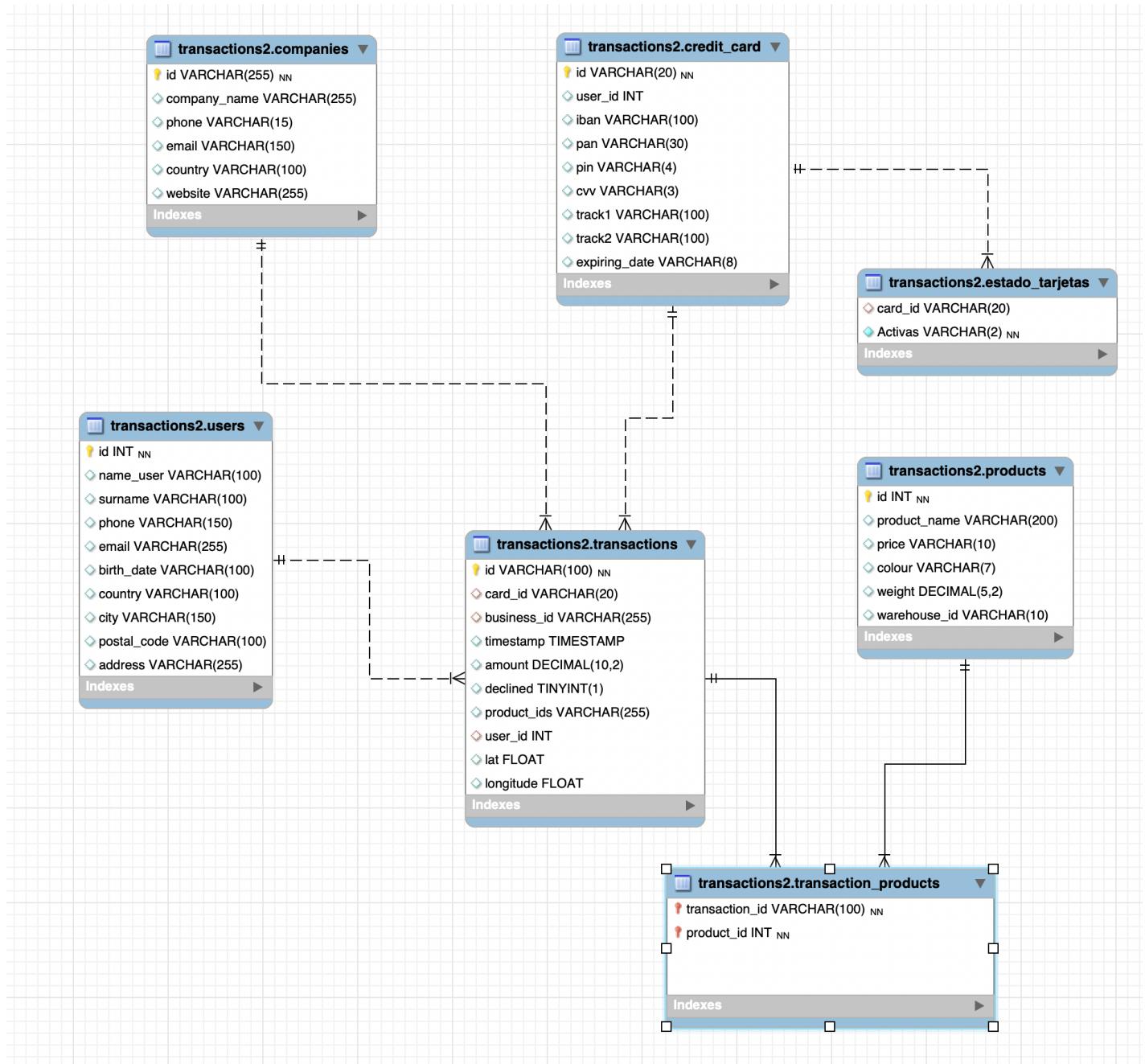
# Sepero los ids de productos, los trato como un registro por fila. Obtengo el id de transacción y un id de producto por cada fila
177 • INSERT INTO transaction_products (transaction_id, product_id)
SELECT id AS transaction_id
, CAST(product_list.product_id AS UNSIGNED) AS product_id
FROM transactions
JOIN
    JSON_TABLE(
        CONCAT('["', REPLACE(product_ids, ',', '",'), '"]'), '$[*]"$'
    ) AS product_list;

```

Action Output

Action	Time	Response
CREATE TABLE IF NOT EXISTS transaction_products... 0 row(s) affected	13:25:54	
INSERT INTO transaction_products (transaction_id, p... 1457 row(s) affected Records: 1457 Duplicates: 0 Warnings: 0	13:25:57	

Con la creación de la tabla, el diagrama Entidad – Relación queda de la siguiente manera:



• Exercici 1

Necessitem conèixer el nombre de vegades que s'ha venut cada producte.

The screenshot shows the MySQL Workbench interface. In the top navigation bar, there are tabs for 'Administration', 'Schemas', and 'SQL'. The 'SQL' tab is active, displaying a code editor with the following SQL query:

```
# Exercici 1
195
196 # Necessitem conèixer el nombre de vegades que s'ha venut cada producte.
197
198 • SELECT product_name
199 , COUNT(product_id) AS total_producto
200 FROM transaction_products tp
201 INNER JOIN transactions t
202 ON tp.transaction_id = t.id
203 INNER JOIN products p
204 ON tp.product_id = p.id
205 WHERE t.declined = 0
206 GROUP BY product_id
207 ORDER BY total_producto;
208
```

The code editor shows the query number 198, which is the one being executed. Below the code editor is a 'Result Grid' table with two columns: 'product_name' and 'total_producto'. The table contains 26 rows of data. At the bottom of the interface, there is a 'Result 79' section and an 'Action Output' table.

product_name	total_producto
Direwolf Stannis	35
Dorne bastard	39
Karstark Dorne	40
Lannister	40
skywalker ewok	42
duel tourney Lannister	43
Tully maester Tarly	43
north of Casterly	44
dooku solo	44
Tully Dorne	44
Direwolf Littlefinger	45
duel tourney	46
skywalker ewok	46
kingsblood Littlefing...	47
Lannister Baratheo...	48
Tully	50
Montecatini Anniston	50

Action	Output
Time	13:44:08
Action	SELECT product_name , COUNT(product_id) AS tot...
Response	26 row(s) returned