

SPRINT 4: Creació de Base de Dades

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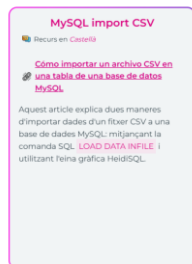
Nivell 1

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:

Per crear la base de dades des de arxius .csv seguiré les indicacions de l'article que ens han proporcionat a l'sprint 4 del present curs:

<https://www.delftstack.com/es/howto/mysql/mysql-import-csv/>

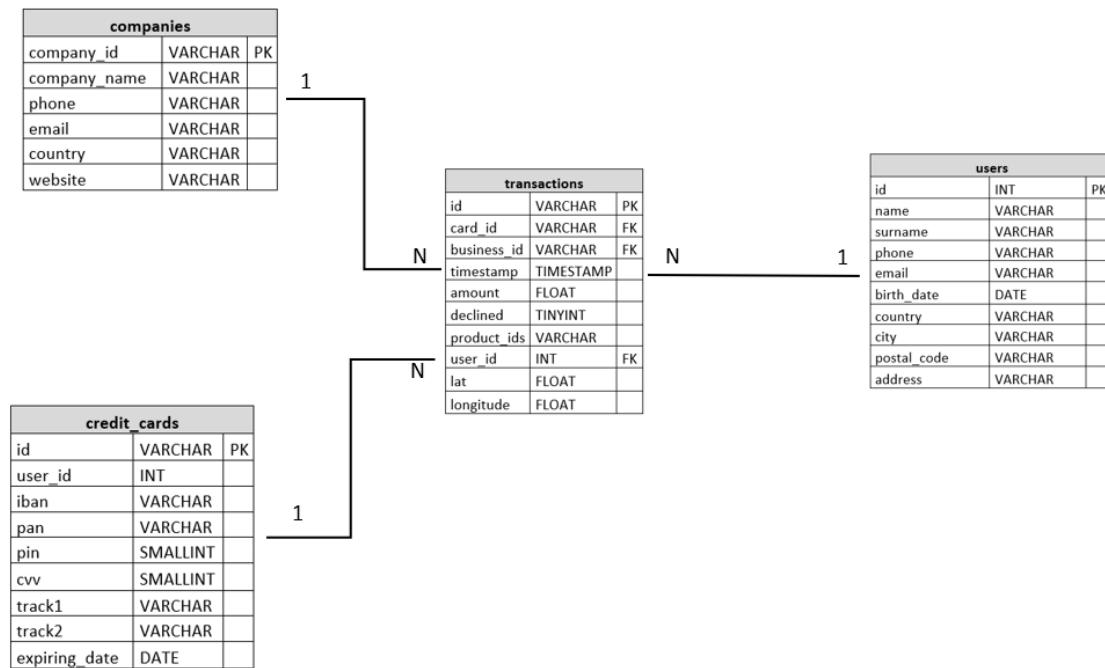
Com importar un arxiu CSV en una taula d'una base d



Primer he revisat cada un dels arxius i per la informació que obtinc el disseny previ de la base de dades que he fet és, el length dels tipus de dades el determinaré en funció de les dades que obtindré un cop carregat els arxius. Per altra banda, ajuntaré les taules american_users i european_users carregant les dades de cada taula a una nova taula que anomenaré users, per tenir tots els users a la mateixa taula, sí no es fes així la fk amb la taula transactions no es vincularia amb les taules dels users de cada continent, donaria error perquè haurien id a transactions que no existirien a les taules americans o europeans.

- **Elaboració prèvia del model.**

El model previst es visualitza de la següent forma:



- **Creació de la base de dades:**

Es crea la base de dades nova, el seu nom serà ventas i es selecciona com a BBDD amb la que anem a treballar:

```

1  -- SPRINT 4
2  -- Hi-vell 1
3  -- Desdèrrega 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
4  -- Realitza una subconsulta que mostri tots els usuaris amb més de 88 transaccions utilitzant almenys 2 taules.
5  -- Mostra la mitjana d'amount per ID del targete de crèdit a la companyia Domici Ltd, utilitza almenys 2 taules.
6
7  -- PAS 1 - CREA LA BASE DE DADDES:
8  * CREATE DATABASE ventas;
9  * USE ventas;
10
11 -- per instal·lar la base de dades i modelar-la he seguit els passos indicats a l'article https://www.delftstack.com/es/howto/mysql/mysql-import-csv/
12 -- que entra dintre del temari del curs que heu proporcionat.
13
14 -- PAS 2 - Crear les taules:
15 -- al revisar els arxius que s'han de carregar hem vist que hi han dues taules de users (americans_users i european_users) amb els mateixos camps.
16 -- Es pot pujar cada taula per separat i després fer una UNION ALL o bé crear directament la taula users i al carregar dades de les taules americans_users i european_users
17 -- o ferem directament a users :
18
19 * CREATE TABLE IF NOT EXISTS users (
20   id VARCHAR(255) NULL,
21   name VARCHAR(255) NULL,
22   surname VARCHAR(255) NULL,
23   phone VARCHAR(255) NULL,
24   email VARCHAR(255) NULL,
25   birth_date VARCHAR(255) NULL,
26   country VARCHAR(255) NULL,
27   city VARCHAR(255) NULL,
28   postal_code VARCHAR(255) NULL,
29   address VARCHAR(255) NULL
30 );
31
32
33
34 * CREATE TABLE IF NOT EXISTS companies (
35   company_id VARCHAR(255) NULL,
36   company_name VARCHAR(255) NULL,
37   phone VARCHAR(255) NULL,
38   email VARCHAR(255) NULL,
39   country VARCHAR(255) NULL,
40   website VARCHAR(255) NULL
41 );

```

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

Output

#	Time	Action	Message	Duration / Finish
1	13:04:53	CREATE DATABASE ventas	1 row(s) affected	0.047 sec
2	13:05:15	USE ventas	0 row(s) affected	0.000 sec

- **Creació de taules**

SPRINT4

Es creen les taules: users, companyies, crèdit_cards i transactions. Al seguir les indicacions de l'article llegit, per carregar les dades es fa tot en VARCHAR (255) i un cop carregades modificarem el tipus de dades i les dades si cal.

```
18
19 • CREATE TABLE IF NOT EXISTS users (
20     id VARCHAR(255) NULL,
21     name VARCHAR(255) NULL,
22     surname VARCHAR(255) NULL,
23     phone VARCHAR(255) NULL,
24     email VARCHAR(255) NULL,
25     birth_date VARCHAR(255) NULL,
26     country VARCHAR(255) NULL,
27     city VARCHAR(255) NULL,
28     postal_code VARCHAR(255) NULL,
29     address VARCHAR(255) NULL
30 );
31
32
33
34 • CREATE TABLE IF NOT EXISTS companies (
35     company_id VARCHAR(255) NULL,
36     company_name VARCHAR(255) NULL,
37     phone VARCHAR(255) NULL,
38     email VARCHAR(255) NULL,
39     country VARCHAR(255) NULL,
40     website VARCHAR(255) NULL
41 );
42
43 • CREATE TABLE IF NOT EXISTS credit_cards (
44     id VARCHAR(255) NULL,
45     user_id VARCHAR(255) NULL,
46     iban VARCHAR(255) NULL,
47     pan VARCHAR(255) NULL,
48     pin VARCHAR(255) NULL,
49     cvv VARCHAR(255) NULL,
50     track1 VARCHAR(255) NULL,
51     track2 VARCHAR(255) NULL,
52     expiring_date VARCHAR(255) NULL
53 );
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```

toggle automatic help.

#	Time	Action	Message	Duration / Fetch
4	13:08:04	CREATE TABLE IF NOT EXISTS companies (company_id VARCHAR(255) NULL, company_name VARCHAR(255) NULL, phone VARCHAR(255) NULL, email VARCHAR(255) NULL, country VARCHAR(255) NULL, website VARCHAR(255) NULL)	0 rows(s) affected	0.406 sec.
5	13:08:08	CREATE TABLE IF NOT EXISTS credit_cards (id VARCHAR(255) NULL, user_id VARCHAR(255) NULL, iban VARCHAR(255) NULL, pan VARCHAR(255) NULL, pin VARCHAR(255) NULL, cvv VARCHAR(255) NULL, track1 VARCHAR(255) NULL, track2 VARCHAR(255) NULL, expiring_date VARCHAR(255) NULL)	0 rows(s) affected	0.219 sec.
6	13:09:12	CREATE TABLE IF NOT EXISTS transactions (id VARCHAR(255) NULL, card_id VARCHAR(255) NULL, business_id VARCHAR(255) NULL, timestamp VARCHAR(255) NULL, amount VARCHAR(255) NULL, declined VARCHAR(255) NULL, product_ids VARCHAR(255) NULL, user_id VARCHAR(255) NULL, lat VARCHAR(255) NULL, longitude VARCHAR(255) NULL)	0 rows(s) affected	0.500 sec.

- **Càrrega de les dades a totes les taules:**

The screenshot shows the DBeaver SQL editor with a MySQL script. The script includes comments in Catalan and SQL commands to load data from CSV files into a MySQL database. The output pane at the bottom shows the execution results for three queries.

```

70 -- PAS 3 -- ES CARREGUEN LES DADES:
71 -- en el moment de la càrrega de dades van haver problemes i vaig haver de fer les modificacions pertinents al fitxer my.ini sobre aquestes variables:
72 • SHOW VARIABLES LIKE "secure_file_priv";
73 • SHOW GLOBAL VARIABLES LIKE "local_infile";
74
75
76 -- fem dues càrregues a la taula users, una desde americans_users i l'altra desde europeans_users:
77 -- Desde american_users
78 • LOAD DATA
79 INFILE "C:\\ProgramData\\MySQL\\MySQL Server 8.0\\Uploads\\american_users.csv"
80 INTO TABLE users
81 FIELDS TERMINATED BY ','
82 ENCLOSED BY '"'
83 LINES TERMINATED BY "\n"
84 IGNORE 1 ROWS;
85
86 -- Desde europeans_users:
87
88 • LOAD DATA
89 INFILE "C:\\ProgramData\\MySQL\\MySQL Server 8.0\\Uploads\\european_users.csv"
90 INTO TABLE users
91 FIELDS TERMINATED BY ','
92 ENCLOSED BY '"'
93 LINES TERMINATED BY "\n"
94 IGNORE 1 ROWS;
95
96 -- Taula companies: companies.csv
97
98 • LOAD DATA
99 INFILE "C:\\ProgramData\\MySQL\\MySQL Server 8.0\\Uploads\\companies.csv"
100 INTO TABLE companies
101 FIELDS TERMINATED BY ','
102 ENCLOSED BY '"'
103 LINES TERMINATED BY "\n"
104 IGNORE 1 ROWS;
105
106 -- Taula credit_cards: credit_cards.csv
107
108 • LOAD DATA
109 INFILE "C:\\ProgramData\\MySQL\\MySQL Server 8.0\\Uploads\\credit_cards.csv"
110 INTO TABLE credit_cards
111 FIELDS TERMINATED BY ','
112 ENCLOSED BY '"'
113 LINES TERMINATED BY "\n"
114 IGNORE 1 ROWS;

```

Output

#	Time	Action	Message	Duration / Fetch
7	13:13:14	LOAD DATA INFILE "C:\\ProgramData\\MySQL\\MySQL Server 8.0\\Uploads\\american_users.csv" INTO TABLE users FIELDS TER...	1010 row(s) affected Records: 1010 Deleted: 0 Skipped: 0 Warnings: 0	0.296 sec
8	13:13:21	LOAD DATA INFILE "C:\\ProgramData\\MySQL\\MySQL Server 8.0\\Uploads\\european_users.csv" INTO TABLE users FIELDS TER...	3990 row(s) affected Records: 3990 Deleted: 0 Skipped: 0 Warnings: 0	1.031 sec
9	13:13:27	LOAD DATA INFILE "C:\\ProgramData\\MySQL\\MySQL Server 8.0\\Uploads\\companies.csv" INTO TABLE companies FIELDS TER...	100 row(s) affected Records: 100 Deleted: 0 Skipped: 0 Warnings: 0	0.047 sec

The screenshot continues the DBeaver SQL editor from the previous one, showing the remaining SQL commands and their execution results.

```

82 ENCLOSED BY '"'
83 LINES TERMINATED BY "\n"
84 IGNORE 1 ROWS;
85
86 -- Desde europeans_users:
87
88 • LOAD DATA
89 INFILE "C:\\ProgramData\\MySQL\\MySQL Server 8.0\\Uploads\\european_users.csv"
90 INTO TABLE users
91 FIELDS TERMINATED BY ','
92 ENCLOSED BY '"'
93 LINES TERMINATED BY "\n"
94 IGNORE 1 ROWS;
95
96 -- Taula companies: companies.csv
97
98 • LOAD DATA
99 INFILE "C:\\ProgramData\\MySQL\\MySQL Server 8.0\\Uploads\\companies.csv"
100 INTO TABLE companies
101 FIELDS TERMINATED BY ','
102 ENCLOSED BY '"'
103 LINES TERMINATED BY "\n"
104 IGNORE 1 ROWS;
105
106 -- Taula credit_cards: credit_cards.csv
107
108 • LOAD DATA
109 INFILE "C:\\ProgramData\\MySQL\\MySQL Server 8.0\\Uploads\\credit_cards.csv"
110 INTO TABLE credit_cards
111 FIELDS TERMINATED BY ','
112 ENCLOSED BY '"'
113 LINES TERMINATED BY "\n"
114 IGNORE 1 ROWS;
115
116 -- Taula transactions:
117
118 • LOAD DATA
119 INFILE "C:\\ProgramData\\MySQL\\MySQL Server 8.0\\Uploads\\transactions.csv"
120 INTO TABLE transactions
121 FIELDS TERMINATED BY ','
122 ENCLOSED BY '"'
123 LINES TERMINATED BY "\n"
124 IGNORE 1 ROWS;
125
126
127

```

Output

#	Time	Action	Message	Duration / Fetch
9	13:13:27	LOAD DATA INFILE "C:\\ProgramData\\MySQL\\MySQL Server 8.0\\Uploads\\companies.csv" INTO TABLE companies FIELDS TER...	100 row(s) affected Records: 100 Deleted: 0 Skipped: 0 Warnings: 0	0.047 sec
10	13:14:21	LOAD DATA INFILE "C:\\ProgramData\\MySQL\\MySQL Server 8.0\\Uploads\\credit_cards.csv" INTO TABLE credit_cards FIELDS TER...	5000 row(s) affected Records: 5000 Deleted: 0 Skipped: 0 Warnings: 0	1.141 sec
11	13:14:25	LOAD DATA INFILE "C:\\ProgramData\\MySQL\\MySQL Server 8.0\\Uploads\\transactions.csv" INTO TABLE transactions FIELDS TE...	100000 row(s) affected Records: 100000 Deleted: 0 Skipped: 0 Warnings: 0	4.985 sec

- **Modificació de dades de les taules:**

Un cop carregades les dades comencem a modificar-les per posar el tipus de dades corresponents. El que faré és mirar el tipus de dada i el max(lenght()) de les dades string i a través de l'UPDATE modificaré cada columna .

Com si ho mostro dada per dada no és aclaratori, el que faré és posar dos exemples de modificació de dades i a les columnes que s'hagi de tenir en compte algun detall important o posaré

- **Taula users:**

Es fa un select * per veure totes les dades i es busca el max lenght de les dades:

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

```

121
122
123 -- PAS 4 -- DEFINICIÓ DE DADES:
124 -- Taula users
125
126 • SELECT *
127 FROM users;
128
129 • SELECT MAX(CHAR_LENGTH(name)) AS max_length_name,
130        MAX(CHAR_LENGTH(surname)) AS max_length_surname,
131        MAX(CHAR_LENGTH(phone)) AS max_length_phonename,
132        MAX(CHAR_LENGTH(email)) AS max_length_mailname
133 FROM users;
134
135
136 -- id
137 • ALTER TABLE users
138 MODIFY id INT NOT NULL;
139 -- name
140 • ALTER TABLE users
141 MODIFY name VARCHAR(50) NULL;
142 -- surname
143 • ALTER TABLE users
144 MODIFY surname VARCHAR(50) NULL;
145 -- phone
146 • ALTER TABLE users
147 MODIFY phone VARCHAR(20) NULL;
148 -- email
149 • ALTER TABLE users
150 MODIFY email VARCHAR(100) NULL;
151 -- birth_date

```

#	name	surname	phone	email	birth_date	country	city	postal_code	address
1	Zoe	Gamble	1-282-581-0551	interdum.enim@protonmail.edu	Nov 17, 1985	United States	New York	10001	348-7918 Sagitta St.
2	Garrett	Mcconnell	(718) 257-2412	integer.vitae.nibh@protonmail.org	Aug 23, 1992	United States	Philadelphia	19101	903 Sit Ave
3	Qaran	Harrison	(522) 598-1365	interdum.feugiat@aol.org	Apr 29, 1998	United States	Houston	77001	736-2063 Tellus St.
4	Howard	Stafford	1-411-740-3269	omare.egestas@icloud.edu	Feb 18, 1989	United States	Phoenix	85001	Ap #545-2244 Erat. Rd.
5	Hayfa	Pierce	1-534-541-2077	et.malesuada.fames@hotmail.org	Sep 26, 1998	United States	Philadelphia	19101	341-2821 Ultrices Av.
6	Jed	Tylen	(718) 288-8020	gravida.nuncied@yahoo.ca	Oct 15, 1989	United States	San Jose	95101	889-2799 Amet Street

users 6 x

Output

#	Time	Action	Message	Duration / Fetch
19	13:48:37	SELECT MAX(CHAR_LENGTH(name)) AS max_length_name, MAX(CHAR_LENGTH(surname)) AS max_length_surname, MA...	1 row(s) returned	0.016 sec / 0.000 sec
20	13:48:39	SELECT MAX(CHAR_LENGTH(name)) AS max_length_name, MAX(CHAR_LENGTH(surname)) AS max_length_surname, MA...	1 row(s) returned	0.016 sec / 0.000 sec
21	13:52:24	SELECT * FROM users	5000 row(s) returned	0.000 sec / 0.015 sec

Result 8 x

max_length_name	max_length_surname	max_length_phonename	max_length_mailname
9	11	15	40

Result 9 x

#	Time	Action	Message	Duration / Fetch
20	13:48:39	SELECT MAX(CHAR_LENGTH(name)) AS max_length_name, MAX(CHAR_LENGTH(surname)) AS max_length_surname, MA...	1 row(s) returned	0.016 sec / 0.000 sec
21	13:52:24	SELECT * FROM users	5000 row(s) returned	0.000 sec / 0.015 sec
22	13:52:56	SELECT MAX(CHAR_LENGTH(name)) AS max_length_name, MAX(CHAR_LENGTH(surname)) AS max_length_surname, MA...	1 row(s) returned	0.016 sec / 0.000 sec

Les decisions preses de modificació:

Id: INT acabarà sent la Primary Key per tant NOT NULL

Name: mirem la max longitud de l'string, i decideixo posar 50. Es un string i poso VARCHAR (50)

Surname: aplico la mateixa lògica que a name.

Phone: al mirar les dades phone veiem que hi ha una barreja de números i caràcters per tant les dades seran VARCHAR. El lenght màxim es 14 , posarem un VARCHAR (20)

Mail: podem veure que es un string i que la longitud màxima es de 40 caracters, però decideixo canvia a un VARCHAR (100) com a tipus de valor, ja que el emails poden ser encara mes llargs.

Birth_date: quan observem les dates veiem que es un format string. He fet la prova de passar-ho a DATE i no deixa no detecta el format, per tant, hem de modificar la columna birth_date per tal d'arribar a tenir les dates de naixement en un format DATE. El que he fet és modificar la columna per a que el format de string sigui un fomat de data y he substituït (UPDATE).

Country: ho modifiquem seguint el procés que hem dut a terme amb el camp mail:

Postal_code: ho modifiquem seguint el procés que hem dut a terme amb el camp mail:

Adress: ho deizarem com està ja que les adresses són molt diverses.

```

136 -- id
137 ALTER TABLE users
138 MODIFY id INT NOT NULL;
139 -- name
140 ALTER TABLE users
141 MODIFY name VARCHAR(50) NULL;
142 -- surname
143 ALTER TABLE users
144 MODIFY surname VARCHAR(50) NULL;
145 -- phone
146 ALTER TABLE users
147 MODIFY phone VARCHAR(20) NULL;
148 -- email
149 ALTER TABLE users
150 MODIFY email VARCHAR(100) NULL;
151 -- birth_date
152 UPDATE users
153 SET birth_date = STR_TO_DATE(birth_date, "%Y-%d-%Y");
154 ALTER TABLE users
155 MODIFY birth_date DATE NULL;
156 -- country
157 ALTER TABLE users
158 MODIFY country VARCHAR(50) NOT NULL;
159 -- city
160 ALTER TABLE users
161 MODIFY city VARCHAR(50) NOT NULL;
162 -- CÒDIG POSTAL
163 ALTER TABLE users
164 MODIFY postal_code VARCHAR(10) NULL;
165
166 -- Taula COMPANIES
167 SELECT *
168 FROM companies;
169
170 SELECT MAX(CHAR_LENGTH(id)) AS max_length_name,
171        MAX(CHAR_LENGTH(name)) AS max_length_name,
172        MAX(CHAR_LENGTH(surname)) AS max_length_name,
173        MAX(CHAR_LENGTH(phone)) AS max_length_name,
174        MAX(CHAR_LENGTH(email)) AS max_length_name,
175        MAX(CHAR_LENGTH(birth_date)) AS max_length_name,
176        MAX(CHAR_LENGTH(country)) AS max_length_name,
177        MAX(CHAR_LENGTH(city)) AS max_length_name,
178        MAX(CHAR_LENGTH(postal_code)) AS max_length_name
179 FROM users;

```

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

#	Time	Action	Message	Duration / Fetch
23	13:53:39	ALTER TABLE users MODIFY id INT NOT NULL	5000 row(s) affected Records: 5000 Duplicates: 0 Warnings: 0	2.407 sec
24	13:53:44	ALTER TABLE users MODIFY name VARCHAR(50) NULL	5000 row(s) affected Records: 5000 Duplicates: 0 Warnings: 0	1.469 sec
25	13:53:51	ALTER TABLE users MODIFY surname VARCHAR(50) NULL	5000 row(s) affected Records: 5000 Duplicates: 0 Warnings: 0	1.671 sec

SPRINT4

```

142 -- surname
143 • ALTER TABLE users
144 MODIFY surname VARCHAR(50) NULL;
145 -- phone
146 • ALTER TABLE users
147 MODIFY phone VARCHAR(20) NULL;
148 -- email
149 • ALTER TABLE users
150 MODIFY email VARCHAR(100) NULL;
151 -- birth_date
152 • UPDATE users
153 SET birth_date = STR_TO_DATE(birth_date, '%M %d, %Y');
154 • ALTER TABLE users
155 MODIFY birth_date DATE NULL;
156 -- country
157 • ALTER TABLE users
158 MODIFY country VARCHAR(50) NOT NULL;
159 -- city
160 • ALTER TABLE users
161 MODIFY city VARCHAR(50) NOT NULL;
162 -- CÓDIGO POSTAL
163 • ALTER TABLE users
164 MODIFY postal_code VARCHAR(10) NULL;
165
166
167 -- TÁBULA COMPANIES
168 • SELECT *
169 FROM companies;
170
171 • SELECT MAX(CHAR_LENGTH(id)) AS max_length_name,
172 MAX(CHAR_LENGTH(name)) AS max_length_name,
173 MAX(CHAR_LENGTH(surname)) AS max_length_name,
174 MAX(CHAR_LENGTH(phone)) AS max_length_name,
175 MAX(CHAR_LENGTH(email)) AS max_length_name,
176 MAX(CHAR_LENGTH(birth_day)) AS max_length_name
177 FROM companies;
178
179
180
181

```

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

#	Time	Action	Message	Duration / Fetch
25	13:53:51	ALTER TABLE users MODIFY surname VARCHAR(50) NULL	5000 row(s) affected Records: 5000 Duplicates: 0 Warnings: 0	1.671 sec
26	13:58:45	ALTER TABLE users MODIFY phone VARCHAR(20) NULL	5000 row(s) affected Records: 5000 Duplicates: 0 Warnings: 0	1.953 sec
27	13:58:49	ALTER TABLE users MODIFY email VARCHAR(100) NULL	5000 row(s) affected Records: 5000 Duplicates: 0 Warnings: 0	1.984 sec

```

142  -- surname
143  ALTER TABLE users
144  MODIFY surname VARCHAR(50) NULL;
145  -- phone
146  ALTER TABLE users
147  MODIFY phone VARCHAR(20) NULL;
148  -- email
149  ALTER TABLE users
150  MODIFY email VARCHAR(100) NULL;
151  -- birth_date
152  UPDATE users
153  SET birth_date = STR_TO_DATE(birth_date, '%M %d, %Y');
154  ALTER TABLE users
155  MODIFY birth_date DATE NULL;
156  -- country
157  ALTER TABLE users
158  MODIFY country VARCHAR(50) NOT NULL;
159  -- city
160  ALTER TABLE users
161  MODIFY city VARCHAR(50) NOT NULL;
162  -- CÓDIGO POSTAL
163  ALTER TABLE users
164  MODIFY postal_code VARCHAR(10) NULL;
165
166
167  -- TÁBULA COMPANIES
168  SELECT *
169  FROM companies;
170
171  SELECT MAX(CHAR_LENGTH(id)) AS max_length_name,
172         MAX(CHAR_LENGTH(surname)) AS max_length_name,
173         MAX(CHAR_LENGTH(phone)) AS max_length_name,
174         MAX(CHAR_LENGTH(email)) AS max_length_name,
175         MAX(CHAR_LENGTH(birth_day)) AS max_length_name
176  FROM companies;
177
178
179
180
181

```

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

#	Time	Action	Message	Duration / Fetch
28	13:59:14	UPDATE users SET birth_date = STR_TO_DATE(birth_date, '%M %d %Y')	5000 row(s) affected Rows matched: 5000 Changed: 5000 Warnings: 0	0.281 sec
29	13:59:20	ALTER TABLE users MODIFY birth_date NULL	5000 row(s) affected Records: 5000 Duplicates: 0 Warnings: 0	1.860 sec
30	13:59:22	ALTER TABLE users MODIFY country VARCHAR(50) NOT NULL	5000 row(s) affected Records: 5000 Duplicates: 0 Warnings: 0	1.406 sec

SPRINT4

```
145 -- phone
146 • ALTER TABLE users
147   MODIFY phone VARCHAR(20) NULL;
148 -- email
149 • ALTER TABLE users
150   MODIFY email VARCHAR(100) NULL;
151 -- birth_date
152 • UPDATE users
153   SET birth_date = STR_TO_DATE(birth_date, '%d %d, %Y');
154 • ALTER TABLE users
155   MODIFY birth_date DATE NULL;
156 -- country
157 • ALTER TABLE users
158   MODIFY country VARCHAR(50) NOT NULL;
159 -- city
160 • ALTER TABLE users
161   MODIFY city VARCHAR(50) NOT NULL;
162 -- CÒDIGO POSTAL
163 • ALTER TABLE users
164   MODIFY postal_code VARCHAR(10) NULL;
165
166
167 -- Taula COMPANIES
168 • SELECT *
169   FROM companies;
170
171 • SELECT MAX(CHAR_LENGTH(id)) AS max_length_name,
172        MAX(CHAR_LENGTH(name)) AS max_length_name,
173        MAX(CHAR_LENGTH(surname)) AS max_length_name,
174        MAX(CHAR_LENGTH(phone)) AS max_length_name,
175        MAX(CHAR_LENGTH(email)) AS max_length_name,
176        MAX(CHAR_LENGTH(birth_date)) AS max_length_name
177   FROM companies;
178
179
180
181
182
183
184 -- company_id
```

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

Context Help | Snippets

Output

#	Time	Action	Message	Duration / Fetch
30	13:59:22	ALTER TABLE users MODIFY country VARCHAR(50) NOT NULL	5000 row(s) affected Records: 5000 Duplicates: 0 Warnings: 0	1.406 sec
31	13:59:44	ALTER TABLE users MODIFY city VARCHAR(50) NOT NULL	5000 row(s) affected Records: 5000 Duplicates: 0 Warnings: 0	1.407 sec
32	13:59:50	ALTER TABLE users MODIFY postal_code VARCHAR(10) NULL	5000 row(s) affected Records: 5000 Duplicates: 0 Warnings: 0	1.797 sec

- **Taula companies:**

Seguirem el mateix procés que amb les altres taules:

Estudiar les dades:

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

```

166
167 -- Taula COMPANIES
168 * SELECT *
169 FROM companies;
170
171 * SELECT MAX(CHAR_LENGTH(company_id)) AS max_length_id,
172        MAX(CHAR_LENGTH(company_name)) AS max_length_company_name,
173        MAX(CHAR_LENGTH(phone)) AS max_length_phone,
174        MAX(CHAR_LENGTH(email)) AS max_length_email,
175        MAX(CHAR_LENGTH(country)) AS max_length_country,
176        MAX(CHAR_LENGTH(website)) AS max_length_website
177 FROM companies;

```

company_id	company_name	phone	email	country	website
b-2222	Ac Fermentum Incorporated	06 85 56 52 33	donec.por@titor.hellus@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	Conville In Incorporated	06 86 57 29 50	mauris.ut@aol.co.uk	Germany	https://com.user/110
b-2238	Anle Taculis Nec Foundation	08 23 04 99 53	sed.dicum.pron@outlook.ca	New Zealand	https://netflix.com/settings
b-2242	Donec Ltd	01 25 51 37 37	at.aculis@hotmail.co.uk	Norway	https://mytimes.com/user/110
b-2246	Sed Nunc Ltd	02 62 64 73 48	nibh@yahoo.org	United Kingdom	https://com.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 97 61 84	suspendisse.dui@icloud.net	United States	https://leby.com/sub
b-2258	Veribulum Lorem PC	02 02 87 33 40	aenean.maassa.integer@aol.net	Belgium	https://pinterest.com/sub/cars
b-2262	Gravida Sagittis LLP	03 81 28 33 97	turpis.vitae@google.ca	Sweden	https://naver.com/site
b-2266	Mus Aenean Eget Foundation	06 25 15 52 43	mi.dusa@protonmail.net	Sweden	https://instagram.com/group/9
b-2270	Dis Parturient Institute	05 36 29 78 74	purus@protonmail.org	Ireland	https://google.com/one
b-2274	Sed LLC	01 63 16 26 52	at@outlook.com	Belgium	https://reddit.com/fr
b-2278	Arcu LLP	06 46 04 41 45	dui@aol.ca	Norway	https://yahoo.com/sub
b-2282	Pretium Neque Corp.	07 77 48 55 28	eleifend.nec.malesuada@proton...	Australia	https://netflix.com/sub
b-2286	Fringilla LLC	08 29 15 93 57	gravida@protonmail.co.uk	New Zealand	https://reddit.com/user/110
b-2290	Quisque Libero LLC	01 45 48 71 11	sapen.molestie.ord@hotmail.co.uk	China	https://baidu.com/group/9
b-2294	Auctor Mauris Vel LLP	08 09 28 74 14	nec.tempus@icloud.co.uk	United States	https://instagram.com/fr
b-2298	Etiam Laoreet Associates	07 69 74 17 45	ultrices@google.co.uk	Canada	https://yahoo.com/fr
b-2302	Nunc Interdum Incorporated	05 18 15 48 13	non@outlook.com	Germany	https://wikipedia.org/en-us
b-2306	Augue Foundation	06 88 43 15 63	mauris@yahoo.com	Germany	https://baidu.com/sub/cars
b-2310	Nunc Nunc LLC	05 71 70 17 17	sed.nunc@icloud.co.uk	United Kingdom	https://facebook.com/site

companies 1 x

Output

Action Output

#	Time	Action	Message	Duration / Fetch
1	18:25:54	SELECT * FROM companies	100 row(s) returned	0.015 sec / 0.000 sec

Veure el Max(length()) de les dades:

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

```

166
167 -- Taula COMPANIES
168 * SELECT *
169 FROM companies;
170
171 * SELECT MAX(CHAR_LENGTH(company_id)) AS max_length_id,
172        MAX(CHAR_LENGTH(company_name)) AS max_length_company_name,
173        MAX(CHAR_LENGTH(phone)) AS max_length_phone,
174        MAX(CHAR_LENGTH(email)) AS max_length_email,
175        MAX(CHAR_LENGTH(country)) AS max_length_country,
176        MAX(CHAR_LENGTH(website)) AS max_length_website
177 FROM companies;

```

max_length_id	max_length_company_name	max_length_phone	max_length_email	max_length_country	max_length_website
6	35	14	38	14	32

Result 2 x

Output

Action Output

#	Time	Action	Message	Duration / Fetch
1	18:25:54	SELECT * FROM companies	100 row(s) returned	0.015 sec / 0.000 sec
2	18:27:41	SELECT MAX(CHAR_LENGTH(company_id)) AS max_length_id, MAX(CHAR_LENGTH(company_name)) AS max_length_company_name,...	1 row(s) returned	0.000 sec / 0.000 sec

Company id

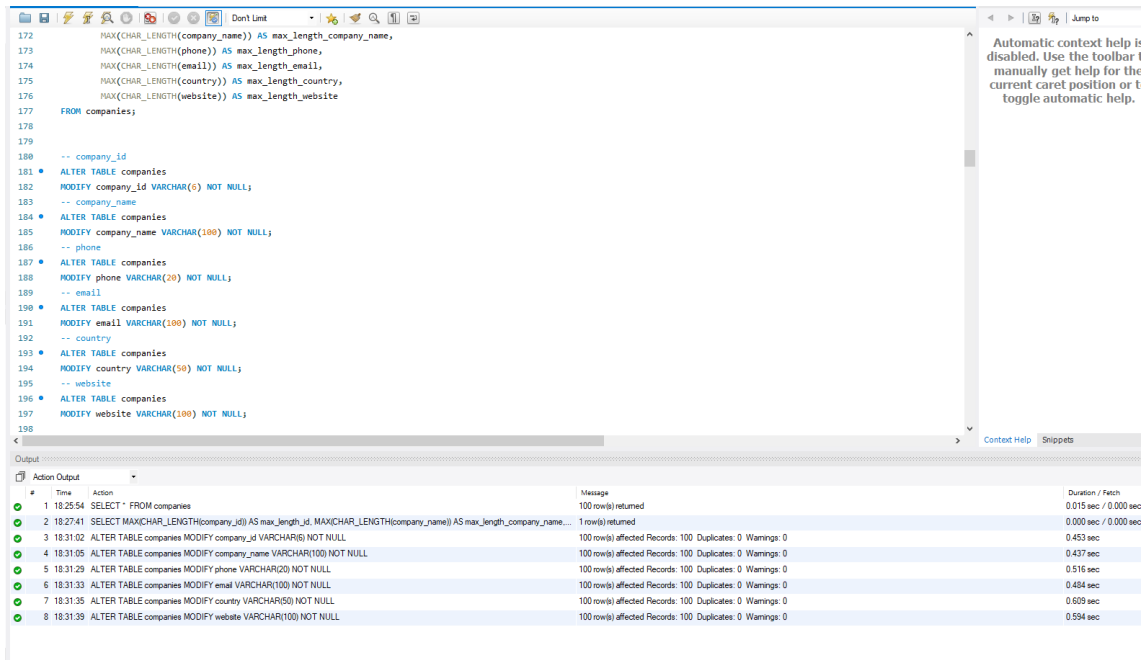
Company name

Phone: He decidit posar el mateix tipus de dada que el telèfon del users per unificar criteris. Encara que en aquesta taula són tots de la mateixa longitud i la mateixa estructura, podíem haver posat INT però he preferid unificar criteris així que he posat VARCHAR(20):

Email: he unificat criteris i he posat el mateix tipus de dades que a la taula users

Country: he unificat criteris i he posat el mateix tipus de dades que a la taula users

Website



```

172 MAX(CHAR_LENGTH(company_name)) AS max_length_company_name,
173 MAX(CHAR_LENGTH(phone)) AS max_length_phone,
174 MAX(CHAR_LENGTH(email)) AS max_length_email,
175 MAX(CHAR_LENGTH(country)) AS max_length_country,
176 MAX(CHAR_LENGTH(website)) AS max_length_website
177 FROM companies;
178
179
180 -- company_id
181 ALTER TABLE companies
182 MODIFY company_id VARCHAR(5) NOT NULL;
183 -- company_name
184 ALTER TABLE companies
185 MODIFY company_name VARCHAR(100) NOT NULL;
186 -- phone
187 ALTER TABLE companies
188 MODIFY phone VARCHAR(20) NOT NULL;
189 -- email
190 ALTER TABLE companies
191 MODIFY email VARCHAR(100) NOT NULL;
192 -- country
193 ALTER TABLE companies
194 MODIFY country VARCHAR(50) NOT NULL;
195 -- website
196 ALTER TABLE companies
197 MODIFY website VARCHAR(100) NOT NULL;
198

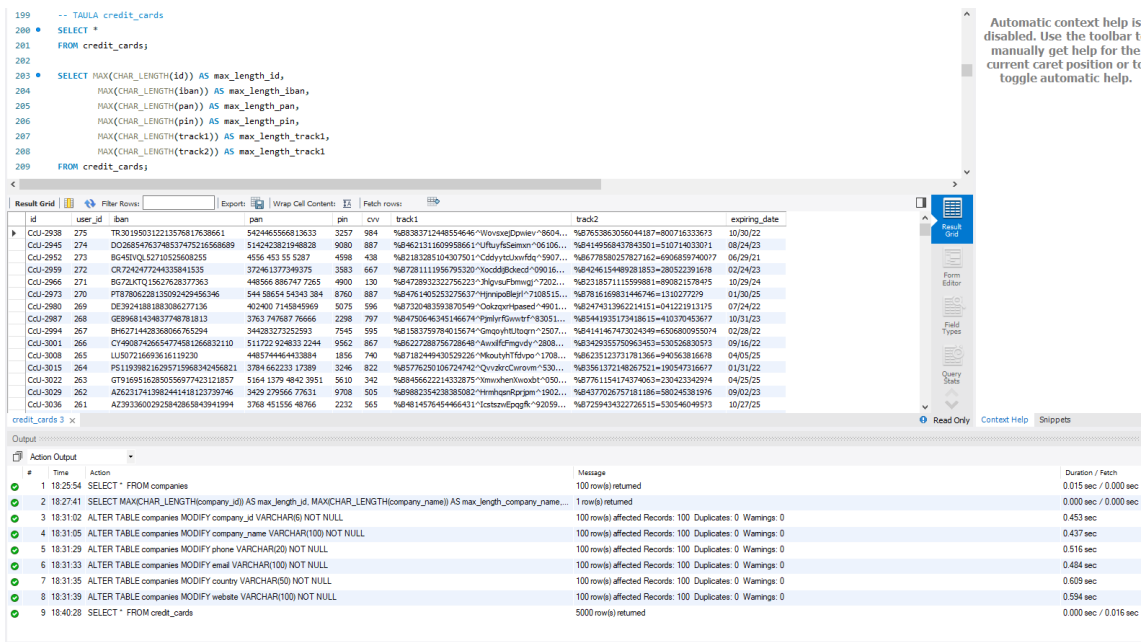
```

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

Output

#	Time	Action	Message	Duration / Fetch
1	18:25:54	SELECT * FROM companies	100 row(s) returned	0.015 sec / 0.000 sec
2	18:27:41	SELECT MAX(CHAR_LENGTH(company_id)) AS max_length_id, MAX(CHAR_LENGTH(company_name)) AS max_length_company_name,...	1 row(s) returned	0.000 sec / 0.000 sec
3	18:31:02	ALTER TABLE companies MODIFY company_id VARCHAR(5) NOT NULL	100 row(s) affected Records: 100 Duplicates: 0 Warnings: 0	0.453 sec
4	18:31:05	ALTER TABLE companies MODIFY company_name VARCHAR(100) NOT NULL	100 row(s) affected Records: 100 Duplicates: 0 Warnings: 0	0.437 sec
5	18:31:29	ALTER TABLE companies MODIFY phone VARCHAR(20) NOT NULL	100 row(s) affected Records: 100 Duplicates: 0 Warnings: 0	0.516 sec
6	18:31:33	ALTER TABLE companies MODIFY email VARCHAR(100) NOT NULL	100 row(s) affected Records: 100 Duplicates: 0 Warnings: 0	0.484 sec
7	18:31:35	ALTER TABLE companies MODIFY country VARCHAR(50) NOT NULL	100 row(s) affected Records: 100 Duplicates: 0 Warnings: 0	0.609 sec
8	18:31:39	ALTER TABLE companies MODIFY website VARCHAR(100) NOT NULL	100 row(s) affected Records: 100 Duplicates: 0 Warnings: 0	0.594 sec

- **Taula crèdit cards:**
- Seguirem el mateix procés que amb les altres taules:
- Estudiar les dades:



```

199 -- TAULA credit_cards
200 SELECT *
201 FROM credit_cards;
202
203 SELECT MAX(CHAR_LENGTH(id)) AS max_length_id,
204 MAX(CHAR_LENGTH(lban)) AS max_length_lban,
205 MAX(CHAR_LENGTH(pai)) AS max_length_pai,
206 MAX(CHAR_LENGTH(pin)) AS max_length_pin,
207 MAX(CHAR_LENGTH(track1)) AS max_length_track1,
208 MAX(CHAR_LENGTH(track2)) AS max_length_track2
209 FROM credit_cards;

```

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

Output

#	Time	Action	Message	Duration / Fetch
1	18:25:54	SELECT * FROM companies	100 row(s) returned	0.015 sec / 0.000 sec
2	18:27:41	SELECT MAX(CHAR_LENGTH(company_id)) AS max_length_id, MAX(CHAR_LENGTH(company_name)) AS max_length_company_name,...	1 row(s) returned	0.000 sec / 0.000 sec
3	18:31:02	ALTER TABLE companies MODIFY company_id VARCHAR(5) NOT NULL	100 row(s) affected Records: 100 Duplicates: 0 Warnings: 0	0.453 sec
4	18:31:05	ALTER TABLE companies MODIFY company_name VARCHAR(100) NOT NULL	100 row(s) affected Records: 100 Duplicates: 0 Warnings: 0	0.437 sec
5	18:31:29	ALTER TABLE companies MODIFY phone VARCHAR(20) NOT NULL	100 row(s) affected Records: 100 Duplicates: 0 Warnings: 0	0.516 sec
6	18:31:33	ALTER TABLE companies MODIFY email VARCHAR(100) NOT NULL	100 row(s) affected Records: 100 Duplicates: 0 Warnings: 0	0.484 sec
7	18:31:35	ALTER TABLE companies MODIFY country VARCHAR(50) NOT NULL	100 row(s) affected Records: 100 Duplicates: 0 Warnings: 0	0.609 sec
8	18:31:39	ALTER TABLE companies MODIFY website VARCHAR(100) NOT NULL	100 row(s) affected Records: 100 Duplicates: 0 Warnings: 0	0.594 sec
9	18:40:28	SELECT * FROM credit_cards	5000 row(s) returned	0.000 sec / 0.016 sec

Veure el Max(length()) de les dades:

SPRINT4

```
199 -- Taula credit_cards
200 * SELECT *
201 FROM credit_cards;
202
203 * SELECT MAX(CHAR_LENGTH(id)) AS max_length_id,
204         MAX(CHAR_LENGTH(iban)) AS max_length_iban,
205         MAX(CHAR_LENGTH(pan)) AS max_length_pan,
206         MAX(CHAR_LENGTH(pin)) AS max_length_pin,
207         MAX(CHAR_LENGTH(track1)) AS max_length_track1,
208         MAX(CHAR_LENGTH(track2)) AS max_length_track2
209 FROM credit_cards;
```

Result Grid

	max_length_id	max_length_iban	max_length_pan	max_length_pin	max_length_track1	max_length_track2
1	8	31	19	4	52	36

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

Read Only Context Help Snippets

Output

#	Time	Action	Message	Duration / Fetch
1	18:25:54	SELECT * FROM companies	100 row(s) returned	0.015 sec / 0.000 sec
2	18:27:41	SELECT MAX(CHAR_LENGTH(company_id)) AS max_length_id, MAX(CHAR_LENGTH(company_name)) AS max_length_company_name...	1 row(s) returned	0.000 sec / 0.000 sec
3	18:31:02	ALTER TABLE companies MODIFY company_id VARCHAR(8) NOT NULL	100 row(s) affected Records: 100 Duplicates: 0 Warnings: 0	0.453 sec
4	18:31:05	ALTER TABLE companies MODIFY company_name VARCHAR(100) NOT NULL	100 row(s) affected Records: 100 Duplicates: 0 Warnings: 0	0.437 sec
5	18:31:29	ALTER TABLE companies MODIFY phone VARCHAR(20) NOT NULL	100 row(s) affected Records: 100 Duplicates: 0 Warnings: 0	0.516 sec
6	18:31:33	ALTER TABLE companies MODIFY email VARCHAR(100) NOT NULL	100 row(s) affected Records: 100 Duplicates: 0 Warnings: 0	0.494 sec
7	18:31:35	ALTER TABLE companies MODIFY country VARCHAR(50) NOT NULL	100 row(s) affected Records: 100 Duplicates: 0 Warnings: 0	0.609 sec
8	18:31:39	ALTER TABLE companies MODIFY website VARCHAR(100) NOT NULL	100 row(s) affected Records: 100 Duplicates: 0 Warnings: 0	0.594 sec
9	18:40:28	SELECT * FROM credit_cards	5000 row(s) returned	0.000 sec / 0.016 sec
10	18:41:15	SELECT MAX(CHAR_LENGTH(id)) AS max_length_id, MAX(CHAR_LENGTH(iban)) AS max_length_iban, MAX(CHAR_LENGTH(pan))...	1 row(s) returned	0.016 sec / 0.000 sec

Id

User_id: com serà FK de les taulles users poso directament el tipus de dades d'aquell camp.

IBAN: He seguit el procés.

Pan: era sèrie de números amb espais he posat VARCHAR. Havía fet la prova de treure els espais i posar un BIGINT però finalment he decidit que si s'actualitzen les dades amb bases que vinguin de fora i limito a BIGINT potser que donés problemes.

Expiring_date: he pasat el valor de STR TO DATE i després ho he modificat a date.

```
210 -- id
211 * ALTER TABLE credit_cards
212 MODIFY id VARCHAR(8) NOT NULL;
213 -- User_id: COM SERÀ CLAU FORÀNEA DIRECTAMENT LI ASIGNO EL MATEIX TIPUS DE DADA QUE ID DE LES TAULES USERS
214 * ALTER TABLE credit_cards
215 MODIFY user_id INT NOT NULL;
216 -- iban
217 * ALTER TABLE credit_cards
218 MODIFY iban VARCHAR(40) NOT NULL;
219 -- pan
220 * ALTER TABLE credit_cards
221 MODIFY pan VARCHAR(25) NOT NULL;
222 -- pin
223 * ALTER TABLE credit_cards
224 MODIFY pin SMALLINT NOT NULL;
225 -- cvv
226 * ALTER TABLE credit_cards
227 MODIFY cvv SMALLINT NOT NULL;
228 -- TRACK 1
229 * ALTER TABLE credit_cards
230 MODIFY track1 VARCHAR(100) NOT NULL;
231 -- TRACK 2
232 * ALTER TABLE credit_cards
233 MODIFY track2 VARCHAR(100) NOT NULL;
234 -- expiring_date
235 * UPDATE credit_cards
236 SET expiring_date = CAST(expiring_date AS DATE);
237 -- Taula TRANSACTIONS
```

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

Read Only Context Help Snippets

Output

#	Time	Action	Message	Duration / Fetch
11	18:43:00	ALTER TABLE credit_cards MODIFY id VARCHAR(8) NOT NULL	5000 row(s) affected Records: 5000 Duplicates: 0 Warnings: 0	2.453 sec
12	18:43:15	ALTER TABLE credit_cards MODIFY user_id INT NOT NULL	5000 row(s) affected Records: 5000 Duplicates: 0 Warnings: 0	1.594 sec
13	18:43:17	ALTER TABLE credit_cards MODIFY iban VARCHAR(40) NOT NULL	5000 row(s) affected Records: 5000 Duplicates: 0 Warnings: 0	1.296 sec
14	18:43:20	ALTER TABLE credit_cards MODIFY pan VARCHAR(25) NOT NULL	5000 row(s) affected Records: 5000 Duplicates: 0 Warnings: 0	2.343 sec
15	18:43:24	ALTER TABLE credit_cards MODIFY pin SMALLINT NOT NULL	5000 row(s) affected Records: 5000 Duplicates: 0 Warnings: 0	1.328 sec
16	18:43:32	ALTER TABLE credit_cards MODIFY cvv SMALLINT NOT NULL	5000 row(s) affected Records: 5000 Duplicates: 0 Warnings: 0	1.703 sec
17	18:43:39	ALTER TABLE credit_cards MODIFY track1 VARCHAR(100) NOT NULL	5000 row(s) affected Records: 5000 Duplicates: 0 Warnings: 0	1.641 sec

SPRINT4

```
235 • UPDATE credit_cards
236 SET expiring_date = STR_TO_DATE(expiring_date, "%m/%d/%y");
237 ALTER TABLE credit_cards
238 MODIFY expiring_date DATE NULL;
```

Output

#	Time	Action	Message	Duration / Fetch
1	18:53:19	UPDATE credit_cards SET expiring_date = STR_TO_DATE(expiring_date, "%m/%d/%y")	5000 row(s) affected Rows matched: 5000 Changed: 5000 Warnings: 0	0.375 sec
2	18:53:23	ALTER TABLE credit_cards MODIFY expiring_date DATE NULL	5000 row(s) affected Records: 5000 Duplicates: 0 Warnings: 0	1.625 sec

- **Taula transactions:**
- Seguirem el mateix procés que amb les altres taules:
- Estudiar les dades:

```
240 -- Taula TRANSACTIONS
241 • SELECT *
242 FROM transactions;
```

Result Grid

id	card_id	business_id	timestamp	amount	declined	product_ids	user_id	lat	longitude
CCDA740-544D-478B-A4ED-67DD08A95009	C5-6894	b-2466	2018-12-12 08:05:17	161.88	0	75, 73, 98	2313	59.62050974356148	16.559977155728436
09456357-8E9B-475A-8257-87A023699964	C5-5135	b-2342	2024-05-20 22:49:08	171.13	0	3	554	45.76458841901318	4.843056518287656
C47C7C34-C174-4973-A768-625A3085582A	C5-8415	b-2250	2018-11-04 23:16:18	497.29	0	92, 85, 36, 23	3834	52.06849608409912	4.301099382555438
2F52BAA-2844-4D0F-AC09-2BDC2355EE76	C5-6552	b-2610	2022-06-17 09:17:25	344.15	0	5, 27	1972	39.47958513379182	-0.2764194409184784
00877407-883E-40D2-9209-4E0F0F2B80FA	C5-7678	b-2454	2020-11-29 07:29:16	435.1	0	36, 32, 82, 62	3097	51.42656985032189	5.478525648707596
A0B0D0EE-7199-41CF-9C85-3205509FA02F	C5-6416	b-2438	2021-05-24 22:28:26	364.11	0	92, 64	1835	51.49519189047999	18.88912480174568
29322BF7-44F4-4A6C-9FFC-C60B880808CD	C5-5036	b-2222	2022-05-19 04:50:50	678.61	0	6, 12, 100, 22, 23	455	51.609077736775525	19.160038756363225
3F414E9B-2ECC-4F8F-8B88-8BCD8C53BEE0	C5-8216	b-2526	2019-08-18 21:09:25	207.52	0	69, 97, 31	3635	33.48316749565129	-112.08209579719126
13353F4F-51E5-4688-84AF-5AE5363A5EAC	C5-7160	b-2514	2021-12-23 23:58:33	368.64	0	51, 3, 68	2579	60.481217507242114	18.810024018550643
185D9EC6-9540-4E4F-838D-395B26C467AC	C5-5819	b-2550	2019-03-23 19:42:15	57.25	0	69	1238	42.14540699947335	12.21245353636445
F08D0CF5-21EE-4461-A586-F34F244D066E	C5-5956	b-2466	2019-06-16 03:39:38	613.68	0	68, 6, 73, 64	1375	45.769936487258896	4.83966031700046
A8D4608-63A4-41D3-19525-691963835A46	C5-6872	b-2458	2016-10-09 10:40:30	333.57	0	53, 75, 74, 61	2291	41.15914776950494	-8.630769466777114
ED888585-6452-484A-4A8C-8C7460B8E16B	C5-5793	b-2466	2015-11-28 00:18:28	149.56	0	94, 97, 8	1202	48.42143484789602	-3.8015630627075216
44C04F49-4D07-4E8C-887E-DE51E8729676	C5-6410	b-2422	2015-05-29 03:12:04	568.34	0	7, 64, 16, 34	1829	46.81251919908033	-71.21595539526666
8EA91CB-510C-470C-8A3B-4DE10E8D4DA	C5-8575	b-2130	2018-06-26 17:31:05	232.07	0	100, 46, 79	3994	59.95183614209106	18.77178579987153
C40E83C-0E04-4B40-8F29-618829A6A4E	C5-6915	b-2222	2016-06-07 00:53:27	374.27	0	91, 65, 93	2394	41.93660489488131	12.121276425657235
115544E3-4709-4950-85E4-0E7723A04SDP	C5-4681	b-2242	2018-08-17 03:10:01	195.62	0	64	26	39.951970157637504	-75.160020139594009
8B55AF3-7E92-4D2C-4771-E15D69D70038	C5-8853	b-2466	2016-10-28 19:58:56	320.06	0	91, 28, 79	4272	41.91549066871561	12.716897556236331
7132F26-EE50-48E6-6173-90FF7F8588EE	C5-5324	b-2442	2024-03-11 00:26:10	3.83	0	55	743	55.35291194504507	-3.489818883158656
2BF04606-685E-4352-4F0B-9CF450ADD464	C5-5711	b-2454	2020-01-11 06:57:03	231.0	0	92, 51, 8	1130	39.40871165897853	-8.231122402213716
47C1E58F-28AC-409F-411C-318C46918C91	C5-7081	b-2442	2017-03-11 04:46:34	730.03	0	7, 91, 80	1480	51.67048405171806	19.471643977188785

transactions 1 x

Output

#	Time	Action	Message	Duration / Fetch
1	18:53:19	UPDATE credit_cards SET expiring_date = STR_TO_DATE(expiring_date, "%m/%d/%y")	5000 row(s) affected Rows matched: 5000 Changed: 5000 Warnings: 0	0.375 sec
2	18:53:23	ALTER TABLE credit_cards MODIFY expiring_date DATE NULL	5000 row(s) affected Records: 5000 Duplicates: 0 Warnings: 0	1.625 sec
3	18:58:31	SELECT * FROM transactions	100000 row(s) returned	0.000 sec / 0.312 sec

Veure el Max(length()) de les dades:

```
244 • SELECT MAX(CHAR_LENGTH(id)) AS max_length_id,
245 MAX(CHAR_LENGTH(product_ids)) AS max_length_product_ids,
246 MAX(CHAR_LENGTH(lat)) AS max_length_lat,
247 MAX(CHAR_LENGTH(longitude)) AS max_length_longitude
248 FROM transactions;
```

Result Grid

max_length_id	max_length_product_ids	max_length_lat	max_length_longitude
36	19	18	19

Result 2 x

Output

#	Time	Action	Message	Duration / Fetch
1	18:53:19	UPDATE credit_cards SET expiring_date = STR_TO_DATE(expiring_date, "%m/%d/%y")	5000 row(s) affected Rows matched: 5000 Changed: 5000 Warnings: 0	0.375 sec
2	18:53:23	ALTER TABLE credit_cards MODIFY expiring_date DATE NULL	5000 row(s) affected Records: 5000 Duplicates: 0 Warnings: 0	1.625 sec
3	18:58:31	SELECT * FROM transactions	100000 row(s) returned	0.000 sec / 0.312 sec
4	19:00:10	SELECT MAX(CHAR_LENGTH(id)) AS max_length_id, MAX(CHAR_LENGTH(product_ids)) AS max_length_product_ids, MAX(CHAR_LENGTH(lat)) AS max_length_lat, MAX(CHAR_LENGTH(longitude)) AS max_length_longitude FROM transactions	1 row(s) returned	0.203 sec / 0.000 sec

Id

Card_id: al ser FK el tipus de dades serà el mateix que id a credit_cards

Business_id: al ser FK el tipus de dades serà el mateix que id a companies

Product_ids: ho deixo com està per tal de no limitar les compres

User_id: FK per tant serà el mateix tipus de dades que a les taules de users

Lat

Longitude

```
250 -- id
251 • ALTER TABLE transactions
252   MODIFY id VARCHAR(36);
253 -- card_id: al ser FK el tipus de dades serà el mateix que id a credit_cards
254 • ALTER TABLE transactions
255   MODIFY card_id VARCHAR(36) NOT NULL;
256 -- business_id: al ser FK el tipus de dades serà el mateix que id a companies
257 -- timestamp
258 • ALTER TABLE transactions
259   MODIFY timestamp TIMESTAMP;
260 -- amount
261 • ALTER TABLE transactions
262   MODIFY amount FLOAT NOT NULL;
263 -- declined
264 • ALTER TABLE transactions
265   MODIFY declined TINYINT NOT NULL;
266 -- product_ids: HO DEIXO COM ESTÀ PER TAL DE NO LIMITAR LES COMPRES
267
268 -- user_id: FK per tant serà el mateix tipus de dades que a les taules de users
269 • ALTER TABLE transactions
270   MODIFY user_id INT NOT NULL;
271 -- lat
272 • ALTER TABLE transactions
273   MODIFY lat FLOAT NULL;
274 -- longitude
275 • ALTER TABLE transactions
276   MODIFY longitude FLOAT NULL;
```

manually get help for the current caret position or toggle automatic help.

#	Time	Action	Message	Duration / Fetch
5	19:04:07	ALTER TABLE transactions MODIFY id VARCHAR(36)	100000 row(s) affected Records: 100000 Duplicates: 0 Warnings: 0	3.125 sec
6	19:04:11	ALTER TABLE transactions MODIFY card_id VARCHAR(36) NOT NULL	100000 row(s) affected Records: 100000 Duplicates: 0 Warnings: 0	4.844 sec
7	19:04:17	ALTER TABLE transactions MODIFY business_id VARCHAR(255) NOT NULL	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	15.187 sec
8	19:04:40	ALTER TABLE transactions MODIFY timestamp TIMESTAMP	100000 row(s) affected Records: 100000 Duplicates: 0 Warnings: 0	7.625 sec
9	19:05:04	ALTER TABLE transactions MODIFY amount FLOAT NOT NULL	100000 row(s) affected Records: 100000 Duplicates: 0 Warnings: 0	3.891 sec
10	19:05:09	ALTER TABLE transactions MODIFY declined TINYINT NOT NULL	100000 row(s) affected Records: 100000 Duplicates: 0 Warnings: 0	4.735 sec
11	19:05:40	SELECT product_ids FROM transactions	100000 row(s) returned	0.000 sec / 0.094 sec

```
266 -- product_ids: HO DEIXO COM ESTÀ PER TAL DE NO LIMITAR LES COMPRES
267
268 -- user_id: FK per tant serà el mateix tipus de dades que a les taules de users
269 • ALTER TABLE transactions
270   MODIFY user_id INT NOT NULL;
271 -- lat
272 • ALTER TABLE transactions
273   MODIFY lat FLOAT NULL;
274 -- longitude
275 • ALTER TABLE transactions
276   MODIFY longitude FLOAT NULL;
```

#	Time	Action	Message	Duration / Fetch
9	19:05:04	ALTER TABLE transactions MODIFY amount FLOAT NOT NULL	100000 row(s) affected Records: 100000 Duplicates: 0 Warnings: 0	3.891 sec
10	19:05:09	ALTER TABLE transactions MODIFY declined TINYINT NOT NULL	100000 row(s) affected Records: 100000 Duplicates: 0 Warnings: 0	4.735 sec
11	19:05:40	SELECT product_ids FROM transactions	100000 row(s) returned	0.000 sec / 0.094 sec
12	19:07:02	ALTER TABLE transactions MODIFY user_id INT NOT NULL	100000 row(s) affected Records: 100000 Duplicates: 0 Warnings: 0	3.188 sec
13	19:08:09	ALTER TABLE transactions MODIFY lat FLOAT NULL	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	0.046 sec
14	19:08:12	ALTER TABLE transactions MODIFY longitude FLOAT NULL	100000 row(s) affected Records: 100000 Duplicates: 0 Warnings: 0	3.235 sec
15	19:08:17	ALTER TABLE transactions MODIFY longitude FLOAT NULL	100000 row(s) affected Records: 100000 Duplicates: 0 Warnings: 0	3.781 sec

- Creació de les PK a cada taula:**

```
278 -- PAS 4: CREEN LES PK DE LES TAULES:
279
280 -- PK users
281 • ALTER TABLE users
282   ADD PRIMARY KEY (id);
283 -- PK transactions
284 • ALTER TABLE transactions
285   ADD PRIMARY KEY (id);
286 -- PK credit_cards
287 • ALTER TABLE credit_cards
288   ADD PRIMARY KEY (id);
289 -- PK companies
290 • ALTER TABLE companies
291   ADD PRIMARY KEY (company_id);
292
293 -- PAS 5: AFEGIEM LES FK
294
295 • ALTER TABLE transactions
296   ADD CONSTRAINT fk_card_id_credit_cards
297   FOREIGN KEY (card_id) REFERENCES credit_cards(id)
298   ON DELETE RESTRICT
299   ON UPDATE CASCADE;
300
301 • ALTER TABLE transactions
302   ADD CONSTRAINT fk_business_id_companies
303   FOREIGN KEY (business_id) REFERENCES companies(company_id)
304   ON DELETE RESTRICT
305   ON UPDATE CASCADE;
306
```

disabled. Use the toolbar manually get help for the current caret position or toggle automatic help.

#	Time	Action	Message	Duration / Fetch
13	19:08:09	ALTER TABLE transactions MODIFY user_id INT NOT NULL	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	0.046 sec
14	19:08:12	ALTER TABLE transactions MODIFY lat FLOAT NULL	100000 row(s) affected Records: 100000 Duplicates: 0 Warnings: 0	3.235 sec
15	19:08:17	ALTER TABLE transactions MODIFY longitude FLOAT NULL	100000 row(s) affected Records: 100000 Duplicates: 0 Warnings: 0	3.781 sec
16	19:09:22	ALTER TABLE users ADD PRIMARY KEY (id)	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	1.953 sec
17	19:09:25	ALTER TABLE transactions ADD PRIMARY KEY (id)	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	6.172 sec
18	19:09:33	ALTER TABLE credit_cards ADD PRIMARY KEY (id)	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	2.141 sec
19	19:09:37	ALTER TABLE companies ADD PRIMARY KEY (company_id)	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	1.140 sec

- **Creació de les PK a cada taula:**

Afegim les Foreign Key a la taula de fets transactions. Les Foreign Key son:

- card_id amb la taula crèdit_cards
- business_id amb la taula company
- user_id amb la taula users

Durant la creació de les PK decideixo que en el cas de que es faci un UPDATE a la PK de les taules mare aquesta actualització es traslladi a les taules filles i que en cas de que es vulguin eliminar registres de PK no s'eliminin.

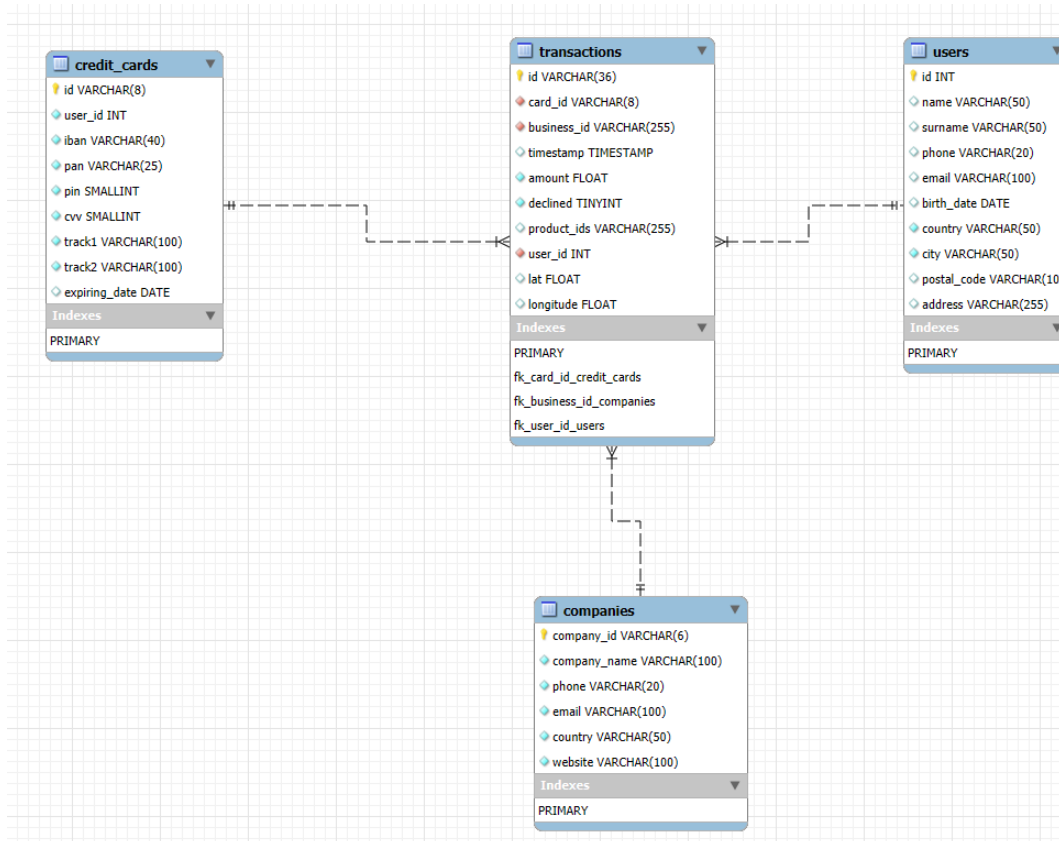
```

293 -- PAS 5: AFEGIM LES FK
294
295 • ALTER TABLE transactions
296   ADD CONSTRAINT fk_card_id_credit_cards
297   FOREIGN KEY (card_id) REFERENCES credit_cards(id)
298   ON DELETE RESTRICT
299   ON UPDATE CASCADE;
300
301 • ALTER TABLE transactions
302   ADD CONSTRAINT fk_business_id_companies
303   FOREIGN KEY (business_id) REFERENCES companies(company_id)
304   ON DELETE RESTRICT
305   ON UPDATE CASCADE;
306
307 • ALTER TABLE transactions
308   ADD CONSTRAINT fk_user_id_users
309   FOREIGN KEY (user_id) REFERENCES users(id)
310   ON DELETE RESTRICT
311   ON UPDATE CASCADE;
312

```

#	Time	Action	Message	Duration / Fetch
16	19:09:22	ALTER TABLE users ADD PRIMARY KEY (id)	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	1.953 sec
17	19:09:25	ALTER TABLE transactions ADD PRIMARY KEY (id)	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	6.172 sec
18	19:09:33	ALTER TABLE credit_cards ADD PRIMARY KEY (id)	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	2.141 sec
19	19:09:37	ALTER TABLE companies ADD PRIMARY KEY (company_id)	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	1.140 sec
20	19:13:36	ALTER TABLE transactions ADD CONSTRAINT fk_card_id_credit_cards FOREIGN KEY (card_id) REFERENCES credit_cards(id) ON D...	100000 row(s) affected Records: 100000 Duplicates: 0 Warnings: 0	7.062 sec
21	19:13:45	ALTER TABLE transactions ADD CONSTRAINT fk_business_id_companies FOREIGN KEY (business_id) REFERENCES companies(co...	100000 row(s) affected Records: 100000 Duplicates: 0 Warnings: 0	7.531 sec
22	19:13:54	ALTER TABLE transactions ADD CONSTRAINT fk_user_id_users FOREIGN KEY (user_id) REFERENCES users(id) ON DELETE REST...	100000 row(s) affected Records: 100000 Duplicates: 0 Warnings: 0	9.594 sec

Finalment, el diagrama que ha quedat ha sigut el següent:



Observem que les taules companies, crèdit_cards i users estan relacionades a través de la seva PK amb la taula transactions i que les relacions que se estableixen són de 1:N

Exercici 1

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

A la subconsulta s'utilitzen dues taules i mostra els usuaris amb més transaccions. Si la he de transformar en subconsulta que és el que demana l'enunciat de l'exercici, el que faré es crear una consulta que concateni nom i cognom i en el FROM posaré la subconsulta:

SPRINT4

```
313 -- Exercici 1
314 -- Realitza una subconsulta que mostri tots els usuaris amb més de 80 transaccions utilitzant almenys 2 taules.
315
316 SELECT CONCAT (name, " ", surname) AS users_over_eighty_transactions
317 FROM
318     (SELECT u.name, u.surname, COUNT(t.id)
319      FROM users u
320      JOIN transactions t
321      ON u.id = t.user_id
322      WHERE declined = 0
323      GROUP BY u.id
324      HAVING COUNT(t.id) >80) AS over_eighty_transaction
325
326 ;
```

current caret position or toggle automatic help.

Result Grid

users_over_eighty_transactions
Bhrr Astuar
Daviu Hicru
Molly Gillan

Result 4 x

Output

#	Time	Action	Message	Duration / Fetch
17	19:09:25	ALTER TABLE transactions ADD PRIMARY KEY (id)	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	6.172 sec
18	19:09:33	ALTER TABLE credit_cards ADD PRIMARY KEY (id)	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	2.141 sec
19	19:09:37	ALTER TABLE companies ADD PRIMARY KEY (company_id)	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	1.140 sec
20	19:13:36	ALTER TABLE transactions ADD CONSTRAINT fk_card_id_credit_cards FOREIGN KEY (card_id) REFERENCES credit_cards(id) ON D...	100000 row(s) affected Records: 100000 Duplicates: 0 Warnings: 0	7.062 sec
21	19:13:45	ALTER TABLE transactions ADD CONSTRAINT fk_business_id_companies FOREIGN KEY (business_id) REFERENCES companies(co...	100000 row(s) affected Records: 100000 Duplicates: 0 Warnings: 0	7.531 sec
22	19:13:54	ALTER TABLE transactions ADD CONSTRAINT fk_user_id_users FOREIGN KEY (user_id) REFERENCES users(id) ON DELETE REST...	100000 row(s) affected Records: 100000 Duplicates: 0 Warnings: 0	9.594 sec
23	19:25:06	SELECT CONCAT (name, " ", surname) AS users_over_eighty_transactions FROM (SELECT u.name, u.surname, COUNT(t.id) FROM use...	3 row(s) returned	0.500 sec / 0.000 sec

Exercici 2

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

Faig un GROUP BY per iban amb la funció d'agregació AVG() i en utilitzo tres taules fent JOIN, he decidit ordenar pels valors de mitjana de major a menor:

```
328 -- Exercici 2
329 -- Mostra la mitjana d'amount per IBAN de les targetes de crèdit a la companyia Donec Ltd, utilitza almenys 2 taules.
330
331 SELECT cc.iban, ROUND(AVG(t.amount),2) as average_amount
332 FROM credit_cards cc
333 JOIN transactions t
334 ON cc.id = t.card_id
335 JOIN companies c
336 ON c.company_id = t.business_id
337 WHERE t.declined = 0 AND c.company_name = "Donec Ltd"
338 GROUP BY cc.iban
339 ORDER BY average_amount DESC
340
341 ;
```

manually get help for current caret position or toggle automatic help.

Result Grid

iban	average_amount
XX383017813919630199366352	680.69
XX637706357397570394973913	680.01
XX97139397146520203112269	646.46
XX171847116928892379969307	628.89
XX225424638818542406223575	608.68
XX748890726037195711766071	607.29
TH9614563576667381893122	605.41
XX481908034037364242591185	605.36
XX194675519739256335753508	597.19
XX219662766061967195493437	594.26
XX44932320826890721001443	591.61

Result 5 x

Output

#	Time	Action	Message	Duration / Fetch
18	19:09:33	ALTER TABLE credit_cards ADD PRIMARY KEY (id)	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	2.141 sec
19	19:09:37	ALTER TABLE companies ADD PRIMARY KEY (company_id)	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	1.140 sec
20	19:13:36	ALTER TABLE transactions ADD CONSTRAINT fk_card_id_credit_cards FOREIGN KEY (card_id) REFERENCES credit_cards(id) ON D...	100000 row(s) affected Records: 100000 Duplicates: 0 Warnings: 0	7.062 sec
21	19:13:45	ALTER TABLE transactions ADD CONSTRAINT fk_business_id_companies FOREIGN KEY (business_id) REFERENCES companies(co...	100000 row(s) affected Records: 100000 Duplicates: 0 Warnings: 0	7.531 sec
22	19:13:54	ALTER TABLE transactions ADD CONSTRAINT fk_user_id_users FOREIGN KEY (user_id) REFERENCES users(id) ON DELETE REST...	100000 row(s) affected Records: 100000 Duplicates: 0 Warnings: 0	9.594 sec
23	19:25:06	SELECT CONCAT (name, " ", surname) AS users_over_eighty_transactions FROM (SELECT u.name, u.surname, COUNT(t.id) FROM use...	3 row(s) returned	0.500 sec / 0.000 sec
24	19:28:14	SELECT cc.iban, ROUND(AVG(t.amount),2) as average_amount FROM credit_cards cc JOIN transactions t ON cc.id = t.card_id JOIN c...	370 row(s) returned	0.015 sec / 0.000 sec

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:

He creat la nova taula desde credit_card selecció les id de les credit cards.

```

344 -- Nivell 2
345 -- 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:
346
347 CREATE TABLE credit_cards_declinated AS (
348     (SELECT id
349      FROM credit_cards));
350

```

#	Time	Action	Message	Duration / Fetch
19	19:09:37	ALTER TABLE companies ADD PRIMARY KEY (company_id)	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	1.140 sec
20	19:13:36	ALTER TABLE transactions ADD CONSTRAINT fk_card_id_credit_cards FOREIGN KEY (card_id) REFERENCES credit_cards(id) ON D...	100000 row(s) affected Records: 100000 Duplicates: 0 Warnings: 0	7.062 sec
21	19:13:45	ALTER TABLE transactions ADD CONSTRAINT fk_business_id_companies FOREIGN KEY (business_id) REFERENCES companies(co...	100000 row(s) affected Records: 100000 Duplicates: 0 Warnings: 0	7.531 sec
22	19:13:54	ALTER TABLE transactions ADD CONSTRAINT fk_user_id_users FOREIGN KEY (user_id) REFERENCES users(id) ON DELETE REST...	100000 row(s) affected Records: 100000 Duplicates: 0 Warnings: 0	9.594 sec
23	19:25:06	SELECT CONCAT (name, " ", surname) AS users_over_eighty_transactions FROM (SELECT u.name, u.surname, COUNT(*) FROM use...	3 row(s) returned	0.500 sec / 0.000 sec
24	19:28:14	SELECT cc.id, ROUND(AVG(t.amount)) AS average_amount FROM credit_cards cc JOIN transactions t ON cc.id = t.card_id JOIN c...	370 row(s) returned	0.015 sec / 0.000 sec
25	19:29:20	CREATE TABLE credit_cards_declinated AS ((SELECT id FROM credit_cards))	5000 row(s) affected Records: 5000 Duplicates: 0 Warnings: 0	0.500 sec

He afegit la columna status a on s'indicaran si las targetes están actives o inactives

```

350
351 ALTER TABLE credit_cards_declinated
352 ADD status varchar(8);
353

```

#	Time	Action	Message	Duration / Fetch
20	19:13:36	ALTER TABLE transactions ADD CONSTRAINT fk_card_id_credit_cards FOREIGN KEY (card_id) REFERENCES credit_cards(id) ON D...	100000 row(s) affected Records: 100000 Duplicates: 0 Warnings: 0	7.062 sec
21	19:13:45	ALTER TABLE transactions ADD CONSTRAINT fk_business_id_companies FOREIGN KEY (business_id) REFERENCES companies(co...	100000 row(s) affected Records: 100000 Duplicates: 0 Warnings: 0	7.531 sec
22	19:13:54	ALTER TABLE transactions ADD CONSTRAINT fk_user_id_users FOREIGN KEY (user_id) REFERENCES users(id) ON DELETE REST...	100000 row(s) affected Records: 100000 Duplicates: 0 Warnings: 0	9.594 sec
23	19:25:06	SELECT CONCAT (name, " ", surname) AS users_over_eighty_transactions FROM (SELECT u.name, u.surname, COUNT(*) FROM use...	3 row(s) returned	0.500 sec / 0.000 sec
24	19:28:14	SELECT cc.id, ROUND(AVG(t.amount)) AS average_amount FROM credit_cards cc JOIN transactions t ON cc.id = t.card_id JOIN c...	370 row(s) returned	0.015 sec / 0.000 sec
25	19:29:20	CREATE TABLE credit_cards_declinated AS ((SELECT id FROM credit_cards))	5000 row(s) affected Records: 5000 Duplicates: 0 Warnings: 0	0.500 sec
26	19:30:00	ALTER TABLE credit_cards_declinated ADD status varchar(8)	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	0.187 sec

He creat la PK

```

354 ALTER TABLE credit_cards_declinated
355 ADD PRIMARY KEY (id);
356

```

#	Time	Action	Message	Duration / Fetch
21	19:13:45	ALTER TABLE transactions ADD CONSTRAINT fk_business_id_companies FOREIGN KEY (business_id) REFERENCES companies(co...	100000 row(s) affected Records: 100000 Duplicates: 0 Warnings: 0	7.531 sec
22	19:13:54	ALTER TABLE transactions ADD CONSTRAINT fk_user_id_users FOREIGN KEY (user_id) REFERENCES users(id) ON DELETE REST...	100000 row(s) affected Records: 100000 Duplicates: 0 Warnings: 0	9.594 sec
23	19:25:06	SELECT CONCAT (name, " ", surname) AS users_over_eighty_transactions FROM (SELECT u.name, u.surname, COUNT(*) FROM use...	3 row(s) returned	0.500 sec / 0.000 sec
24	19:28:14	SELECT cc.id, ROUND(AVG(t.amount)) AS average_amount FROM credit_cards cc JOIN transactions t ON cc.id = t.card_id JOIN c...	370 row(s) returned	0.015 sec / 0.000 sec
25	19:29:20	CREATE TABLE credit_cards_declinated AS ((SELECT id FROM credit_cards))	5000 row(s) affected Records: 5000 Duplicates: 0 Warnings: 0	0.500 sec
26	19:30:00	ALTER TABLE credit_cards_declinated ADD status varchar(8)	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	0.187 sec
27	19:30:28	ALTER TABLE credit_cards_declinated ADD PRIMARY KEY (id)	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	0.765 sec

He creat la FK amb la taula credit cards:

```

357 ALTER TABLE credit_cards_declinated
358 ADD CONSTRAINT fk_declinated_credit_cards
359 FOREIGN KEY (id) REFERENCES credit_cards(id)
360 ON DELETE CASCADE
361 ON UPDATE CASCADE;
362

```

#	Time	Action	Message	Duration / Fetch
22	19:13:54	ALTER TABLE transactions ADD CONSTRAINT fk_user_id_users FOREIGN KEY (user_id) REFERENCES users(id) ON DELETE REST...	100000 row(s) affected Records: 100000 Duplicates: 0 Warnings: 0	9.594 sec
23	19:25:06	SELECT CONCAT (name, " ", surname) AS users_over_eighty_transactions FROM (SELECT u.name, u.surname, COUNT(*) FROM use...	3 row(s) returned	0.500 sec / 0.000 sec
24	19:28:14	SELECT cc.id, ROUND(AVG(t.amount)) AS average_amount FROM credit_cards cc JOIN transactions t ON cc.id = t.card_id JOIN c...	370 row(s) returned	0.015 sec / 0.000 sec
25	19:29:20	CREATE TABLE credit_cards_declinated AS ((SELECT id FROM credit_cards))	5000 row(s) affected Records: 5000 Duplicates: 0 Warnings: 0	0.500 sec
26	19:30:00	ALTER TABLE credit_cards_declinated ADD status varchar(8)	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	0.187 sec
27	19:30:28	ALTER TABLE credit_cards_declinated ADD PRIMARY KEY (id)	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	0.765 sec
28	19:32:05	ALTER TABLE credit_cards_declinated ADD CONSTRAINT fk_declinated_credit_cards FOREIGN KEY (id) REFERENCES credit_cards(id)	5000 row(s) affected Records: 5000 Duplicates: 0 Warnings: 0	1.000 sec

Per afegir les dades a la columnes he creat una consulta Update amb cte's:

- cte_rango: a on poso rank a les dates de transaccions per id, ho he fet amb una finestra de dense_rank i amb PARTITION BY, l'ordre de resultat es per id i per rank_date.
- cte_listado_declinadas: una consulta que em dona el llista de les targetes declinades en les tres darreres transaccions, que són a les que els hi posaré l'estatus de inactiva.

En aquesta CTE per poder filtrar les id's he filtrat per rank i per declined = 0 y he fet un group by de les id's en les que es sumen el ranks que apareixen del filtre, i he posat un filtre having al group by en el que filtro que si la suma dels valors del rank son 6. La lògica que he aplicat es que si una targeta ha sigut declinada les tres darreres dates s'ha desactivat per tant la suma de tres ranks desactivats son 6.

En aquest cas, he utilitzat la cte_rango per fer els filtres

- Per finalitzar, faré la consulta d' UPDATE en la que li diré que en el cas en el que l'id estigui inclòs al llistat de id en el que les targetes estan fora de servei (cte_listado_declinadas) posi inactive i en el cas contrari posi active.

```

364 WITH cte_rango AS (
365     SELECT c.id, timestamp AS date_transaction, t.declined,
366            DENSE_RANK() OVER ( PARTITION BY c.id
367                               ORDER BY timestamp desc
368                             ) AS rank_date
369
370     FROM credit_cards c
371     JOIN transactions t
372     ON t.card_id = c.id
373     ORDER BY c.id
374 ),
375 cte_listado_declinadas AS(
376     SELECT id, SUM(rank_date) AS suma_rangos
377     FROM cte_rango
378     WHERE rank_date BETWEEN 1 AND 3 AND declined =1
379     GROUP BY id
380     HAVING SUM(rank_date) = 6
381     ORDER BY id
382 )
383 UPDATE credit_cards_declinated
384 SET status =
385     CASE
386     WHEN id IN (SELECT id FROM cte_listado_declinadas) THEN "inactive"
387     ELSE "active"
388     END;
389
390
391 SELECT * FROM credit_cards_declinated WHERE status = "inactive";
392

```

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

#	Time	Action	Message	Duration / Fetch
23	19:25:06	SELECT CONCAT (name, " ", surname) AS users_over_eighty_transactions FROM (SELECT u.name, u.surname, COUNT(*) FROM users u WHERE u.age >= 80) AS users_over_eighty_transactions	3 row(s) returned	0.500 sec / 0.000 sec
24	19:28:14	SELECT cc.id, ROUND(AVG(t.amount)) AS average_amount FROM credit_cards cc JOIN transactions t ON cc.id = t.card_id JOIN cte_rango AS cr ON cc.id = cr.id	370 row(s) returned	0.015 sec / 0.000 sec
25	19:29:20	CREATE TABLE credit_cards_declinated AS (SELECT id FROM credit_cards)	5000 row(s) affected Records: 5000 Duplicates: 0 Warnings: 0	0.500 sec
26	19:30:00	ALTER TABLE credit_cards_declinated ADD status varchar(8)	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	0.187 sec
27	19:30:28	ALTER TABLE credit_cards_declinated ADD PRIMARY KEY (id)	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	0.765 sec
28	19:32:05	ALTER TABLE credit_cards_declinated ADD CONSTRAINT fk_declinated_credit_cards FOREIGN KEY (id) REFERENCES credit_cards (id)	5000 row(s) affected Records: 5000 Duplicates: 0 Warnings: 0	1.000 sec
29	19:33:18	WITH cte_rango AS (SELECT c.id, timestamp AS date_transaction, t.declined, DENSE_RANK() OVER (PARTITION BY c.id ORDER BY timestamp desc) AS rank_date FROM credit_cards c JOIN transactions t ON t.card_id = c.id) , cte_listado_declinadas AS (SELECT id, SUM(rank_date) AS suma_rangos FROM cte_rango WHERE rank_date BETWEEN 1 AND 3 AND declined = 1 GROUP BY id HAVING SUM(rank_date) = 6) UPDATE credit_cards_declinated SET status = CASE WHEN id IN (SELECT id FROM cte_listado_declinadas) THEN 'inactive' ELSE 'active' END;	5000 row(s) affected Rows matched: 5000 Changed: 5000 Warnings: 0	2.516 sec

Ho comprovo:

```

391 SELECT * FROM credit_cards_declinated WHERE status = "inactive";
392

```

id	status
CC-4870	inactive
CC-4899	inactive
CC-4998	inactive
CC-5035	inactive
CC-5568	inactive
CC-5568	inactive

#	Time	Action	Message	Duration / Fetch
24	19:28:14	SELECT cc.id, ROUND(AVG(t.amount)) AS average_amount FROM credit_cards cc JOIN transactions t ON cc.id = t.card_id JOIN cte_rango AS cr ON cc.id = cr.id	370 row(s) returned	0.015 sec / 0.000 sec
25	19:29:20	CREATE TABLE credit_cards_declinated AS (SELECT id FROM credit_cards)	5000 row(s) affected Records: 5000 Duplicates: 0 Warnings: 0	0.500 sec
26	19:30:00	ALTER TABLE credit_cards_declinated ADD status varchar(8)	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	0.187 sec
27	19:30:28	ALTER TABLE credit_cards_declinated ADD PRIMARY KEY (id)	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	0.765 sec
28	19:32:05	ALTER TABLE credit_cards_declinated ADD CONSTRAINT fk_declinated_credit_cards FOREIGN KEY (id) REFERENCES credit_cards (id)	5000 row(s) affected Records: 5000 Duplicates: 0 Warnings: 0	1.000 sec
29	19:33:18	WITH cte_rango AS (SELECT c.id, timestamp AS date_transaction, t.declined, DENSE_RANK() OVER (PARTITION BY c.id ORDER BY timestamp desc) AS rank_date FROM credit_cards c JOIN transactions t ON t.card_id = c.id) , cte_listado_declinadas AS (SELECT id, SUM(rank_date) AS suma_rangos FROM cte_rango WHERE rank_date BETWEEN 1 AND 3 AND declined = 1 GROUP BY id HAVING SUM(rank_date) = 6) UPDATE credit_cards_declinated SET status = CASE WHEN id IN (SELECT id FROM cte_listado_declinadas) THEN 'inactive' ELSE 'active' END;	5000 row(s) affected Rows matched: 5000 Changed: 5000 Warnings: 0	2.516 sec
30	19:33:58	SELECT * FROM credit_cards_declinated WHERE status = "inactive"	5 row(s) returned	0.000 sec / 0.000 sec

Exercici 1

Quantes targetes estan actives?

He aplicat una consulta en la que es contenen el número de targetes on la condició és que han d'estar actives:

```

392
393 -- Exercici 1
394 -- Quantes targetes estan actives?
395 • SELECT count(id) AS active_credit_card
396   FROM credit_cards_declinated
397  WHERE status = "active";
398
399 • select * from transactions where card_id = 'Cc5-4998';
400
401 --

```

active_credit_card

4995

Result 7 x

Read Only Context Help Snippets

#	Time	Action	Message	Duration / Fetch
25	19:29:20	CREATE TABLE credit_cards_declinated AS (SELECT id FROM credit_cards)	5000 row(s) affected Records: 5000 Duplicates: 0 Warnings: 0	0.500 sec
26	19:30:00	ALTER TABLE credit_cards_declinated ADD status varchar(1)	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	0.187 sec
27	19:30:28	ALTER TABLE credit_cards_declinated ADD PRIMARY KEY (id)	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	0.765 sec
28	19:32:05	ALTER TABLE credit_cards_declinated ADD CONSTRAINT fk_declinated_credit_cards FOREIGN KEY (id) REFERENCES credit_cards (id)	5000 row(s) affected Records: 5000 Duplicates: 0 Warnings: 0	1.000 sec
29	19:33:18	WITH cte_rango AS (SELECT c.id, timestamp AS date_transaction, t.declined, DENSE_RANK() OVER (PARTITION BY c.id ORDER BY t.timestamp) AS rank) SELECT * FROM cte_rango WHERE rank < 2	5000 row(s) affected Rows matched: 5000 Changed: 5000 Warnings: 0	2.516 sec
30	19:33:58	SELECT * FROM credit_cards_declinated WHERE status = "inactive"	5 row(s) returned	0.000 sec / 0.000 sec
31	19:34:27	SELECT count(id) AS active_credit_card FROM credit_cards_declinated WHERE status = "active"	1 row(s) returned	0.000 sec / 0.000 sec

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:

- **Càrrega i modelatge de la taula products**

Seguiré els mateixos passos que s'ha fet per crear el model d'estrella:

Creo i carrego la taula:

```

485 • CREATE TABLE products (
486   id VARCHAR (10) NULL,
487   product_name VARCHAR (255) NULL,
488   price VARCHAR(255) NULL,
489   colour VARCHAR(255) NULL,
490   weight FLOAT NULL,
491   warehouse_id VARCHAR(255) NULL
492 );
493
494 • LOAD DATA
495   INFILE "C:\ProgramData\MySQL\MySQL Server 8.0\Uploads\products.csv"
496   INTO TABLE products
497   FIELDS TERMINATED BY ','
498   ENCLOSED BY '"'
499   LINES TERMINATED BY "\n"
500   IGNORE 1 ROWS;
501
502 • select * from products;
503

```

Veiem com són les dades:

```

422 • select * from products;
423

```

id	product_name	price	colour	weight	warehouse_id
1	Oswell Stannus	\$161.11	#7C7C7C	1	WH-4
2	Tiely Stark	\$9.24	#919191	2	WH-3
3	duel tourney Lannister	\$171.13	#8D8D8D	1.5	WH-2
4	warden south duel	\$71.89	#111111	3	WH-1
5	skysailer evok	\$171.22	#0B0B0B	3.2	WH-0
6	dooku solo	\$136.60	#161616	0.8	WH-1
7	north of Casterly	\$63.33	#767676	0.6	WH-2
8	Winterfell	\$32.37	#383838	1.4	WH-3
9	Winterfell	\$76.40	#505050	1.2	WH-4
10	Karstark Dorne	\$119.52	#646464	2.4	WH-5
11	Karstark Dorne	\$49.70	#141414	2.7	WH-6

Veiem longitud de les dades

I fem les següents modificacions per tal de tenir els tipus de dades desitjats:

Id: el posarem INT NOT NULL

Product_name: VARCHAR més curt

Price: trèiem el símbol \$ i el pasem a FLOAT

Colour: VARCHAR més curt

Deixo weight com l'he grabat

warehouse_id: VARCHAR més curt

```

428 -- CANVIO TIPUS DE VALOR DE id
429 ALTER TABLE products
430 MODIFY id INT NOT NULL;
431 -- CANVIO TIPUS DE VALOR DE product_name
432 ALTER TABLE products
433 MODIFY product_name VARCHAR(100) NOT NULL;
434 -- trec el símbol de dolar i després li dono un tipus de valor FLOAT a la columna price
435 UPDATE products
436 SET price = (SELECT REPLACE(price, '$', ''));
437 ALTER TABLE products
438 MODIFY price FLOAT NOT NULL;
439 -- canvio tipus de valor al camp colour
440 ALTER TABLE products
441 MODIFY colour VARCHAR(7);
442 -- DEIXO WEIGHT COM L'HE GRABAT
443 -- CANVIO TIPUS DE VALOR warehouse_id
444 ALTER TABLE products
445 MODIFY warehouse_id VARCHAR(6);

```

#	Time	Action	Message	Duration / Fetch
44	20:07:03	SELECT MAXLENGTH(product_name), MAXLENGTH(colour), MAXLENGTH(warehouse_id) FROM products	1 row(s) returned	0.000 sec / 0.000 sec
45	20:12:38	ALTER TABLE products MODIFY id INT NOT NULL	100 row(s) affected Records: 100 Duplicates: 0 Warnings: 0	0.516 sec
46	20:12:40	ALTER TABLE products MODIFY product_name VARCHAR(100) NOT NULL	100 row(s) affected Records: 100 Duplicates: 0 Warnings: 0	0.484 sec
47	20:12:43	UPDATE products SET price = (SELECT REPLACE(price, '\$', ''))	100 row(s) affected Rows matched: 100 Changed: 100 Warnings: 0	0.031 sec
48	20:12:45	ALTER TABLE products MODIFY price FLOAT NOT NULL	100 row(s) affected Records: 100 Duplicates: 0 Warnings: 0	0.703 sec
49	20:12:47	ALTER TABLE products MODIFY colour VARCHAR(7)	100 row(s) affected Records: 100 Duplicates: 0 Warnings: 0	0.516 sec
50	20:12:52	ALTER TABLE products MODIFY warehouse_id VARCHAR(6)	100 row(s) affected Records: 100 Duplicates: 0 Warnings: 0	0.765 sec

Creo la PK:

```

447 -- CREO LA PK DE LA TAULA products
448
449 ALTER TABLE products
450 ADD PRIMARY KEY (id);
451

```

#	Time	Action	Message	Duration / Fetch
45	20:12:38	ALTER TABLE products MODIFY id INT NOT NULL	100 row(s) affected Records: 100 Duplicates: 0 Warnings: 0	0.516 sec
46	20:12:40	ALTER TABLE products MODIFY product_name VARCHAR(100) NOT NULL	100 row(s) affected Records: 100 Duplicates: 0 Warnings: 0	0.484 sec
47	20:12:43	UPDATE products SET price = (SELECT REPLACE(price, '\$', ''))	100 row(s) affected Rows matched: 100 Changed: 100 Warnings: 0	0.031 sec
48	20:12:45	ALTER TABLE products MODIFY price FLOAT NOT NULL	100 row(s) affected Records: 100 Duplicates: 0 Warnings: 0	0.703 sec
49	20:12:47	ALTER TABLE products MODIFY colour VARCHAR(7)	100 row(s) affected Records: 100 Duplicates: 0 Warnings: 0	0.516 sec
50	20:12:52	ALTER TABLE products MODIFY warehouse_id VARCHAR(6)	100 row(s) affected Records: 100 Duplicates: 0 Warnings: 0	0.765 sec
51	20:13:39	ALTER TABLE products ADD PRIMARY KEY (id)	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	0.391 sec

- **Creació de la taula intermitja: products.transactions**

Inicialment, la taula la he creat utilitzant la funció Length() i la funció SUBSTRING_INDEX(). Donava correctament, però durant la correcció de l'exercici m'han explicat que la miller manera de realitzar-lo és utilitzant la funció JSON_TABLE(), i finalment he decidit fer-ho amb aquesta funció. Per completar la informació de la decisió he de dir que als apunts indiquen que per fer taules Intermitges és millor utilitzar aquesta funció.

```

477 CREATE TABLE products_transactions AS (
478     SELECT t.id, jt.product_id
479     FROM transactions t
480     CROSS JOIN JSON_TABLE(
481         CONCAT('[', REPLACE(t.product_ids, ',', ''), ']', ' '),
482         '$[*]' COLUMNS (product_id INT PATH "$") -- SI ES LISTA SÓLO SE PONE EL DOLAR
483     ) AS jt
484 );
485

```

#	Time	Action	Message	Duration / Fetch
27	19:30:28	ALTER TABLE credit_cards_declined ADD PRIMARY KEY (id)	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	0.765 sec
28	19:32:05	ALTER TABLE credit_cards_declined ADD CONSTRAINT fk_declined_credit_cards FOREIGN KEY (id) REFERENCES credit_cards (id)	5000 row(s) affected Records: 5000 Duplicates: 0 Warnings: 0	1.000 sec
29	19:33:18	WITH cte_ranking AS (SELECT c.id, timestamp AS date_transaction, t.declined, DENSE_RANK() OVER (PARTITION BY c.id ORDER BY t.timestamp) AS rank) SELECT * FROM cte_ranking WHERE rank = 1	5000 row(s) affected Rows matched: 5000 Changed: 5000 Warnings: 0	2.516 sec
30	19:33:58	SELECT * FROM credit_cards_declined WHERE status = 'inactive'	5 row(s) returned	0.000 sec / 0.000 sec
31	19:34:27	SELECT count(*) AS active_credit_cards FROM credit_cards_declined WHERE status = 'active'	1 row(s) returned	0.000 sec / 0.000 sec
32	19:44:58	CREATE TABLE products_transactions AS (SELECT t.id, jt.product_id FROM transactions t CROSS JOIN JSON_TABLE(CONCAT('[', REPLACE(t.product_ids, ',', ''), ']', ' '), '\$[*]' COLUMNS (product_id INT PATH "\$") -- SI ES LISTA SÓLO SE PONE EL DOLAR) AS jt)	Error Code: 1146 Table 'ventas.transactions' doesn't exist	0.000 sec
33	19:45:28	CREATE TABLE products_transactions AS (SELECT t.id, jt.product_id FROM transactions t CROSS JOIN JSON_TABLE(CONCAT('[', REPLACE(t.product_ids, ',', ''), ']', ' '), '\$[*]' COLUMNS (product_id INT PATH "\$") -- SI ES LISTA SÓLO SE PONE EL DOLAR) AS jt)	253391 row(s) affected Records: 253391 Duplicates: 0 Warnings: 0	6.484 sec

SPRINT4

The screenshot displays a database management interface. On the left, a tree view shows the database structure with tables like 'ventas', 'productos', 'transacciones', and 'usuarios'. The main area shows a list of SQL queries, including creating tables, adding constraints, and performing data operations. The bottom pane shows the execution output for these queries, including timestamps, messages, and durations.

Creem les Foreign key: amb la taula transaction i amb la taula products

The screenshot displays a database management interface. On the left, a tree view shows the database structure with tables like 'ventas', 'productos', 'transacciones', and 'usuarios'. The main area shows a list of SQL queries, including creating tables, adding constraints, and performing data operations. The bottom pane shows the execution output for these queries, including timestamps, messages, and durations.

Exercici 1

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

```

492 -- Genera la següent consulta:
493 -- Exercici 1
494 -- Necessitem conèixer el nombre de vegades que s'ha venut cada producte.
495
496 SELECT p.id, p.product_name, COUNT(pt.product_id)
497 FROM products p
498 JOIN products_transactions pt

```

id	product_name	COUNT(pt.product_id)
1	Direwolf Stannis	2467
2	Tarly Stark	2562
3	duel tourney Lannister	2520
4	warden south duel	2573
5	skywalker evok	2543
6	dooku solo	2487
7	north of Casterly	2555
8	Winterfell	2495
9	Winterfell	2508
10	Karstark Dome	2561
11	Karstark Dome	2559
12	duel Direwolf	2548
13	palpatine chevbacca	2555
14	Direwolf	2489
15	Stannis warden	2524
16	the duel warden	2602
17	skywalker evok sith	2523
18	Karstark warden	2542
19	dooku solo	2446
20	warden Karstark	2492
21	duel Direwolf	2603

Durant la revisió de l'exercici hem vist que donava correcte però que hi havia noms de productes repetits i hem fet la prova afegint les altres característiques que defineixen el producte i veiem que encara que el nom és el mateix l'id del producte diferencia no només el nom si no les altres característiques:

```

586 -- En veure les repeticions de nom mirem a veure per què amb els altres camps que defineixen el producte:
587
588 SELECT p.id, p.product_name, colour, weight, price, COUNT(pt.product_id)
589 FROM products p
590 JOIN products_transactions pt
591 ON p.id = pt.product_id
592 JOIN transactions t
593 ON t.id = pt.transaction_id
594 WHERE t.declined = 0
595 GROUP BY p.id
596 ORDER BY p.id;

```

id	product_name	colour	weight	price	COUNT(pt.product_id)
1	Direwolf Stannis	#7c7c7c	1	161.11	2467
2	Tarly Stark	#919191	2	9.24	2562
3	duel tourney Lannister	#d8d8d8	1.5	171.13	2520
4	warden south duel	#111111	3	71.89	2573
5	skywalker evok	#d8d8d8	3.2	171.22	2543
6	dooku solo	#c4c4c4	0.8	136.6	2487
7	north of Casterly	#b7b7b7	0.6	63.33	2555
8	Winterfell	#383838	1.4	32.37	2495
9	Winterfell	#b3b3b3	1.2	76.4	2508
10	Karstark Dome	#f4f4f4	2.4	119.52	2561
11	Karstark Dome	#141414	2.7	49.7	2559
12	duel Direwolf	#a8a8a8	2.1	181.6	2548
13	palpatine chevbacca	#2b2b2b	1	139.59	2555
14	Direwolf	#c4c4c4	2	147.53	2489
15	Stannis warden	#d8d8d8	1.5	194.29	2524
16	the duel warden	#666666	3	180.91	2602
17	skywalker evok sith	#7c7c7c	3.2	91.89	2523
18	Karstark warden	#c4c4c4	0.8	148.91	2542
19	dooku solo	#3f3f3f	0.6	60.33	2446
20	warden Karstark	#b3b3b3	1.4	91.96	2492
21	duel Direwolf	#2e2e2e	1.2	96.9	2603