

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 puguem realitzar les següents consultes:

```
CREATE DATABASE IF NOT EXISTS vendes;
```

```
USE vendes;
```

```
-- Creamos las tablas
```

```
CREATE TABLE IF NOT EXISTS european_users (  
  id          VARCHAR(255) PRIMARY KEY,  
  name        VARCHAR(100),  
  surname     VARCHAR(100),  
  phone       VARCHAR(30),  
  email       VARCHAR(50),  
  birth_date  VARCHAR(25),  
  country     VARCHAR(50),  
  city        VARCHAR(50),  
  postal_code VARCHAR(10),  
  address     VARCHAR(255)  
);
```

```
CREATE TABLE IF NOT EXISTS credit_cards (  
  id          VARCHAR(255) PRIMARY KEY,  
  user_id     VARCHAR(255),  
  iban        VARCHAR(255),  
  pan         VARCHAR(255),  
  pin         VARCHAR(4),  
  cvv        VARCHAR(3),  
  track1      VARCHAR(255),  
  track2      VARCHAR(255),  
  expiring_date VARCHAR(25)  
);
```

```
-- Creamos la tabla company
```

```
CREATE TABLE IF NOT EXISTS companies (  
  id          VARCHAR(255) PRIMARY KEY,  
  name        VARCHAR(255),  
  phone       VARCHAR(15),  
  email       VARCHAR(50),  
  country     VARCHAR(50),  
  website     VARCHAR(255)  
);
```

-- Creamos la tabla transactions

CREATE TABLE IF NOT EXISTS transactions (

id VARCHAR(255) PRIMARY KEY,

card_id VARCHAR(255),

business_id VARCHAR(255),

date_tx VARCHAR(25),

amount DECIMAL(10, 2),

declined BOOLEAN,

product_ids VARCHAR(255) ,

user_id VARCHAR(255) REFERENCES european_users(id),

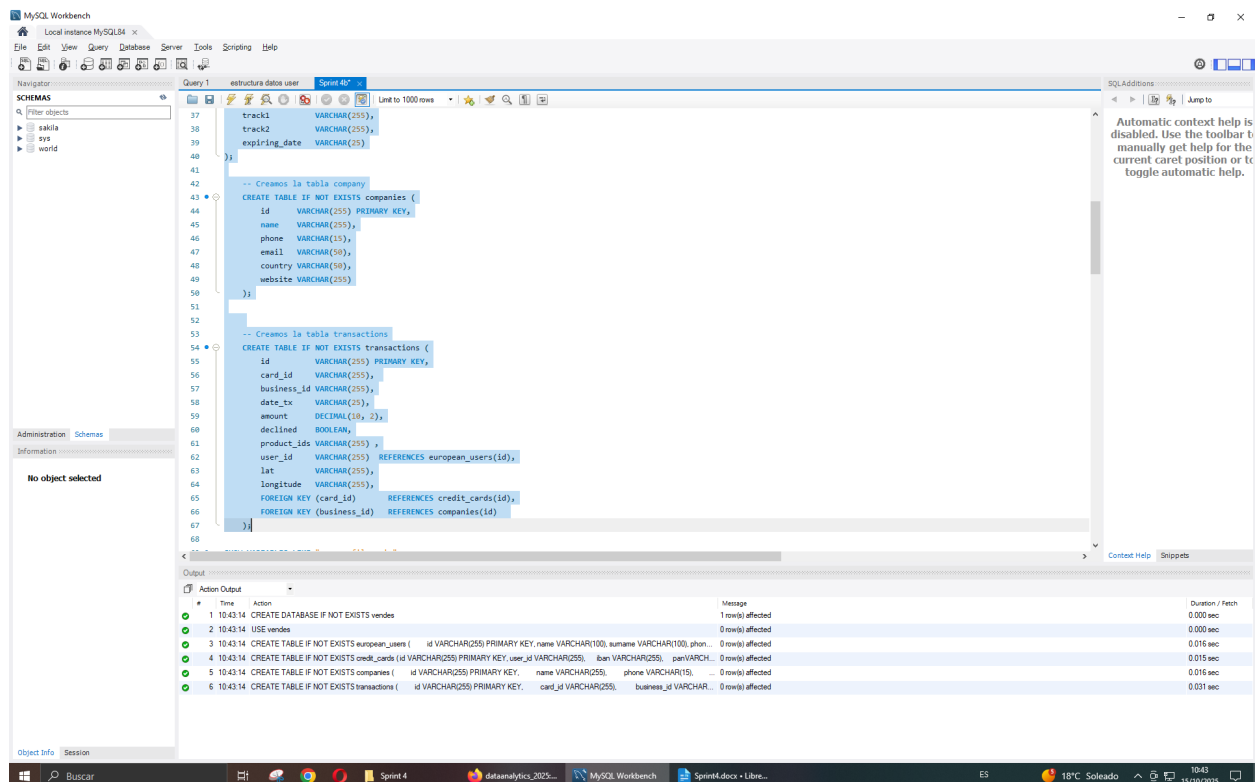
lat VARCHAR(255),

longitude VARCHAR(255),

FOREIGN KEY (card_id) REFERENCES credit_cards(id),

FOREIGN KEY (business_id) REFERENCES companies(id)

);



```
SHOW VARIABLES LIKE "secure_file_priv";
SELECT @@GLOBAL.secure_file_priv;
LOAD DATA INFILE "C:/ProgramData/MySQL/MySQL Server 8.0/Uploads/european_users.csv" INTO
TABLE european_users
FIELDS TERMINATED BY ','
ENCLOSED BY '"'
LINES TERMINATED BY '\n'
IGNORE 1 LINES
(id, name, surname, phone, email, birth_date, country, city, postal_code, address)
-- SET birth_date = DATE_FORMAT(@birth_date, '%b %d, %Y')
;
```

```
LOAD DATA INFILE "C:/ProgramData/MySQL/MySQL Server 8.0/Uploads/credit_cards.csv" INTO TABLE
credit_cards
FIELDS TERMINATED BY ','
ENCLOSED BY '"'
LINES TERMINATED BY '\n'
IGNORE 1 LINES
(`id`, `user_id`, `iban`, `pan`, `pin`, `cvv`, `track1`, `track2`, `expiring_date`)
;
```

```
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 LINES
(`id`, `name`, `phone`, `email`, `country`, `website`)
;
```

```
LOAD DATA INFILE "C:/ProgramData/MySQL/MySQL Server 8.0/Uploads/transactions.csv" INTO TABLE
transactions
FIELDS TERMINATED BY ';'
ENCLOSED BY '"'
LINES TERMINATED BY '\n'
IGNORE 1 LINES
(`id`, `card_id`, `business_id`, `date_tx`, `amount`, `declined`, `product_ids`, `user_id`, `lat`, `longitude`)
;
```

MySQL Workbench

Local instance MySQL84 x

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHMAS

Filter objects

sakila
 sys
 world

Administration Schemas
Information

No object selected

Query 1 estructura datos user Sprint 40 Limit to 1000 rows

```
70 • SELECT @@GLOBAL.secure_file_priv;  
71 • LOAD DATA INFILE "C:/ProgramData/MySQL/MySQL Server 8.0/Uploads/european_users.csv" INTO TABLE european_users  
72 FIELDS TERMINATED BY ','  
73 ENCLOSED BY '"'  
74 LINES TERMINATED BY '\n'  
75 IGNORE 1 LINES  
76 (id, name, surname, email, birth_date, country, city, postal_code, address)  
77 -- SET birth_date = DATE_FORMAT(@birth_date, '%d %d, %Y')  
78 ;  
79  
80 • LOAD DATA INFILE "C:/ProgramData/MySQL/MySQL Server 8.0/Uploads/credit_cards.csv" INTO TABLE credit_cards  
81 FIELDS TERMINATED BY ','  
82 ENCLOSED BY '"'  
83 LINES TERMINATED BY '\n'  
84 IGNORE 1 LINES  
85 ('id', 'user_id', 'iban', 'pan', 'pin', 'cvv', 'track1', 'track2', 'expiring_date')  
86 ;  
87  
88 • LOAD DATA INFILE "C:/ProgramData/MySQL/MySQL Server 8.0/Uploads/companies.csv" INTO TABLE companies  
89 FIELDS TERMINATED BY ','  
90 ENCLOSED BY '"'  
91 LINES TERMINATED BY '\n'  
92 IGNORE 1 LINES  
93 ('id', 'name', 'phone', 'email', 'country', 'website')  
94 ;  
95  
96 • LOAD DATA INFILE "C:/ProgramData/MySQL/MySQL Server 8.0/Uploads/transactions.csv" INTO TABLE transactions  
97 FIELDS TERMINATED BY ','  
98 ENCLOSED BY '"'  
99 LINES TERMINATED BY '\n'  
100 IGNORE 1 LINES  
101 ('id', 'card_id', 'business_id', 'date_tx', 'amount', 'declined', 'product_ids', 'user_id', 'lat', 'longitude')  
102 ;  
103  
104
```

SQL Actions

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

Output

Action Output

#	Time	Action	Message	Duration / Fetch
3	10:43:14	CREATE TABLE IF NOT EXISTS european_users (id VARCHAR(255) PRIMARY KEY, name VARCHAR(100), surname VARCHAR(100), phone VARCHAR(255), email VARCHAR(255), birth_date DATE, country VARCHAR(255), city VARCHAR(255), postal_code VARCHAR(255), address VARCHAR(255))	0 row(s) affected	0.016 sec
4	10:43:14	CREATE TABLE IF NOT EXISTS credit_cards (id VARCHAR(255) PRIMARY KEY, user_id VARCHAR(255), iban VARCHAR(255), pan VARCHAR(255), pin VARCHAR(255), cvv VARCHAR(255), track1 VARCHAR(255), track2 VARCHAR(255), expiring_date DATE)	0 row(s) affected	0.016 sec
5	10:43:14	CREATE TABLE IF NOT EXISTS companies (id VARCHAR(255) PRIMARY KEY, name VARCHAR(255), phone VARCHAR(255), email VARCHAR(255), country VARCHAR(255), website VARCHAR(255))	0 row(s) affected	0.016 sec
6	10:43:14	CREATE TABLE IF NOT EXISTS transactions (id VARCHAR(255) PRIMARY KEY, card_id VARCHAR(255), business_id VARCHAR(255), date_tx DATE, amount DECIMAL(10,2), declined BOOLEAN, product_ids VARCHAR(255), user_id VARCHAR(255), lat DECIMAL(10,6), longitude DECIMAL(10,6))	0 row(s) affected	0.031 sec
7	10:43:38	LOAD DATA INFILE "C:/ProgramData/MySQL/MySQL Server 8.0/Uploads/european_users.csv" INTO TABLE european_users FIELDS TERMINATED BY ',' ENCLOSED BY '"' LINES TERMINATED BY '\n' IGNORE 1 LINES (id, name, surname, email, birth_date, country, city, postal_code, address)	3950 row(s) affected Records: 3950 Deleted: 0 Skipped: 0 Warnings: 0	0.125 sec
8	10:43:40	LOAD DATA INFILE "C:/ProgramData/MySQL/MySQL Server 8.0/Uploads/credit_cards.csv" INTO TABLE credit_cards FIELDS TERMINATED BY ',' ENCLOSED BY '"' LINES TERMINATED BY '\n' IGNORE 1 LINES ('id', 'user_id', 'iban', 'pan', 'pin', 'cvv', 'track1', 'track2', 'expiring_date')	5000 row(s) affected Records: 5000 Deleted: 0 Skipped: 0 Warnings: 0	0.234 sec
9	10:43:43	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 LINES ('id', 'name', 'phone', 'email', 'country', 'website')	100 row(s) affected Records: 100 Deleted: 0 Skipped: 0 Warnings: 0	0.016 sec
10	10:43:45	LOAD DATA INFILE "C:/ProgramData/MySQL/MySQL Server 8.0/Uploads/transactions.csv" INTO TABLE transactions FIELDS TERMINATED BY ',' ENCLOSED BY '"' LINES TERMINATED BY '\n' IGNORE 1 LINES ('id', 'card_id', 'business_id', 'date_tx', 'amount', 'declined', 'product_ids', 'user_id', 'lat', 'longitude')	100000 row(s) affected Records: 100000 Deleted: 0 Skipped: 0 Warnings: 0	3.047 sec

Object Info Session

Windows: Buscar, Sprint 4, datamylitics_2025..., MySQL Workbench, Sprint4.docx + Libre...

ES 18°C Soleado 10:44 15/10/2025

Exercici 1

Realitza una subconsulta que mostri tots els usuaris amb més de 80 transaccions utilitzant almenys 2 taules.

```
SELECT u.id, count(u.id) num_tx FROM european_users u
JOIN transactions t ON user_id = u.id
GROUP BY u.id
HAVING count(*) > 80;
```

The screenshot shows the MySQL Workbench interface. The main window displays a SQL query in the 'Query Editor' tab, which is a subquery to find users with more than 80 transactions. The query is as follows:

```
-- Exercici 1
-- Realitza una subconsulta que mostri tots els usuaris amb més de 80 transaccions utilitzant almenys 2 taules.

SELECT u.id, count(u.id) num_tx FROM european_users u
JOIN transactions t ON user_id = u.id
GROUP BY u.id
HAVING count(*) > 80;

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

SELECT iban, AVG(amount), count(*) FROM transactions t
JOIN credit_cards cc ON cc.id = card_id
JOIN companies c ON c.id = t.business_id AND name = 'Donec Ltd'
GROUP BY iban;
```

The 'Result Grid' shows the results of the first query, displaying a table with two columns: 'id' and 'num_tx'. The results are as follows:

id	num_tx
318	91
289	94
454	81
185	110

The 'Output' tab at the bottom shows the execution log, including the creation of tables and the execution of the query. The query execution took 0.313 seconds and returned 4 rows.

Exercici 2

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

```
SELECT iban,AVG(amount),count(*) FROM transactions t
JOIN credit_cards cc ON cc.id = card_id
JOIN companies c ON c.id = t.business_id AND name = 'Donec Ltd'
GROUP BY iban;
```

The screenshot shows the MySQL Workbench interface. The main window displays a SQL query for 'Exercici 2' which calculates the average amount and count of transactions for credit cards belonging to 'Donec Ltd', grouped by IBAN. The query is as follows:

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

SELECT iban,AVG(amount),count(*) FROM transactions t
JOIN credit_cards cc ON cc.id = card_id
JOIN companies c ON c.id = t.business_id AND name = 'Donec Ltd'
GROUP BY iban;
```

The 'Result Grid' shows the following data:

iban	AVG(amount)	count(*)
XX011406401125586307586805	356.246467	3
9X0946370242474562577306	142.960000	1
XX7878291784952975535640	257.370000	1
XX41382736228973309469990	136.590000	1
XX34787246070769610780308	240.410000	1
XX68768436543090894854602	188.580000	1
MC3836851538680349	439.390000	1
9X7626282566652676345404576	541.560000	3
XX804008331134918341803913	189.210000	1
US6465553777363527873049938	155.500000	2
XX54512784755611381008445	255.830000	1
XX1548768676863690754758	285.110000	1
CR3934463639573721674	240.480000	1
XX8239102392787176786536	85.820000	1
XX8979051542844213813607	271.970000	1
MC9813918248828136126478487	74.310000	1
NC0414757617220	95.365000	2

The 'Output' window shows the execution progress of the query, including table creation and data loading steps.

Nivell 2

Crea una nova taula que reflecteixi l'estat de les targetes de crèdit basat en *si les tres últimes transaccions han estat declinades aleshores és inactiu, si almenys una no és rebutjada aleshores és actiu.*

```
CREATE TABLE IF NOT EXISTS estat_credito_cards
WITH ultims AS (
    SELECT card_id, date_tx, declined,
    ROW_NUMBER() OVER(PARTITION BY card_id ORDER
BY date_tx DESC) AS rank_numero
FROM transactions
WHERE declined=1
order by card_id,rank_numero
)
SELECT card_id, 0 AS estat FROM ultims ul WHERE EXISTS (SELECT card_id WHERE rank_numero
=3 AND card_id = ul.card_id)
UNION
SELECT DISTINCT(card_id), 1 AS estat FROM transactions WHERE card_id NOT IN ( SELECT card_id
FROM ultims ul WHERE EXISTS (SELECT card_id WHERE rank_numero =3 AND card_id = ul.card_id )
;
```

The screenshot displays the MySQL Workbench interface. The main window shows a SQL query being executed. The query is as follows:

```
-- Crea una nova taula que reflecteixi l'estat de les targetes de crèdit basat en si les tres últimes transaccions han estat declinades aleshores és inactiu,
-- si almenys una no és rebutjada aleshores és actiu.

-- DROP TABLE estat_credito_cards;

CREATE TABLE IF NOT EXISTS estat_credito_cards
WITH ultims AS (
    SELECT card_id, date_tx, declined,
    ROW_NUMBER() OVER(PARTITION BY card_id ORDER BY date_tx DESC) AS rank_numero
FROM transactions
WHERE declined=1
order by card_id,rank_numero
)
SELECT card_id, 0 AS estat FROM ultims ul WHERE EXISTS (SELECT card_id WHERE rank_numero =3 AND card_id = ul.card_id)
UNION
SELECT DISTINCT(card_id), 1 AS estat FROM transactions WHERE card_id NOT IN ( SELECT card_id FROM ultims ul WHERE EXISTS (SELECT card_id WHERE rank_numero =3 AND card_id = ul.card_id )
);
```

The results are shown in a table with columns: card_id, estat, and count(*). The table contains 10 rows of data.

card_id	estat	count(*)
XX011406401258630786805	356.246667	3
909446370242474563277806	142.960000	1
XX7767291794695207555640	257.370000	1
XX41382736228971930409990	139.590000	1
XX347878246070769610780308	240.410000	1
XX6887683655209094954602	188.500000	1
MC3636851536688349	439.390000	1
PL76249283566852676343404576	541.560000	3
XX004008331134918314802913	899.210000	1
LB646555777736352787049508	155.500000	2

The bottom panel shows the execution progress and messages. The query was executed successfully, and the results are displayed in the Output window.

Partint d'aquesta taula respon:

Exercici 1

Quantes targetes estan actives?

`SELECT COUNT(*) FROM estat_credit_cards WHERE estat=1;`

The screenshot shows the MySQL Workbench interface. The main window displays a SQL query in the 'Query Editor' tab. The query is as follows:

```
132 order by card_id,rank_numero
133 )
134 SELECT card_id , 0 AS estat FROM ultims ul WHERE EXISTS (SELECT card_id WHERE rank_numero =3 AND card_id = ul.card_id)
135 UNION
136 SELECT DISTINCT(card_id), 1 AS estat FROM transactions WHERE card_id NOT IN ( SELECT card_id FROM ultims ul WHERE EXISTS (SELECT card_id WHERE rank_numero =3 AND card_id = ul.card_id) )
137 }
138
139 -- Exercici 1
140 -- Quantes targetes estan actives?
141
142 SELECT COUNT(*) FROM estat_credit_cards WHERE estat=1;
143
144 ----- nivell 3 -----
145 -- Crea una taula amb la qual pugem unir les dades del nou arxíu products.csv amb la base de dades creada, tenint en compte que des de transaction tens product_ids.
146
147 -- Creamos la tabla products
148 DROP TABLE products;
```

The 'Result Grid' shows the execution of the query, resulting in a single row with the value 4963.

Result Grid
COUNT(*)
4963

The 'Output' tab shows the execution log, including the following messages:

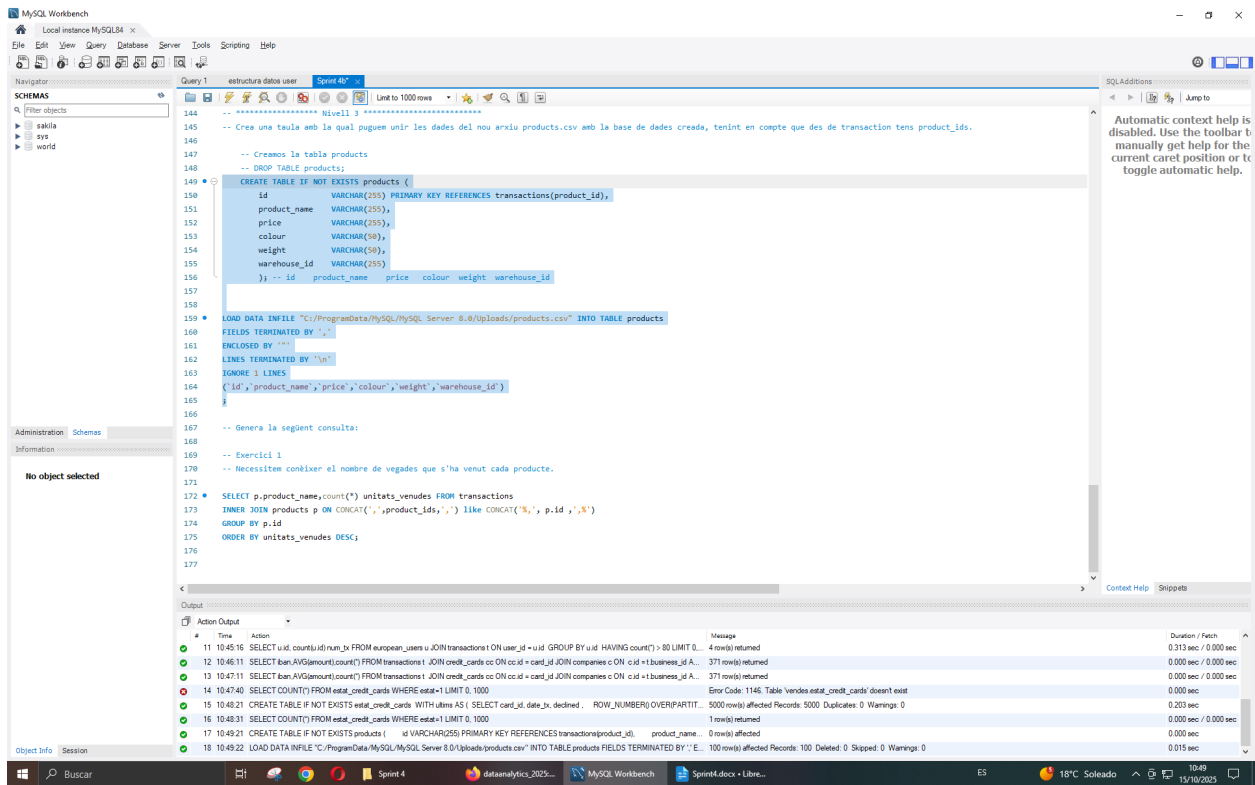
- 10:40:43 LOAD DATA INFILE 'C:/ProgramData/MySQL/MySQL Server 8.0/loads/companies.csv' INTO TABLE companies FIELDS TERMINATED BY...
- 10:40:45 LOAD DATA INFILE 'C:/ProgramData/MySQL/MySQL Server 8.0/loads/transactions.csv' INTO TABLE transactions FIELDS TERMINATED BY...
- 10:40:46 SELECT u.id, count(u.id) num_tx FROM european_users u JOIN transactions t ON user_id = u.id GROUP BY u.id HAVING count(*) > 80 LIMIT 0...
- 10:40:47 SELECT ban.AVG(amount) count(*) FROM transactions t JOIN credit_cards cc ON cc.id = card_id JOIN companies c ON c.id = t.business_id A...
- 10:40:48 SELECT COUNT(*) FROM estat_credit_cards WHERE estat=1 LIMIT 0, 1000
- 10:40:21 CREATE TABLE IF NOT EXISTS estat_credit_cards WITH ULTIMA AS (SELECT card_id, data_tx, declined ROW_NUMBER() OVERPARTIT...
- 10:40:31 SELECT COUNT(*) FROM estat_credit_cards WHERE estat=1 LIMIT 0, 1000

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:

```
CREATE TABLE IF NOT EXISTS products (
  id          VARCHAR(255) PRIMARY KEY REFERENCES transactions(product_id),
  product_name VARCHAR(255),
  price       VARCHAR(255),
  colour      VARCHAR(50),
  weight      VARCHAR(50),
  warehouse_id VARCHAR(255)
);
```

```
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 LINES
('id`,`product_name`,`price`,`colour`,`weight`,`warehouse_id`)
```



Exercici 1

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

```
SELECT p.product_name,count(*) unitats_venudes FROM transactions
INNER JOIN products p ON CONCAT(' ',product_ids,',') like CONCAT('%', p.id ,',%')
GROUP BY p.id
ORDER BY unitats_venudes DESC;
```

The screenshot shows the MySQL Workbench interface. The main editor displays a SQL script with the following content:

```
154 weight VARCHAR(50),
155 warehouse_id VARCHAR(255)
156 }) -- id product_name price colour weight warehouse_id
157
158
159 * LOAD DATA INFILE "C:/ProgramData/MySQL/MySQL Server 8.0/Uploads/products.csv" INTO TABLE products
160 FIELDS TERMINATED BY ','
161 ENCLOSED BY '"'
162 LINES TERMINATED BY '\n'
163 IGNORE 1 LINES
164 ('id','product_name','price','colour','weight','warehouse_id')
165 }
166
167 -- Genera la següent consulta:
168
169 -- Exercici 1
170 -- Necessitem conèixer el nombre de vegades que s'ha venut cada producte.
171
172 * SELECT p.product_name,count(*) unitats_venudes FROM transactions
173 INNER JOIN products p ON CONCAT(' ',product_ids,',') like CONCAT('%', p.id ,',%')
174 GROUP BY p.id
175 ORDER BY unitats_venudes DESC;
176
177
```

The Results Grid shows the following data:

product_name	unitats_venudes
riverlands the duel	1097
riverlands the duel	1076
Tully	1071
palatine chenvacca	1070
riverlands the duel	1067
Stannis varden south	1051
the duel varden	1051
Dreadf Stannis riverlands	1049
the duel	1048

The Output pane shows the execution log with the following messages:

```
12 10:46:11 SELECT ban.AVG(amount) FROM transactions t JOIN credit_cards cc ON cc.id = card_id JOIN companies c ON c.id = t.business_id A... 371 row(s) returned
13 10:47:11 SELECT ban.AVG(amount) FROM transactions t JOIN credit_cards cc ON cc.id = card_id JOIN companies c ON c.id = t.business_id A... 371 row(s) returned
14 10:47:40 SELECT COUNT(*) FROM estat_credit_cards WHERE estat+1 LIMIT 0, 1000 Error Code: 1146. Table 'ventas_estat_credit_cards' doesn't exist 0.000 sec
15 10:48:21 CREATE TABLE IF NOT EXISTS estat_credit_cards WITH ulms AS ( SELECT card_id, data_3x, declined , ROW_NUMBER() OVER(PARTIT... 5000 row(s) affected Records: 5000 Duplicates: 0 Warnings: 0 0.203 sec
16 10:48:31 SELECT COUNT(*) FROM estat_credit_cards WHERE estat+1 LIMIT 0, 1000 1 row(s) returned 0.000 sec / 0.000 sec
17 10:49:21 CREATE TABLE IF NOT EXISTS products ( id VARCHAR(255) PRIMARY KEY REFERENCES transactions(product_id) product_name 0 row(s) affected 0.000 sec
18 10:49:22 LOAD DATA INFILE "C:/ProgramData/MySQL/MySQL Server 8.0/Uploads/products.csv" INTO TABLE products FIELDS TERMINATED BY ',' E... 100 row(s) affected Records: 100 Deleted: 0 Skipped: 0 Warnings: 0 0.015 sec
19 10:50:14 SELECT p.product_name,count(*) unitats_venudes FROM transactions INNER JOIN products p ON CONCAT(' ',product_ids,',') like CONCAT('%', p.id ,',%') ... 100 row(s) returned 3.256 sec / 0.000 sec
```