

# 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:

Primero realizo un esquema borrador, donde analizo los datos y extraigo un primer borrador de la BBDD. En este ejercicio utilizaré todas las tablas del borrador excepto la tabla products, que se añade en otro ejercicio. Primero crearé las tablas, cargaré los datos, modificaré lo que considere necesario y por último, crearé las relaciones entre ellas. \*\*\*Poner en el diagrama la pk de transactions y poner en color la pk de companies.

<b>Companies</b> - <u>company_id not null</u> <u>Varchar(255) PK</u> - <u>company_name</u> <u>Varchar(255)</u> - <u>phone</u> <u>Varchar(255)</u> - <u>email</u> <u>Varchar(255)</u> - <u>country</u> <u>Varchar(255)</u> - <u>website</u> <u>Varchar 255</u> *Los datos separados por coma	<b>Tabla Hechos Transactions</b> - <u>Id</u> - <u>card_id FK</u> - <u>business_id (company_id) FK</u> - <u>Timestamp</u> Formato ISO con h/m/s - <u>Amount</u> Decimal(10,2) - <u>Declined</u> Tinyint - <u>products_ids(product_id) FK</u> - <u>user_id FK</u> <u>int</u> - <u>Lat</u> - <u>Longitude</u> *Punto y coma	<b>credit cards</b> - <u>Id (card_id), PK, not null</u> - <u>User_id</u> <u>Varchar(255)</u> - <u>Iban</u> <u>Varchar(255)</u> - <u>Pan</u> <u>Varchar(255)</u> - <u>Pin</u> <u>Varchar(255)</u> - <u>Cvv</u> <u>Varchar(255)</u> - <u>Track1</u> <u>Varchar(255)</u> - <u>Track2</u> <u>Varchar(255)</u> - <u>expiring_date</u> <u>Varchar (255)</u> *Separados por comas	La tabla <b>products</b> se añade posteriormente  <b>Products</b> - <u>Id (Product_id), PK, not null</u> - <u>Product name</u> <u>Varchar (255)</u> - <u>Price</u> <u>Float(2)</u> - <u>Colour</u> <u>Varchar(255)</u> - <u>Weight</u> <u>Float(1)</u> - <u>warehouse_id</u> <u>Varchar(255)</u> *Sep.por comas
<b>Users_uk</b> <u>Id. PK</u> <u>Name</u> <u>Surname</u> <u>Phone</u> <u>Email</u> <u>Birth_date</u> <u>country</u> <u>City</u> <u>postal_code</u> <u>Adress</u>	<b>Users_usa</b> <u>Id. PK</u> <u>Name</u> <u>Surname</u> <u>Phone</u> <u>Email</u> <u>Birth_date</u> <u>country</u> <u>City</u> <u>postal_code</u> <u>Adress</u>	<b>Users_ca</b> <u>Id. PK</u> <u>Name</u> <u>Surname</u> <u>Phone</u> <u>Email</u> <u>Birth_date</u> <u>country</u> <u>City</u> <u>postal_code</u> <u>Adress</u>	<b>Users</b> Las tres tablas se pueden unir, entonces crearé una e introduciré los tres csv en la tabla <u>users</u>

## 1. Crear primero la Database:

```

36 #Crear una BBDD
37 • CREATE DATABASE transaction;

```

Output

Action Output

#	Time	Action	Message	Duration / Fetch
2	10:04:29	CREATE DATABASE transaction	Error Code: 1007. Can't create database trans...	0.016 sec
3	10:04:37	DROP DATABASE transaction	0 row(s) affected	0.031 sec
4	10:04:53	CREATE DATABASE transaction	1 row(s) affected	0.015 sec

## 2. Crear las tablas correspondientes, en este caso crearemos las tablas **transactions** (tabla de hechos) y las tablas de dimensiones: **companies**, **credit\_cards**, **users**.

### 2.1 Crear la tabla de hechos **transactions**:

```

12 #Crear la primera taula, la taula de fets
13 • CREATE TABLE transactions (
14     id VARCHAR(255) DEFAULT NULL,
15     card_id VARCHAR(255) DEFAULT NULL,
16     business_id VARCHAR(255) DEFAULT NULL,
17     timestamp DATETIME,
18     amount DECIMAL(10,2),
19     declined TINYINT,
20     product_ids VARCHAR(255) DEFAULT NULL,
21     user_id VARCHAR(255) DEFAULT NULL,
22     lat FLOAT DEFAULT NULL,
23     longitude FLOAT DEFAULT NULL);

```

Output

Action Output

#	Time	Action	Message	Duration / Fetch
22	10:33:19	LOAD DATA INFILE "C:/ProgramData/MySQL...	Error Code: 1265. Data truncated for column 'pr...	0.016 sec
23	10:34:59	DROP TABLE transactions	0 row(s) affected	0.000 sec
24	10:35:44	CREATE TABLE transactions (id VARCHAR(2...	0 row(s) affected	0.031 sec

### 2.2 Cargo los datos del csv **transactions**:

```

30 • LOAD DATA
31 INFILE "C:/ProgramData/MySQL/MySQL Server 8.0/Uploads/transactions.csv"
32 INTO TABLE transactions
33 FIELDS TERMINATED BY ';'
34 IGNORE 1 ROWS;

```

Output

Action Output

#	Time	Action	Message	Duration / Fetch
23	10:34:59	DROP TABLE transactions	0 row(s) affected	0.000 sec
24	10:35:44	CREATE TABLE transactions (id VARCHAR(2...	0 row(s) affected	0.031 sec
25	10:36:18	LOAD DATA INFILE "C:/ProgramData/MySQL...	587 row(s) affected Records: 587 Deleted: 0 ...	0.016 sec

## 2.3 Compruebo que se han cargado correctamente los datos:

```

39 • SELECT *
40 FROM transactions;
41

```

Result Grid

id	card_id	business_id	timestamp	amount	declined	product_ids	user_id	lat	longitude
AB069F53-965E-A2A8-CE06-CA8C4FD92501	CcU-2959	b-2234	2021-04-15 13:37:18	60.99	0	11, 13, 61, 29	275	1.64819	-158.007
2F3B6AB6-147D-EB08-FE8D-9A4E2EA9DBD5	CcU-2966	b-2238	2021-10-18 06:12:03	33.81	0	47, 37, 11, 1	275	-43.4811	16.6025
5B0EEF86-B8A1-EFAA-5EE1-27E7DC8F54A4	CcU-2973	b-2242	2022-01-06 01:44:48	42.82	0	23, 19, 71	275	-64.1136	85.2491
2B928E1C-EC14-A760-0A75-871477649D6A	CcU-2980	b-2246	2021-08-10 08:14:49	383.73	0	59, 13, 23	275	-41.0496	161.685
063FBA79-99EC-66FB-29F7-25726D1764A5	CcU-2987	b-2250	2022-01-06 21:25:27	92.61	0	47, 67, 31, 5	275	-81.2227	-129.05
D33B71F8-A61F-8D8C-5DF7-1DA4AC210AF6	CcU-2994	b-2254	2022-03-02 13:29:50	20.35	0	17, 13, 73	275	5.27302	5.06131

transactions 1 x

Output

Action Output

#	Time	Action	Message
24	10:35:44	CREATE TABLE transactions (id VARCHAR(255) DEFAULT NULL, card_id VARCHAR(255) DEFAULT NULL, business_id VARCHAR(255) DEFAULT NULL, timestamp DATETIME, amount DECIMAL(10,2), declined BIT, product_ids VARCHAR(255), user_id INT, lat DECIMAL(9,6), longitude DECIMAL(9,6))	0 row(s) affected
25	10:36:18	LOAD DATA INFILE "C:/ProgramData/MySQL/MySQL Server 8.0/Uploads/transactions.csv" INTO TABLE transactions	587 row(s) affected Records: 587 Deleted: 0 Skipped: 0 Warnings: 0
26	10:37:12	SELECT * FROM transactions LIMIT 0, 50000	587 row(s) returned

## 2.4 Renombro la columna business\_id a company\_id para que los datos queden visiblemente mejor:

```

43 #Renombro la columna para tener el mismo nombre en la otra tabla companies
44 • ALTER TABLE transactions
45 RENAME COLUMN business_id TO company_id;

```

Output

Action Output

#	Time	Action	Message
25	10:36:18	LOAD DATA INFILE "C:/ProgramData/MySQL/MySQL Server 8.0/Uploads/transactions.csv" INTO TABLE transactions	587 row(s) affected Records: 587 Deleted: 0 Skipped: 0 Warnings: 0
26	10:37:12	SELECT * FROM transactions LIMIT 0, 50000	587 row(s) returned
27	11:29:26	ALTER TABLE transactions RENAME COLUMN business_id TO company_id	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0

## 2.5 También renombro la columna card\_id por credit\_card\_id:

```

47 #Cambio tambien el campo card_id
48 • ALTER TABLE transactions
49 RENAME COLUMN card_id TO credit_card_id;

```

Output

Action Output

#	Time	Action	Message
26	10:37:12	SELECT * FROM transactions LIMIT 0, 50000	587 row(s) returned
27	11:29:26	ALTER TABLE transactions RENAME COLUMN business_id TO company_id	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0
28	11:32:35	ALTER TABLE transactions RENAME COLUMN card_id TO credit_card_id	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0

## 2.6 Compruebo los cambios:

```

39 #Compruebo los datos
40 • SELECT *
41 FROM transactions;
42

```

Result Grid

id	credit_card_id	company_id	timestamp	amount	declined	product_ids	user_id	lat	longitude
10881D1D-5B23-A76C-55EF-C568E49A05DD	CcU-2938	b-2222	2021-07-07 17:43:16	293.57	0	59	275	83.7839	-178.86
7DC26247-20EC-53FE-E555-B6C2E55CA5D5	CcU-2945	b-2226	2022-02-04 15:52:56	312.50	0	71, 41	275	58.9367	-76.8171
72997E96-DC2C-A4D7-7C24-66C302F8AE5A	CcU-2952	b-2230	2022-01-30 15:16:36	239.87	0	97, 41, 3	275	43.3584	-17.658
AB069F53-965E-A2A8-CE06-CA8C4FD92501	CcU-2959	b-2234	2021-04-15 13:37:18	60.99	0	11, 13, 61, 29	275	1.64819	-158.007
2F3B6AB6-147D-EB08-FE8D-9A4E2EA9DBD5	CcU-2966	b-2238	2021-10-18 06:12:03	33.81	0	47, 37, 11, 1	275	-43.4811	16.6025
5B0EEF86-B8A1-EFAA-5EE1-27E7DC8F54A4	CcU-2973	b-2242	2022-01-06 01:44:48	42.82	0	23, 19, 71	275	-64.1136	85.2491

transactions 2 x

Output

Action Output

#	Time	Action	Message
27	11:29:26	ALTER TABLE transactions RENAME COLUMN business_id TO company_id	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0
28	11:32:35	ALTER TABLE transactions RENAME COLUMN card_id TO credit_card_id	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0
29	11:38:45	SELECT * FROM transactions LIMIT 0, 50000	587 row(s) returned



### 3.1 Crear la tabla **companies**:

```

51  #Crear la tabla companies
52  • CREATE TABLE companies (
53      company_id VARCHAR(255) DEFAULT NULL,
54      company_name VARCHAR(255) DEFAULT NULL,
55      phone VARCHAR(255) DEFAULT NULL,
56      email VARCHAR(255) DEFAULT NULL,
57      country VARCHAR(255) DEFAULT NULL,
58      website VARCHAR(255) DEFAULT NULL
59  );

```

Output			
Action Output			
#	Time	Action	Message
28	11:32:35	ALTER TABLE transactions RENAME COLUMN card_id TO credit_card_id	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0
29	11:38:45	SELECT * FROM transactions LIMIT 0, 50000	587 row(s) returned
30	11:43:38	CREATE TABLE companies ( company_id VARCHAR(255) DEFAULT NULL, company_name VARCH...	0 row(s) affected

### 3.2 Insertar los datos en la tabla **companies**:

```

62  #Introducir los datos en la tabla companies
63  • LOAD DATA
64  INFILE "C:/ProgramData/MySQL/MySQL Server 8.0/Uploads/companies.csv"
65  INTO TABLE companies
66  FIELDS TERMINATED BY ','
67  IGNORE 1 ROWS;

```

Output			
Action Output			
#	Time	Action	Message
29	11:38:45	SELECT * FROM transactions LIMIT 0, 50000	587 row(s) returned
30	11:43:38	CREATE TABLE companies ( company_id VARCHAR(255) DEFAULT NULL, company_name VARCH...	0 row(s) affected
31	11:46:09	LOAD DATA INFILE "C:/ProgramData/MySQL/MySQL Server 8.0/Uploads/companies.csv" INTO TABL...	100 row(s) affected Records: 100 Deleted: 0 Skipped: 0 Warnings: 0

### 3.3 Comprobar los datos:

```

73  #Comprobar los datos
74  • SELECT *
75  FROM companies;

```

Result Grid						
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	

companies 4 x

Output			
Action Output			
#	Time	Action	Message
4	12:28:19	SELECT * FROM users LIMIT 0, 10000	275 row(s) returned
5	12:35:20	ALTER TABLE companies RENAME COLUMN id TO company_id	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0
6	12:35:24	SELECT * FROM companies LIMIT 0, 10000	100 row(s) returned

### 4.1 Crear la tabla **credit\_cards**:

```

73  #Crear la tabla credit_cards:
74  ● CREATE TABLE credit_cards (
75      id VARCHAR(255) DEFAULT NULL,
76      user_id VARCHAR(255) DEFAULT NULL,
77      iban VARCHAR(255) DEFAULT NULL,
78      pan VARCHAR(255) DEFAULT NULL,
79      pin VARCHAR(255) DEFAULT NULL,
80      cvv VARCHAR(255) DEFAULT NULL,
81      track1 VARCHAR(255) DEFAULT NULL,
82      track2 VARCHAR(255) DEFAULT NULL,
83      expiring_date DATE DEFAULT NULL
84  );

```

Output

#	Time	Action	Message
31	11:46:09	LOAD DATA INFILE "C:/ProgramData/MySQL/MySQL Server 8.0/Uploads/companies.csv" INTO TAB...	100 row(s) affected Records: 100 Deleted: 0 Skipped: 0 Warnings: 0
32	11:47:41	SELECT * FROM companies LIMIT 0, 50000	100 row(s) returned
33	12:04:27	CREATE TABLE credit_cards (id VARCHAR(255) DEFAULT NULL, user_id VARCHAR(255) DEFAUL...	0 row(s) affected

4.2 Vemos que la fecha de **expiring\_date** no está en formato predeterminado. Por tanto, primero se **crea una tabla temporal** para introducir los datos ahí y luego volcar los datos a la tabla definitiva indicando como se quiere la fecha.

```

86  #Crear la tabla credit_cards:
87  ● CREATE TEMPORARY TABLE credit_cards_temp(
88      id VARCHAR(255) DEFAULT NULL,
89      user_id VARCHAR(255) DEFAULT NULL,
90      iban VARCHAR(255) DEFAULT NULL,
91      pan VARCHAR(255) DEFAULT NULL,
92      pin VARCHAR(255) DEFAULT NULL,
93      cvv VARCHAR(255) DEFAULT NULL,
94      track1 VARCHAR(255) DEFAULT NULL,
95      track2 VARCHAR(255) DEFAULT NULL,
96      expiring_date VARCHAR(255) DEFAULT NULL
97  );

```

Output

#	Time	Action	Message
33	12:04:27	CREATE TABLE credit_cards (id VARCHAR(255) DEFAULT NULL, user_id VARCHAR(255) DEFAUL...	0 row(s) affected
34	12:06:53	CREATE TABLE credit_cards (id VARCHAR(255) DEFAULT NULL, user_id VARCHAR(255) DEFAUL...	Error Code: 1050. Table 'credit_cards' already exists
35	12:07:05	CREATE TEMPORARY TABLE credit_cards_temp(id VARCHAR(255) DEFAULT NULL, user_id VAR...	0 row(s) affected

### 4.3 Introducimos los datos en la tabla **temporal**:

```

99  #Introducir los datos en la tabla credit_cards_temp
100 ● LOAD DATA
101 INFILE "C:/ProgramData/MySQL/MySQL Server 8.0/Uploads/credit_cards.csv"
102 INTO TABLE credit_cards_temp
103 FIELDS TERMINATED BY ','
104 IGNORE 1 ROWS;
105

```

Output

#	Time	Action	Message
34	12:06:53	CREATE TABLE credit_cards (id VARCHAR(255) DEFAULT NULL, user_id VARCHAR(255) DEFAUL...	Error Code: 1050. Table 'credit_cards' already exists
35	12:07:05	CREATE TEMPORARY TABLE credit_cards_temp(id VARCHAR(255) DEFAULT NULL, user_id VAR...	0 row(s) affected
36	12:09:12	LOAD DATA INFILE "C:/ProgramData/MySQL/MySQL Server 8.0/Uploads/credit_cards.csv" INTO TAB...	275 row(s) affected Records: 275 Deleted: 0 Skipped: 0 Warnings: 0

4.4 Se **vuelca** la información de la **tabla temporal** a la **tabla definitiva credit\_cards**, indicando el formato de fecha deseado:

```
106 #Inserto los datos el tabla definitiva desde la tabla temporal
107 • INSERT INTO credit_cards (id, user_id, iban, pan, pin, cvv, track1, track2, expiring_date)
108 SELECT id, user_id, iban, pan, pin, cvv, track1, track2, STR_TO_DATE(expiring_date, '%m/%d/%Y')
109 FROM credit_cards_temp;
```

#	Time	Action	Message
35	12:07:05	CREATE TEMPORARY TABLE credit_cards_temp (id VARCHAR(255) DEFAULT NULL, user_id VAR...	0 row(s) affected
36	12:09:12	LOAD DATA INFILE "C:/ProgramData/MySQL/MySQL Server 8.0/Uploads/credit_cards.csv" INTO TAB...	275 row(s) affected Records: 275 Deleted: 0 Skipped: 0 Warnings: 0
37	12:12:05	INSERT INTO credit_cards (id, user_id, iban, pan, pin, cvv, track1, track2, expiring_date) SELECT id, user...	275 row(s) affected Records: 275 Duplicates: 0 Warnings: 0

4.5 **Compruebo** los datos:

```
111 #Compruebo los datos
112 • SELECT *
113 FROM credit_cards;
```

#	Time	Action	Message
36	12:09:12	LOAD DATA INFILE "C:/ProgramData/MySQL/MySQL Server 8.0/Uploads/credit_cards.csv" INTO TAB...	275 row(s) affected Records: 275 Deleted: 0 Skipped: 0 Warnings: 0
37	12:12:05	INSERT INTO credit_cards (id, user_id, iban, pan, pin, cvv, track1, track2, expiring_date) SELECT id, user...	275 row(s) affected Records: 275 Duplicates: 0 Warnings: 0
38	12:13:04	SELECT * FROM credit_cards LIMIT 0, 50000	275 row(s) returned

4.6 **Limpieza** de los **espacios** de la columna **pan** de la tabla **credit\_cards**:

```
188 #Borro los espacios vacios que existen en algunas lineas de la columna pan
189 • UPDATE credit_cards
190 SET pan = REPLACE(pan, ' ', '');
191
```

#	Time	Action	Message
3	12:05:23	SELECT * FROM transactions INNER JOIN companies on transactions.company_id = companies.compan...	587 row(s) returned
4	12:15:48	UPDATE credit_card SET pan = REPLACE(pan, ' ', '')	Error Code: 1146. Table 'transaction.credit_card' doesn't exist
5	12:16:01	UPDATE credit_cards SET pan = REPLACE(pan, ' ', '')	187 row(s) affected Rows matched: 275 Changed: 187 Warnings: 0

4.7 **Elimino** la **tabla temporal** para que no haya futuros problemas:

```
115 #Elimino la tabla temporal para que no haya problemas con el nombre
116 • DROP TEMPORARY table credit_cards_temp;
```

#	Time	Action	Message
37	12:12:05	INSERT INTO credit_cards (id, user_id, iban, pan, pin, cvv, track1, track2, expiring_date) SELECT id, user...	275 row(s) affected Records: 275 Duplicates: 0 Warnings: 0
38	12:13:04	SELECT * FROM credit_cards LIMIT 0, 50000	275 row(s) returned
39	12:14:47	DROP TEMPORARY table credit_cards_temp	0 row(s) affected



#### 4.8 Vuelvo a **comprobar** los datos:

```
123 #Vuelvo a comprobar los datos
124 • SELECT *
125 FROM credit_cards;
```

Result Grid									
Filter Rows: <input type="text"/>									
Edit:									
Export/Import:									
Wrap Cell Content: <input type="checkbox"/>									
id	user_id	iban	pan	pin	cvv	track1	track2	expiring_date	
CdU-2938	275	TR301950312213576817638661	5424465566813633	3257	984	%B8383712448554646^WovsxejDpwiev^8604...	%B7653863056044187=800716333673	2022-10-30	
CdU-2945	274	DO26854763748537475216568689	5142423821948828	9080	887	%B4621311609958661^UftuyfsSeimxn^06106...	%B4149568437843501=510714033071	2023-08-24	
CdU-2952	273	BG451VQL52710525608255	4556453555287	4598	438	%B2183285104307501^CddytcUxwfdq^5907...	%B6778580257827162=6906859740077	2021-06-29	
CdU-2959	272	CR7242477244335841535	372461377349375	3583	667	%B7281111956795320^XocddjBkecd^09016...	%B4246154489281853=280522391678	2023-02-24	
CdU-2966	271	BG72LKTQ15627628377363	4485668867477265	4900	130	%B4728932322756223^JhlgvsuFbmwgj^7202...	%B2318571115599881=890821578475	2024-10-29	

credit\_cards 2 x

Output

Action Output

#	Time	Action	Message
1	12:15:03	ALTER TABLE companies RENAME COLUMN company_id TO id	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0
2	12:16:48	SELECT * FROM companies LIMIT 0, 10000	100 row(s) returned
3	12:25:01	SELECT * FROM credit_cards LIMIT 0, 10000	275 row(s) returned

#### 5.1 Creo la tabla **users**:

```
118 #Crear la tabla users
119 • CREATE TABLE users (
120     id VARCHAR(255) DEFAULT NULL,
121     name VARCHAR(255) DEFAULT NULL,
122     surname VARCHAR(255) DEFAULT NULL,
123     phone VARCHAR(255) DEFAULT NULL,
124     email VARCHAR(255) DEFAULT NULL,
125     birth_date VARCHAR(255) DEFAULT NULL,
126     country VARCHAR(255) DEFAULT NULL,
127     city VARCHAR(255) DEFAULT NULL,
128     postal_code VARCHAR(255) DEFAULT NULL,
129     address VARCHAR(255) DEFAULT NULL
130 );
```

Output

Action Output

#	Time	Action	Message
44	12:31:18	LOAD DATA INFILE "C:/ProgramData/MySQL/MySQL Server 8.0/Uploads/users_ca.csv" INTO TABLE users FIELDS TERM...	Error Code: 1262. R
45	12:34:05	DROP table users	0 row(s) affected
46	12:34:17	CREATE TABLE users (id VARCHAR(255) DEFAULT NULL, name VARCHAR(255) DEFAULT NULL, sumame VARCH...	0 row(s) affected

#### 5.2 Introduzco los datos de **users\_ca.csv** en la tabla **users**:

```
134 #Introducir los datos en la tabla users del csv Canada:
135 • LOAD DATA
136 INFILE "C:/ProgramData/MySQL/MySQL Server 8.0/Uploads/users_ca.csv"
137 INTO TABLE users
138 FIELDS TERMINATED BY ','
139 ENCLOSED BY '"'
140 LINES TERMINATED BY '\n\n'
141 IGNORE 1 ROWS;
```

Output			
Action Output			
#	Time	Action	Message
47	12:34:57	LOAD DATA INFILE "C:/ProgramData/MySQL/MySQL Server 8.0/Uploads/users_ca.csv" INTO TABLE users FIELDS TERM...	Error Code: 1262. Row 4 was truncated; it contained more data than t
48	12:35:33	LOAD DATA INFILE "C:/ProgramData/MySQL/MySQL Server 8.0/Uploads/users_ca.csv" INTO TABLE users FIELDS TERM...	Error Code: 1262. Row 4 was truncated; it contained more data than t
49	12:36:11	LOAD DATA INFILE "C:/ProgramData/MySQL/MySQL Server 8.0/Uploads/users_ca.csv" INTO TABLE users FIELDS TERM...	75 row(s) affected Records: 75 Deleted: 0 Skipped: 0 Warnings: 0

### 5.3 Introduzco los datos de **users\_uk.csv** en la tabla **users**:

```

143 #Introducir los datos en la tabla users del csv UK:
144 • LOAD DATA
145 INFILE "C:/ProgramData/MySQL/MySQL Server 8.0/Uploads/users_uk.csv"
146 INTO TABLE users
147 FIELDS TERMINATED BY ','
148 ENCLOSED BY '"'
149 LINES TERMINATED BY '\r\n'
150 IGNORE 1 ROWS;

```

Output			
Action Output			
#	Time	Action	Message
49	12:36:11	LOAD DATA INFILE "C:/ProgramData/MySQL/MySQL Server 8.0/Uploads/users_ca.csv" INTO TABLE users FIELDS TERM...	75 row(s) affected Records: 75 Deleted: 0 Skipped: 0 Warnings: 0
50	12:36:58	SELECT * FROM users LIMIT 0, 50000	75 row(s) returned
51	12:37:35	LOAD DATA INFILE "C:/ProgramData/MySQL/MySQL Server 8.0/Uploads/users_uk.csv" INTO TABLE users FIELDS TERM...	50 row(s) affected Records: 50 Deleted: 0 Skipped: 0 Warnings: 0

### 5.4 Introduzco los datos de **users\_usa.csv** en la tabla **users**:

```

152 #Introducir los datos en la tabla users del csv USA:
153 • LOAD DATA
154 INFILE "C:/ProgramData/MySQL/MySQL Server 8.0/Uploads/users_usa.csv"
155 INTO TABLE users
156 FIELDS TERMINATED BY ','
157 ENCLOSED BY '"'
158 LINES TERMINATED BY '\r\n'
159 IGNORE 1 ROWS;

```

Output			
Action Output			
#	Time	Action	Message
50	12:36:58	SELECT * FROM users LIMIT 0, 50000	75 row(s) returned
51	12:37:35	LOAD DATA INFILE "C:/ProgramData/MySQL/MySQL Server 8.0/Uploads/users_uk.csv" INTO TABLE users FIELDS TERM...	50 row(s) affected Records: 50 Deleted: 0 Skipped: 0 Warnings: 0
52	12:39:39	LOAD DATA INFILE "C:/ProgramData/MySQL/MySQL Server 8.0/Uploads/users_usa.csv" INTO TABLE users FIELDS TER...	150 row(s) affected Records: 150 Deleted: 0 Skipped: 0 Warnings: 0

### 5.5 Compruebo los resultados:

```

174 #Compruebo resultados
175 • SELECT *
176 FROM users;

```

Result Grid										
Filter Rows:										
	id	name	surname	phone	email	birth_date	country	city	postal_code	address
▶	99	Reed	Rutledge	1-472-670-2236	facilisis.facilisis@outlook.net	Feb 17, 1997	United States	Newport ...	36951	225-6073 Magna Ave
	98	Cassa...	Ferguson	(594) 318-2465	eu@google.couk	May 8, 1992	United States	Tuscaloosa	83383	497-7857 Eget, Rd.
	97	Joseph	Davidson	1-184-847-8256	mauris@outlook.net	Jan 18, 1987	United States	Allentown	88451	P.O. Box 178, 6049 Luctus St.
	96	Brennan	Wynn	(831) 607-3574	nullam.ut@yahoo.net	Nov 1, 1988	United States	Lewiston	74004	Ap #774-4981 Elementum Av...
	95	Chase	Ellis	(322) 137-3271	quisque.purus@hotmail.edu	Dec 19, 2000	United States	New Haven	72721	1311 Accumsan Road

users 3 x

Output			
Action Output			
#	Time	Action	Message
2	12:16:48	SELECT * FROM companies LIMIT 0, 10000	100 row(s) returned
3	12:25:01	SELECT * FROM credit_cards LIMIT 0, 10000	275 row(s) returned
4	12:28:19	SELECT * FROM users LIMIT 0, 10000	275 row(s) returned



## 6.1 Realizar los cambios necesarios de los valores, en este caso, **indicaremos** en las PK que **el valor no pueda ser nulo**:

```

165 #Ahora cambiaré los valores necesarios:
166 • ALTER TABLE users MODIFY COLUMN id INT NOT NULL; #tabla users
167 • ALTER TABLE transactions MODIFY COLUMN id VARCHAR(255) NOT NULL; #tabla transactions
168 • ALTER TABLE credit_cards MODIFY COLUMN id VARCHAR(255) NOT NULL; #tabla credit_cards
169 • ALTER TABLE companies MODIFY COLUMN company_id VARCHAR(255) NOT NULL; #tabla companies

```

Output				
Action Output				
#	Time	Action	Message	
61	13:16:39	ALTER TABLE users MODIFY COLUMN id INT NOT NULL	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	
62	13:16:43	ALTER TABLE transactions MODIFY COLUMN id VARCHAR(255) NOT NULL	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	
63	13:16:46	ALTER TABLE credit_cards MODIFY COLUMN id VARCHAR(255) NOT NULL	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	
64	13:16:48	ALTER TABLE companies MODIFY COLUMN id VARCHAR(255) NOT NULL	Error Code: 1054. Unknown column 'id' in 'companies'	
65	13:17:15	ALTER TABLE companies MODIFY COLUMN company_id VARCHAR(255) NOT NULL	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	

## 6.2 Añadir las PK a las tablas creadas:

```

171 #Indico las PK de cada tabla:
172 • ALTER TABLE users ADD PRIMARY KEY (id);
173 • ALTER TABLE transactions ADD PRIMARY KEY (id);
174 • ALTER TABLE credit_cards ADD PRIMARY KEY (id);
175 • ALTER TABLE companies ADD PRIMARY KEY (company_id);

```

Output				
Action Output				
#	Time	Action	Message	
66	13:22:15	ALTER TABLE users ADD PRIMARY KEY (id)	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	
67	13:22:18	ALTER TABLE transactions ADD PRIMARY KEY (id)	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	
68	13:22:20	ALTER TABLE credit_cards ADD PRIMARY KEY (id)	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	
69	13:22:22	ALTER TABLE companies ADD PRIMARY KEY (company_id)	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	

## 6.3 Añadir las FK de las tablas creadas:

```

181 • ALTER TABLE transactions ADD CONSTRAINT transactions_users FOREIGN KEY (user_id) REFERENCES users(id);
182 • ALTER TABLE transactions ADD CONSTRAINT transactions_credit_cards FOREIGN KEY (credit_card_id) REFERENCES credit_cards(id);
183 • ALTER TABLE transactions ADD CONSTRAINT transactions_companies FOREIGN KEY (company_id) REFERENCES companies(company_id);

```

Output				
Action Output				
#	Time	Action	Message	
83	13:37:42	ALTER TABLE transactions ADD CONSTRAINT transactions_users FOREIGN KEY (user_id) REFERENCES users(id)	587 row(s) affected Records: 587 Duplicates: 0 Warnings: 0	
84	13:37:45	ALTER TABLE transactions ADD CONSTRAINT transactions_credit_cards FOREIGN KEY (credit_card_id) REFERENCES cre...	587 row(s) affected Records: 587 Duplicates: 0 Warnings: 0	
85	13:37:48	ALTER TABLE transactions ADD CONSTRAINT transactions_companies FOREIGN KEY (company_id) REFERENCES compa...	587 row(s) affected Records: 587 Duplicates: 0 Warnings: 0	

## 6.4 Compruebo las uniones y los datos realizando join de todas las tablas creadas:

```

181 #Compruebo las relaciones haciendo un join de las tablas
182 • SELECT *
183 FROM transactions
184 INNER JOIN companies on transactions.company_id = companies.company_id
185 INNER JOIN credit_cards on transactions.credit_card_id = credit_cards.id
186 INNER JOIN users on transactions.user_id = users.id;
187

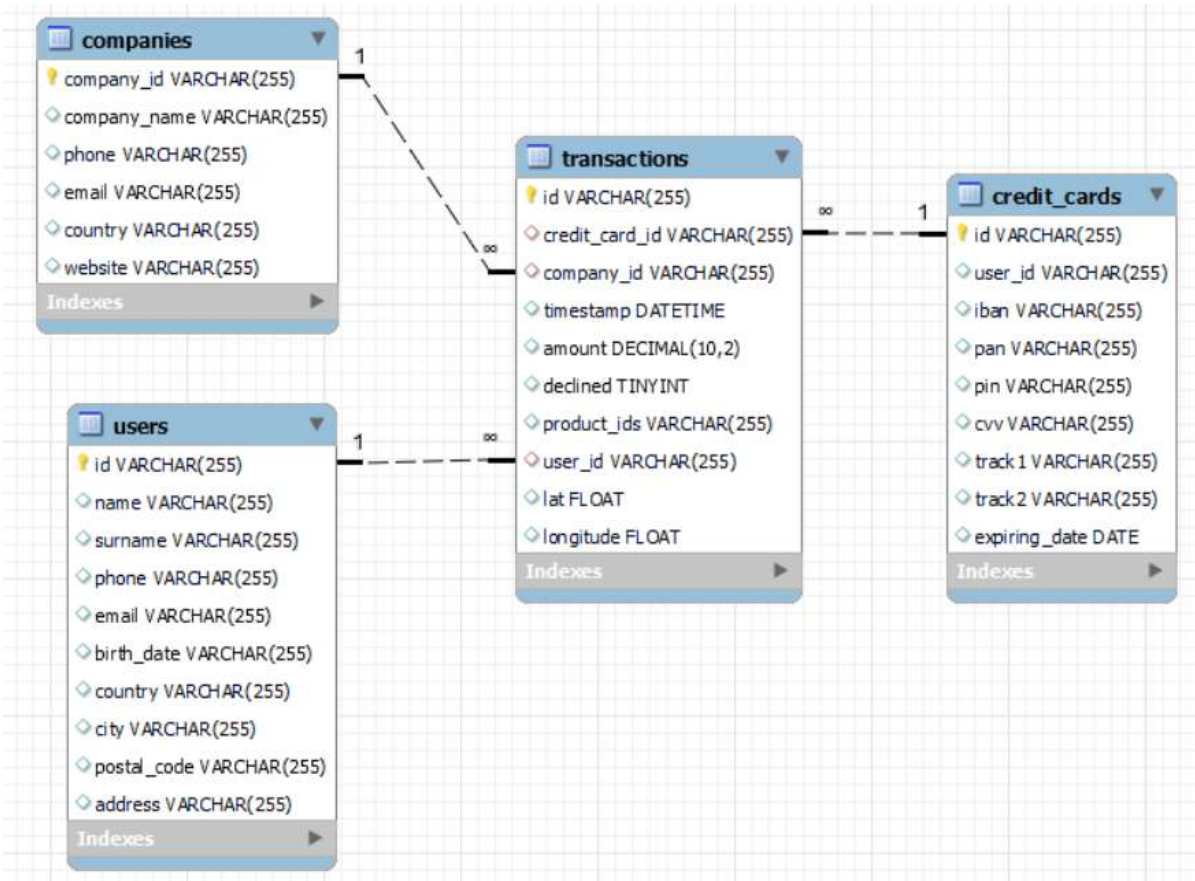
```

Result Grid											
Filter Rows:   Export:   Wrap Cell Content:											
id	credit_card_id	company_id	timestamp	amount	declined	product_ids	user_id	lat	longitude	company_id	company_name
108B1D1D-5B23-A76C-55EF-C568E49A05DD	CdU-2938	b-2222	2021-07-07 17:43:16	293.57	0	59	275	83.7839	-178.86	b-2222	Ac Fermentum Incorporated
EA2C3281-C9C1-A387-44F8-729FB4B51C76	CdU-2938	b-2222	2021-05-09 10:25:08	119.36	1	59, 79, 37, 73	275	20.2004	-116.84	b-2222	Ac Fermentum Incorporated
70C26247-20EC-53FE-E555-B6C2E55CA5D5	CdU-2945	b-2226	2022-02-04 15:52:56	312.50	0	71, 41	275	58.9367	-76.8171	b-2226	Magna A Neque Industries
FE96CE47-8D59-381C-4E18-E3CA3D4E8FF	CdU-2945	b-2226	2021-06-15 00:26:29	480.13	1	3	275	-21.8805	-112.588	b-2226	Magna A Neque Industries
72997E96-DC2C-A4D7-7C24-66C302F8AESA	CdU-2952	b-2230	2022-01-30 15:16:36	239.87	0	97, 41, 3	275	43.3584	-17.658	b-2230	Fusce Corp.
8768FDE2-A231-B916-8644-F7DCD13CAFC2	CdU-2952	b-2230	2021-05-06 05:33:39	460.38	1	31, 71, 1	275	82.4588	141.301	b-2230	Fusce Corp.

Result 1 x

Output				
Action Output				
#	Time	Action	Message	
1	12:04:44	SELECT * FROM transactions INNER JOIN companies on transactions.company_id = companies.company_...	Error Code: 1054. Unknown column 'credit_card.credit_card_id' in 'on clause'	
2	12:05:01	SELECT * FROM transactions INNER JOIN companies on transactions.company_id = companies.company_...	Error Code: 1054. Unknown column 'credit_cards.credit_card_id' in 'on clause'	
3	12:05:23	SELECT * FROM transactions INNER JOIN companies on transactions.company_id = companies.company_...	587 row(s) returned	

Comprobar el diagrama de la base de datos de la BBDD transaction:



Se ha creado una **base de datos llamada transaction**. Observamos que es un modelo relacional de estrella donde tenemos la **tabla de hechos transactions** y las **tablas de dimensiones; companies, users, credit\_cards**.

Las relaciones que encontramos son de uno a muchos, desde la tabla **transaction** a cualquiera de las tablas de dimensiones. A continuación se explicará brevemente cada campo. También indicar que los campos que no especifiquen una granularidad concreta, se van a poner en Varchar(255) para que no haya problemas de cargar datos y futuramente se puede concretar más.

- Tabla **transaction**:
  - Id Varchar (255), PK: identidad única de cada transacción.
  - Credit\_card\_id Varchar (255), FK: identidad de cada tarjeta de crédito.
  - Company\_id Varchar (255), FK: identidad de cada compañía.
  - Timestamp Datetime: fecha de transacción.
  - Amount Decimal (10,2): importe de transacción.
  - Declined Tinyint: si la transacción se ha completado.
  - Products\_ids Varchar (255): los productos vendidos en la transacción.
  - User\_id Varchar (255) FK: la identidad del usuario que realizó la transacción.
  - Lat Float: latitud donde se realizó la transacción.
  - Longitude Float: longitud donde se realizó la transacción.
- Tabla **companies**:

- Company\_id Varchar (255) PK: identidad única de cada compañía.
- Company\_name Varchar (255): nombre de la compañía.
- Phone Varchar (255): número de teléfono de la compañía.
- Email Varchar (255): email de la compañía.
- Country Varchar (255): país de la compañía.
- Website Varchar (255): web de la compañía.
- Tabla **users**:
  - Id Varchar (255) PK: identidad única para cada usuario.
  - Name Varchar (255): nombre de usuario.
  - Surname Varchar (255): apellido del usuario.
  - Phone Varchar (255): teléfono del usuario.
  - Email Varchar (255): email del usuario.
  - Birth\_date Varchar (255): fecha de cumpleaños del usuario.
  - Country Varchar (255): país del usuario.
  - City Varchar (255): ciudad del usuario.
  - Postal\_code Varchar (255): código postal del usuario.
  - Address Varchar (255): dirección del usuario.
- Tabla **credit\_cards**:
  - Id Varchar (255), PK: identidad única de cada tarjeta de crédito.
  - User\_id Varchar (255): identidad del usuario de la tarjeta de crédito.
  - Iban Varchar (255): número de cuenta de la tarjeta asociada.
  - Pan Varchar (255): número de tarjeta de crédito.
  - Pin Varchar (255): pin de la tarjeta de crédito.
  - Cvv Varchar (255): el cvv de la tarjeta de crédito.
  - Track1 Varchar (255): datos encriptados sobre los datos de la tarjeta.
  - Track2 Varchar (255): datos encriptados sobre la transacción.
  - Expiring\_date DATE: fecha de caducidad de la tarjeta de crédito.

**7 Revisión.** Aquí indicaré los cambios realizados después de revisar personalmente y con la corrección entre pares.

7.1 Cambio el campo de **company\_id** por **id** porque visualmente queda un formato más normalizado:

```
69 #Cambio el campo de company_id a id para tener un formato normalizado
70 • ALTER TABLE companies
71   RENAME COLUMN company_id TO id;
72
```

Output				
Action Output				
#	Time	Action	Message	
1	12:15:03	ALTER TABLE companies RENAME COLUMN company_id TO id	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	



## Exercici 1

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

```

203 #Nivell 1
204 #Exercici 1. Realitza una subconsulta que mostri tots els usuaris amb més de 30 transaccions utilitzant almenys 2 taules
205 • SELECT users.id, users.name, users.surname
206 FROM users
207 WHERE id in
208     (SELECT
209         user_id
210     FROM
211         transactions
212     GROUP BY user_id
213     HAVING COUNT(id) > 30);

```

Result Grid			Filter Rows:	Edit:	Export/Import:	Wrap Cell Content:
id	name	surname				
267	Ocean	Nelson				
272	Hedwig	Gilbert				
275	Kenyon	Hartman				
92	Lynn	Riddle				
NULL	NULL	NULL				

users 7 x

Output

Action Output

#	Time	Action	Message
1	12:59:40	SELECT users.id, users.name, users.surname FROM users WHERE id in (SELECT user_id FROM transactions GROUP BY user_id HAVING COUNT(id) > 30);	4 row(s) returned

## Exercici 2

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

```

216 #Nivell 1
217 # Exercici 2. Mostra la mitjana d'amount per IBAN de les targetes de crèdit a la companyia Donec Ltd, utilitza almenys 2 taules
218 • SELECT iban, AVG(transactions.amount) AS Mitjana_amount
219 FROM credit_cards
220 INNER JOIN transactions ON credit_cards.id = transactions.credit_card_id
221 INNER JOIN companies ON companies.company_id = transactions.company_id
222 WHERE company_name like 'Donec Ltd'
223 GROUP BY iban
224 ORDER BY mitjana_amount;

```

Result Grid

Filter Rows:

Export:

Wrap Cell Content: 1A

iban	Mitjana_amount
PT87806228135092429456346	203.715000

Result 13

Output

Action Output

#	Time	Action	Message
5	13:08:04	SELECT * FROM companies WHERE company_name like 'Donec Ltd' LIMIT 0, 10000	1 row(s) returned
6	13:08:14	SELECT iban, AVG(transactions.amount) AS Mitjana_amount FROM credit_cards INNER JOIN transactions ON credit_cards.id = transactions.credit_card_id INNER JOIN companies ON companies.company_id = transactions.company_id WHERE company_name like 'Donec Ltd' GROUP BY iban ORDER BY mitjana_amount;	1 row(s) returned
7	13:08:25	SELECT iban, AVG(transactions.amount) AS Mitjana_amount FROM credit_cards INNER JOIN transactions ON credit_cards.id = transactions.credit_card_id INNER JOIN companies ON companies.company_id = transactions.company_id WHERE company_name like 'Donec Ltd' GROUP BY iban ORDER BY mitjana_amount;	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:

### 1. Crea la taula **credit\_card\_status**:

```

236 • CREATE TABLE credit_card_status AS
237 SELECT
238     credit_card_id,
239     CASE
240         WHEN COUNT(*) = 3 AND SUM(declined) = 3 THEN 'Inactiva'
241         ELSE 'Activa'
242     END AS status
243 FROM (
244     SELECT
245         credit_card_id,
246         declined,
247         ROW_NUMBER() OVER (
248             PARTITION BY credit_card_id
249             ORDER BY timestamp DESC
250         ) AS ordered
251     FROM transactions
252 ) AS transacciones_ordenadas
253 WHERE ordered <= 3
254 GROUP BY credit_card_id;
255

```

Output				
Action Output				
#	Time	Action	Message	
✓ 1	13:28:15	CREATE TABLE credit_card_status AS SELECT credit_card_id, CASE WHEN COUNT(*) = 3 AND SUM(declined) = 3 THEN 'Inactiva'	275 row(s) affected Records: 275 Duplicates: 0 Warnings: 0	

### 2. Crea las relaciones entre **credit\_cards** y **credit\_card\_status**:

```

254 #Creo las relaciones:
255 • ALTER TABLE credit_card_status ADD CONSTRAINT credit_cards_status FOREIGN KEY (credit_card_id) REFERENCES credit_cards(id);

```

Output				
Action Output				
#	Time	Action	Message	
✓ 1	11:05:20	ALTER TABLE products ADD PRIMARY KEY (id)	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	
✓ 2	11:13:14	ALTER TABLE credit_card_status ADD CONSTRAINT credit_cards_status FOREIGN KEY (credit_card_id) REFERENCES credit_cards(id)	275 row(s) affected Records: 275 Duplicates: 0 Warnings: 0	

### 3. Compruebo los datos creados:

```

254 #Comprobar datos
255 • SELECT *
256 FROM credit_card_status;
257

```

Result Grid				
Filter Rows:				
Export: Wrap Cell Content: 1A				
credit_card_id	status_card			
▶ CcU-2938	Activa			
CcU-2945	Activa			
CcU-2952	Activa			
CcU-2959	Activa			
CcU-2966	Activa			
CcU-2973	Activa			
CcU-2980	Activa			

credit\_card\_status 6 x

Output				
Action Output				
#	Time	Action	Message	
✗ 19	13:03:33	CREATE TABLE credit_card_status AS WITH ranked_transactions AS ( SELECT credit_card_id, declin...	Error Code: 1050. Table 'credit_card_status' already exists	
✓ 20	13:03:52	SELECT * FROM credit_card_status LIMIT 0, 10000	275 row(s) returned	

#### 4. Compruebo las relaciones con un join:

```
261 #Comprobar relaciones
262 • SELECT *
263 FROM credit_card_status
264 INNER JOIN credit_cards ON credit_card_status.credit_card_id = credit_cards.id;
```

credit_card_id	status_card	id	user_id	iban	pan	pin	cvv	track1	track2	expiring_date
CcU-2938	Activa	CcU-2938	275	TR301950312213576817638661	542465566813633	3257	984	%88383712448554646^WovsxeJOpwiev^8604...	%87653863056044187=800716333673	2022-10-30
CcU-2945	Activa	CcU-2945	274	DO26854763748537475216568689	5142423821948828	9080	887	%84621311609958661^UftuyfsSeimxn^06106...	%84149568437843501=510714033071	2023-08-24
CcU-2952	Activa	CcU-2952	273	BG45IVQL52710525608255	4556453555287	4598	438	%82183285104307501^CddyttUxwfdq^5907...	%86778580257827162=6906859740077	2021-06-29
CcU-2959	Activa	CcU-2959	272	CR724277244335841535	372461377349375	3583	667	%87281111956795320^XocddjBckecd^09016...	%84246154489281853=280522391678	2023-02-24
CcU-2966	Activa	CcU-2966	271	BG72LKTQ15627628377363	4485668867477265	4900	130	%84728932322756223^JhlgvsuFbmwgj^7202...	%82318571115599881=890821578475	2024-10-29
CcU-2973	Activa	CcU-2973	270	PT87806228135092429456346	544586545434384	8760	887	%84761405253275637^HjnnipoBlejrl^7108515...	%87816169831446746=1310277229	2025-01-30
CcU-2980	Activa	CcU-2980	269	DE39241881883086277136	4024007145845969	5075	596	%87320483593870549^OokzqrHpsed^4901...	%82474313962214151=041221913175	2022-07-24
CcU-2987	Activa	CcU-2987	268	GE89681434837748781813	376374768776666	2298	797	%84750646345146674^PjmllyrfGwwtrf^83051...	%85441935173418615=410370453677	2023-10-31
CcU-2994	Activa	CcU-2994	267	BH62714428368066765294	34428323252593	7545	595	%81583759784015674^GmqvhtUtoqrm^2507...	%84141467473024349=6506800955074	2022-02-28
CcU-3001	Activa	CcU-3001	266	CY49087426654774581266832110	5117229248332244	9562	867	%86227288756728648^AwxdifcFmgvdy^2808...	%83429355750963453=530526830573	2022-09-16
CcU-3008	Activa	CcU-3008	265	II1507716693616119230	4485744464433884	1856	740	%87182449430529226^WknutvhtTfvrno^1708...	%86735123731781366=940563816678	2025-04-05

#	Time	Action	Message
1	11:05:20	ALTER TABLE products ADD PRIMARY KEY (id)	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0
2	11:13:14	ALTER TABLE credit_card_status ADD CONSTRAINT credit_cards_status FOREIGN KEY (credit_card_id) REFERENCES credit_cards(id)	275 row(s) affected Records: 275 Duplicates: 0 Warnings: 0
3	11:15:36	SELECT * FROM credit_card_status INNER JOIN credit_cards ON credit_card_status.credit_card_id = credit_cards.id LIMIT 0, 10000	275 row(s) returned

## Exercici 1

Quantes targetes estan actives?

```
270 #Exercici 1. Quantes targetes estan actives?
271 • SELECT count(credit_card_id) AS targetes_actives
272 FROM credit_card_status
273 WHERE status_card like 'activa';
274
```

targetes_actives
275

#	Time	Action	Message
2	11:13:14	ALTER TABLE credit_card_status ADD CONSTRAINT credit_cards_status FOREIGN KEY (credit_card_id) REFERENCES credit_cards(id)	275 row(s) affected Records: 275 Duplicates: 0 Warnings: 0
3	11:15:36	SELECT * FROM credit_card_status INNER JOIN credit_cards ON credit_card_status.credit_card_id = credit_cards.id LIMIT 0, 10000	275 row(s) returned
4	11:18:56	SELECT count(credit_card_id) AS targetes_actives FROM credit_card_status WHERE status_card like 'activa' LIMIT 0, 10000	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:

## 1. Creo la tabla products:

```

268 #Crear la tabla products
269 CREATE TABLE products (
270     id VARCHAR(255) DEFAULT NULL,
271     product_name VARCHAR(255) DEFAULT NULL,
272     price DECIMAL(10,2) DEFAULT NULL,
273     colour VARCHAR(255) DEFAULT NULL,
274     weight VARCHAR(255) DEFAULT NULL,
275     warehouse_id VARCHAR(255) DEFAULT NULL
276 );

```

Output

#	Time	Action	Message
39	10:03:28	DROP TABLE transactions_products	0 row(s) affected
40	10:03:38	DROP TABLE products	0 row(s) affected
41	10:03:46	CREATE TABLE products (id VARCHAR(255) DEFAULT NULL, product_name VARCHAR(255) DEFAULT NULL, price DECIMAL(10,2) DE...	0 row(s) affected

## 2. Introduzco los datos:

```

281 #Introducir los datos en la tabla products:
282 LOAD DATA
283 INFILE "C:/ProgramData/MySQL/MySQL Server 8.0/Uploads/products.csv"
284 INTO TABLE products
285 FIELDS TERMINATED BY ','
286 ENCLOSED BY '"'
287 LINES TERMINATED BY '\n'
288 IGNORE 1 ROWS
289 (id, product_name, @price, colour, weight, warehouse_id)
290 SET price = REPLACE(@price, '$', '');
291

```

Output

#	Time	Action	Message
40	10:03:38	DROP TABLE products	0 row(s) affected
41	10:03:46	CREATE TABLE products (id VARCHAR(255) DEFAULT NULL, product_name VARCHAR(255) DEFAULT NULL, price DECIMAL(10,2) DE...	0 row(s) affected
42	10:05:48	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

## 3. Compruebo los datos:

```

292 #Compruebo los datos introducidos:
293 SELECT *
294 FROM products;

```

Result Grid

	id	product_name	price	colour	weight	warehouse_id
1	Direwolf Stannis	161.11	#7c7c7c	1	WH-4	
2	Tarly Stark	9.24	#919191	2	WH-3	
3	duel tourney Lannister	171.13	#d8d8d8	1.5	WH-2	
4	warden south duel	71.89	#111111	3	WH-1	
5	skywalker ewok	171.22	#dbdbdb	3.2	WH-0	

products 17 x

Output

#	Time	Action	Message
48	13:48:54	SELECT users.id, users.name, users.surname, COUNT(transactions.id) AS total_transaccions F...	4 row(s) returned
49	13:49:37	SELECT * FROM products LIMIT 0, 10000	100 row(s) returned

4. Realizar las uniones entre tablas. En este caso, vemos que las tablas transactions y products se relacionan de muchos a muchos, es decir, en cada transacción pueden haber más de un producto y en cada producto de la tabla products puede haber varias transacciones.

#### 4.1 Crear la PK en la columna id:

```
296 #Crear la PK de la tabla products:
297 ALTER TABLE products ADD PRIMARY KEY (id);
```

Output			
Action Output			
#	Time	Action	Message
1	11:05:20	ALTER TABLE products ADD PRIMARY KEY (id)	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0

#### 4.2 Por tanto, **crearemos una tabla auxiliar** para conectar estas dos tablas:

```
297 #Tengo que crear una tabla intermedia entre transactions y products
298 CREATE TABLE transactions_products (
299     transaction_id VARCHAR(255), -- o el tipo que uses para `transactions.id`
300     product_id VARCHAR(255),
301     PRIMARY KEY (transaction_id, product_id),
302     FOREIGN KEY (transaction_id) REFERENCES transactions(id),
303     FOREIGN KEY (product_id) REFERENCES products(id));
```

Output			
Action Output			
#	Time	Action	Message
42	10:05:48	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
43	10:06:52	ALTER TABLE products ADD UNIQUE (id)	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0
44	10:09:42	CREATE TABLE transactions_products ( transaction_id VARCHAR(255), -- o el tipo que uses para `transactions.id` product_id VARCHAR(25...	0 row(s) affected

4.3 Ahora se ha de rellenar la tabla auxiliar con los datos que tenemos en las tablas transactions y products. Para ello **insertaremos los datos** indicando que los de la tabla transactions.product\_ids los coja por separado indicando cada id de transactions que tengan:

```
321 #Insertar los datos indicando que los productos de la tabla transactions se deben separar:
322 INSERT INTO transactions_products (transaction_id, product_id)
323 SELECT
324     transactions.id AS transaction_id,
325     jt.product_id
326 FROM transactions
327 JOIN JSON_TABLE(CONCAT('[', transactions.product_ids, ']'), '$[*]' COLUMNS (product_id INT PATH '$')) AS jt;
```

Output			
Action Output			
#	Time	Action	Message
56	10:34:31	INSERT INTO transactions_products (transaction_id, product_id) SELECT t.transaction_id, jt.product_id FROM ( SELECT id AS transacti...	Error Code: 1210. Incorrect arguments to JSON_TABLE
57	10:45:02	INSERT INTO transactions_products (transaction_id, product_id) SELECT t.transaction_id, jt.product_id FROM ( SELECT id AS transacti...	Error Code: 1210. Incorrect arguments to JSON_TABLE
58	10:46:48	INSERT INTO transactions_products (transaction_id, product_id) SELECT transactions.id AS transaction_id, jt.product_id FROM transactions J...	1457 row(s) affected Records: 1457 Duplicates: 0 Warnings: 0

#### 4.4 Comprobar los datos:

```

329 #Comprobar los datos:
330 • SELECT *
331 FROM transactions_products
332 ORDER BY transaction_id;

```

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

transaction_id	product_id
02C6201E-D90A-1859-B4EE-88D2986D3B02	1
02C6201E-D90A-1859-B4EE-88D2986D3B02	19
02C6201E-D90A-1859-B4EE-88D2986D3B02	71
0466A42E-47CF-8D24-FD01-C0B689713128	43
0466A42E-47CF-8D24-FD01-C0B689713128	47
0466A42E-47CF-8D24-FD01-C0B689713128	97
063FBA79-99EC-66FB-29F7-25726D1764A5	31
063FBA79-99EC-66FB-29F7-25726D1764A5	47
063FBA79-99EC-66FB-29F7-25726D1764A5	5
063FBA79-99EC-66FB-29F7-25726D1764A5	67
0668296C-CDB9-A883-76BC-2E4C4F8C8AE	79
0668296C-CDB9-A883-76BC-2E4C4F8C8AE	83
0668296C-CDB9-A883-76BC-2E4C4F8C8AE	89
06CD9AA5-9B42-D684-DDDD-A5E394FBA99	31
06CD9AA5-9B42-D684-DDDD-A5E394FBA99	43
07A46D48-31A3-7E87-65B9-0DA902AD109F	23
07A46D48-31A3-7E87-65B9-0DA902AD109F	47

transactions\_products 15 x

Output

Action Output

#	Time	Action	Message
62	10:49:26	SELECT product_id, transaction_id FROM transactions_products GROUP BY product_id LIMIT 0, 10000	Error Code: 1055. Expression #2 c
63	10:49:39	SELECT * FROM transactions_products LIMIT 0, 10000	1457 row(s) returned
64	10:49:59	SELECT * FROM transactions_products ORDER BY transaction_id LIMIT 0, 10000	1457 row(s) returned

#### 4.5 Comprobar las relaciones con join:

```

339 #Comprobar las relaciones:
340 • SELECT *
341 FROM transactions_products
342 INNER JOIN transactions ON transactions.id = transactions_products.transaction_id
343 ORDER BY transaction_id;
344

```

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

transaction_id	product_id	id	credit_card_id	company_id	timestamp	amount	declined	product_ids	user_id	lat	longitude
02C6201E-D90A-1859-B4EE-88D2986D3B02	1	02C6201E-D90A-1859-B4EE-88D2986D3B02	CcU-2938	b-2362	2021-08-28 23:42:24	466.92	0	71, 1, 19	92	81.9185	-12.5276
02C6201E-D90A-1859-B4EE-88D2986D3B02	19	02C6201E-D90A-1859-B4EE-88D2986D3B02	CcU-2938	b-2362	2021-08-28 23:42:24	466.92	0	71, 1, 19	92	81.9185	-12.5276
02C6201E-D90A-1859-B4EE-88D2986D3B02	71	02C6201E-D90A-1859-B4EE-88D2986D3B02	CcU-2938	b-2362	2021-08-28 23:42:24	466.92	0	71, 1, 19	92	81.9185	-12.5276
0466A42E-47CF-8D24-FD01-C0B689713128	43	0466A42E-47CF-8D24-FD01-C0B689713128	CcU-4219	b-2302	2021-07-26 07:29:18	49.53	0	47, 97, 43	170	-43.9695	-117.525
0466A42E-47CF-8D24-FD01-C0B689713128	47	0466A42E-47CF-8D24-FD01-C0B689713128	CcU-4219	b-2302	2021-07-26 07:29:18	49.53	0	47, 97, 43	170	-43.9695	-117.525
0466A42E-47CF-8D24-FD01-C0B689713128	97	0466A42E-47CF-8D24-FD01-C0B689713128	CcU-4219	b-2302	2021-07-26 07:29:18	49.53	0	47, 97, 43	170	-43.9695	-117.525

Result 1 x

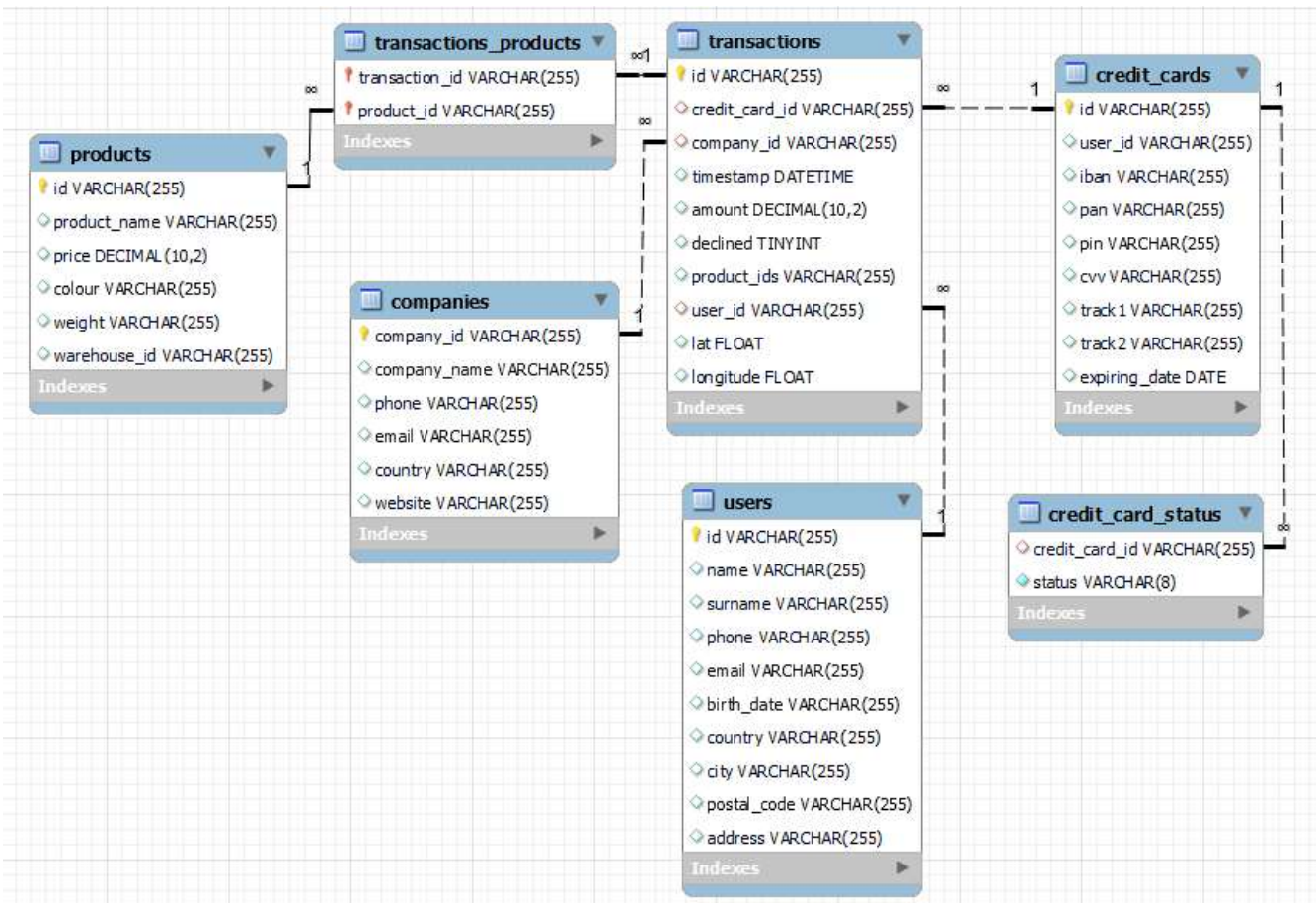
Output

Action Output

#	Time	Action	Message
1	13:48:27	SELECT * FROM transactions_products INNER JOIN transactions ON transactions.id = transactions_products.transaction_id ORDER BY transaction...	1457 row(s) returned



## 4.6 El nuevo diagrama: ahora tenemos un modelo de copo de nieve:



## Exercici 1

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

```

347 • SELECT product_id, products.product_name, count(transactions.id) AS n_vegades
348 FROM transactions
349 INNER JOIN transactions_products ON transactions.id = transactions_products.transaction_id
350 INNER JOIN products ON products.id = transactions_products.product_id
351 GROUP BY transactions_products.product_id
352 ORDER BY product_id ASC;
---
```

Result Grid			
product_id	product_name	n_vegades	
1	Direwolf Stannis	61	
11	Karstark Dorne	48	
13	palpatine chewbacca	60	
17	skywalker ewok sith	61	
19	dooku solo	49	

#	Time	Action	Message
22	11:32:21	SELECT * FROM transactions WHERE product_ids like '23' LIMIT 0, 10000	6 row(s) returned
23	11:33:29	SELECT * FROM transactions WHERE product_ids like '%23%' LIMIT 0, 10000	68 row(s) returned
24	11:36:48	SELECT product_id, products.product_name, count(transactions.id) AS n_vegades FROM transactions IN...	26 row(s) returned