

1	Descripció	2
2	Nivell 1	2
2.1	Disseny de la base de dades amb almenys 4 taules	2
2.1.1	Creació de la nova base de dades	2
2.1.2	Creació de l'estructura de la taula companies	4
2.1.3	Creació de l'estructura de la taula users	5
2.1.4	Creació de la taula credit_card	6
2.1.5	Creació de l'estructura de la taula transactions	8
2.1.6	Automatitzar en Excel per generar codi SQL per inserir les dades a la taula users	9
2.1.7	Automatitzar en Excel per generar codi SQL per inserir les dades a la taula companies	13
2.1.7.1	Variant de la solució anterior utilitzant instrucció LOAD DATA (millor opció)	15
2.1.8	Automatitzar en Excel per generar codi SQL per inserir les dades a la taula credit_card	17
2.1.9	Automatitzar en Excel per generar codi SQL per inserir les dades a la taula transactions	19
2.1.10	Diagrama de la base de dades a MySQL Workbench	23
2.2	Exercici 1	25
2.2.1	Codi sql de la solució	25
2.3	Exercici 2	26
2.3.1	Codi sql de la solució	26
3	Nivell 2	27
3.1	Creació taula Estat targetes de crèdit	27
3.2	Exercici 1	29
3.2.1	Codi sql de la solució	29
4	Nivell 3	30
4.1	Exercici 1	30
4.1.1	Creació estructura taula product_ids	30
4.1.2	Automatitzar en Excel per generar codi sql per inserir les dades a la taula product_ids	31
4.1.3	Construir taula intermèdia que relacioni transaccions i productes venuts	33
4.1.4	Relacions taula intermèdia trans_x_product amb base de dades bbdd_tasca_4	37
4.1.5	Diagrama de la base de dades al afegir taula intermèdia trans_x_product	37
4.1.6	Codi sql que dona resposta a la pregunta de l'exercici	38

1 Descripció

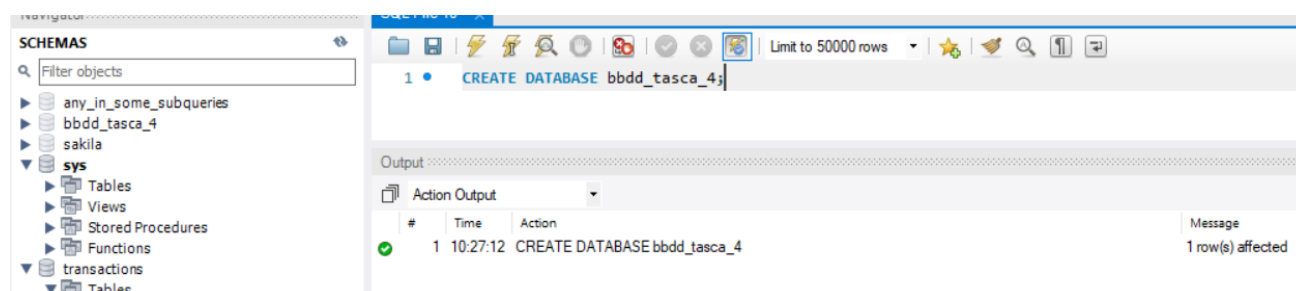
Partint d'alguns arxius CSV dissenyaràs i crearàs la teva base de dades.

2 Nivell 1

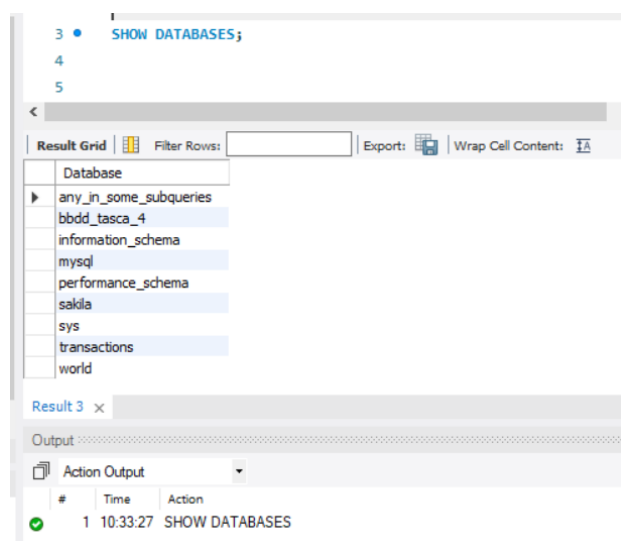
Descàrrega els arxius CSV, estudia'ls i dissenya una base de dades amb un esquema d'estrella que contingui, almenys 4 taules de les quals puguis realitzar les següents consultes:

2.1 Disseny de la base de dades amb almenys 4 taules

2.1.1 Creació de la nova base de dades



Si faig SHOW DATABASES; ja veig que apareix bbdd_tasca_4;



```
7 • SHOW CREATE DATABASE bdd_tasca_4;
```

```
8
```

```
9
```

Result Grid	
Database	Create Database
bdd_tasca_4	CREATE DATABASE `bdd_tasca_4` /*!40100 ...

Result 4		
Output		
Action Output		
#	Time	Action
✓ 1	10:37:19	SHOW CREATE DATABASE bdd_tasca_4

Veig automàticament que té les propietats que m'interessen

Edit Data for Create Database (VARCHAR)

Binary Text

1 CREATE DATABASE `bdd_tasca_4` /*!40100 DEFAULT CHARACTER SET utf8mb4 COLLATE utf8mb4_0900_ai_ci */
/*!80016 DEFAULT ENCRYPTION='N' */

Data Length: 134 bytes

Save... Close

```
24 • USE transactions;
```

```
25 • SHOW CREATE TABLE company;
```

```
26
```

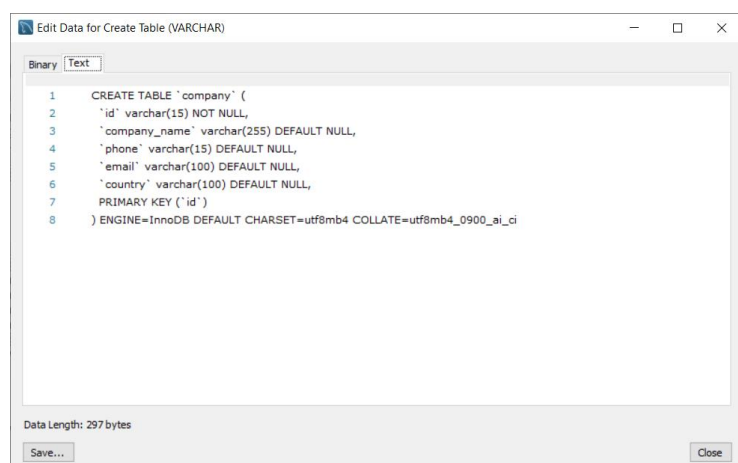
Result Grid	
Table	Create Table
company	CREATE TABLE `company` (`id` varchar(15) NOT NULL, `company_name` varchar(255) DEFAULT NULL, `phone` varchar(15)

Result 6

Output

Action Output

#	Time	Action	Message
1	11:15:20	USE transactions	0 row(s) affected
2	11:15:20	SHOW CREATE TABLE company	1 row(s) returned



Així que l'estructura em serveix.

2.1.2 Creació de l'estructura de la taula companies

Com que les taules estan a diferents bases de dades el CREATE TABLE LIKE s'ha de fer com segueix, i faig ALTER per modificar el nom de la primera columna, i afegir una variable més de website.

```

27 • CREATE TABLE bdd_tasca_4.companies LIKE transactions.company;
28 • USE bdd_tasca_4;
29 • ALTER TABLE companies RENAME COLUMN id TO company_id;
30 • ALTER TABLE companies ADD COLUMN website VARCHAR(100);
31 • SHOW CREATE TABLE companies;
32

```

Table	Create Table
companies	CREATE TABLE `companies` (`company_id` varchar(15) NOT NULL, `company_name` varchar(255) DEFAULT NULL, `phone` varchar(15) DEFAULT NULL, `email` varchar(100) DEFAULT NULL, `country` varchar(100) DEFAULT NULL, PRIMARY KEY (`company_id`)) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci

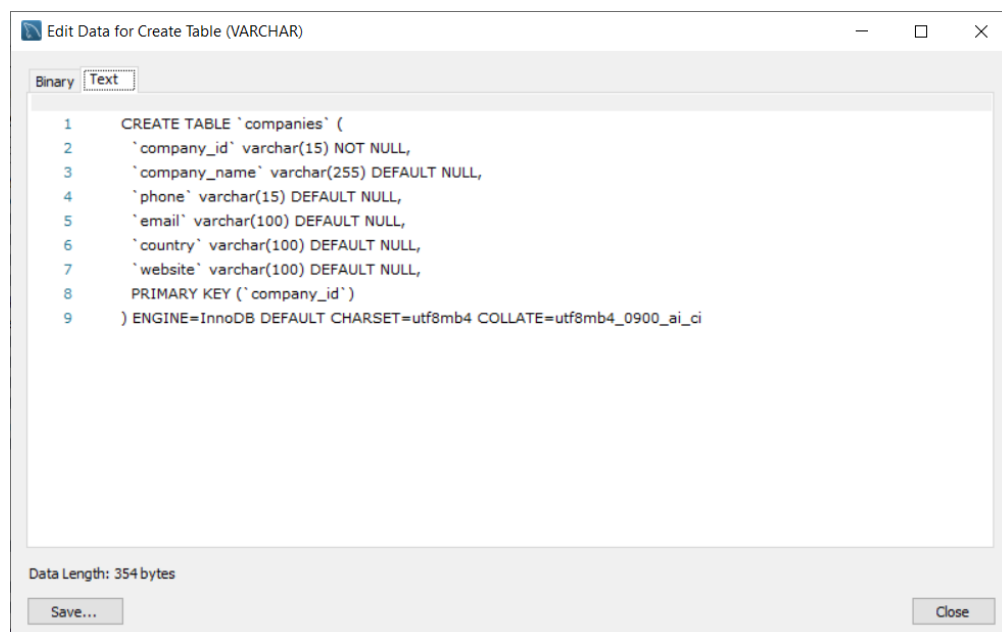
Result 8 x

Output

Action Output

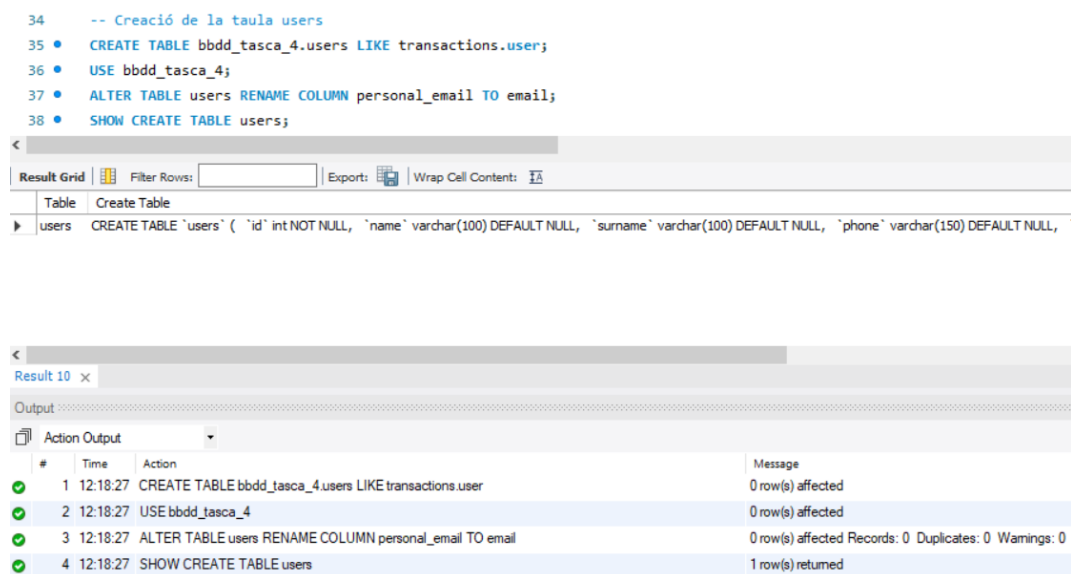
#	Time	Action	Message
1	12:11:33	DROP TABLE `bdd_tasca_4`.`companies`	0 row(s) affected
2	12:11:44	CREATE TABLE bdd_tasca_4.companies LIKE transactions.company	0 row(s) affected
3	12:11:44	USE bdd_tasca_4	0 row(s) affected
4	12:11:44	ALTER TABLE companies RENAME COLUMN id TO company_id	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0
5	12:11:44	ALTER TABLE companies ADD COLUMN website VARCHAR(100)	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0
6	12:11:44	SHOW CREATE TABLE companies	1 row(s) returned

Així doncs aquesta estructura em serveix per omplir les dades;

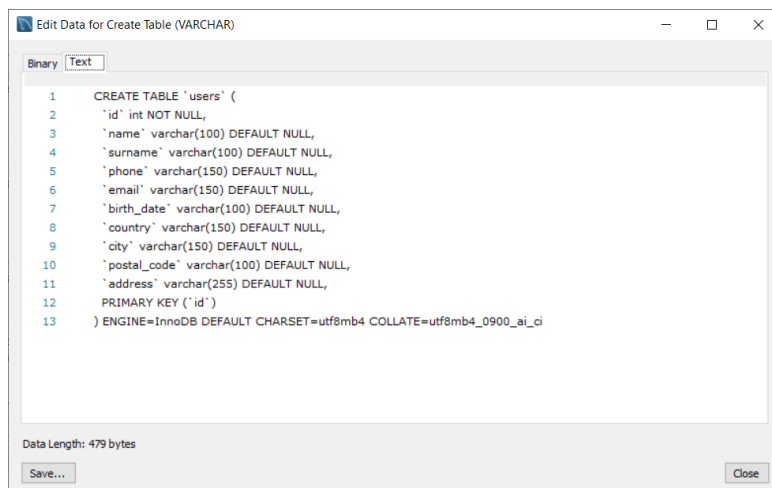


2.1.3 Creació de l'estructura de la taula users

Faig el mateix per crear la taula *users*:



I l'estructura permetrà complementar els valors:



Però com que tinc varis csv de *users* de diferents països, crearé les diferents taules de *users* per país i després les fusionaré.

```
27 • USE bbdd_tasca_4;
28 • CREATE TABLE users_ca LIKE users;
29 • CREATE TABLE users_uk LIKE users;
30 • CREATE TABLE users_usa LIKE users;
```

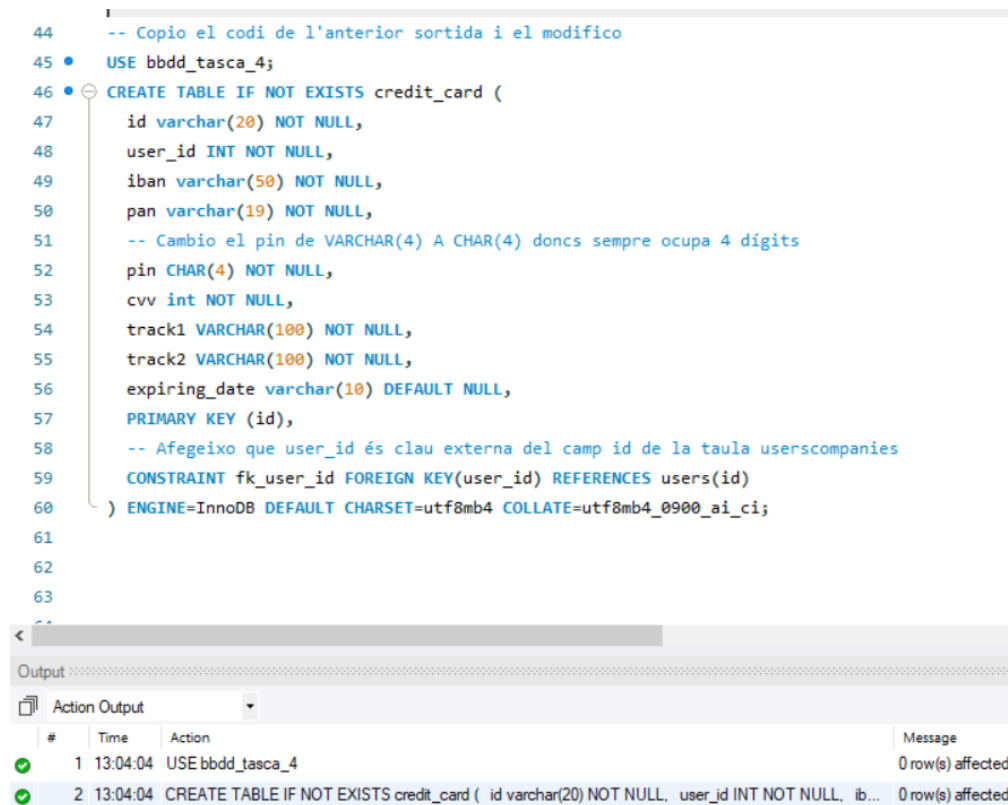
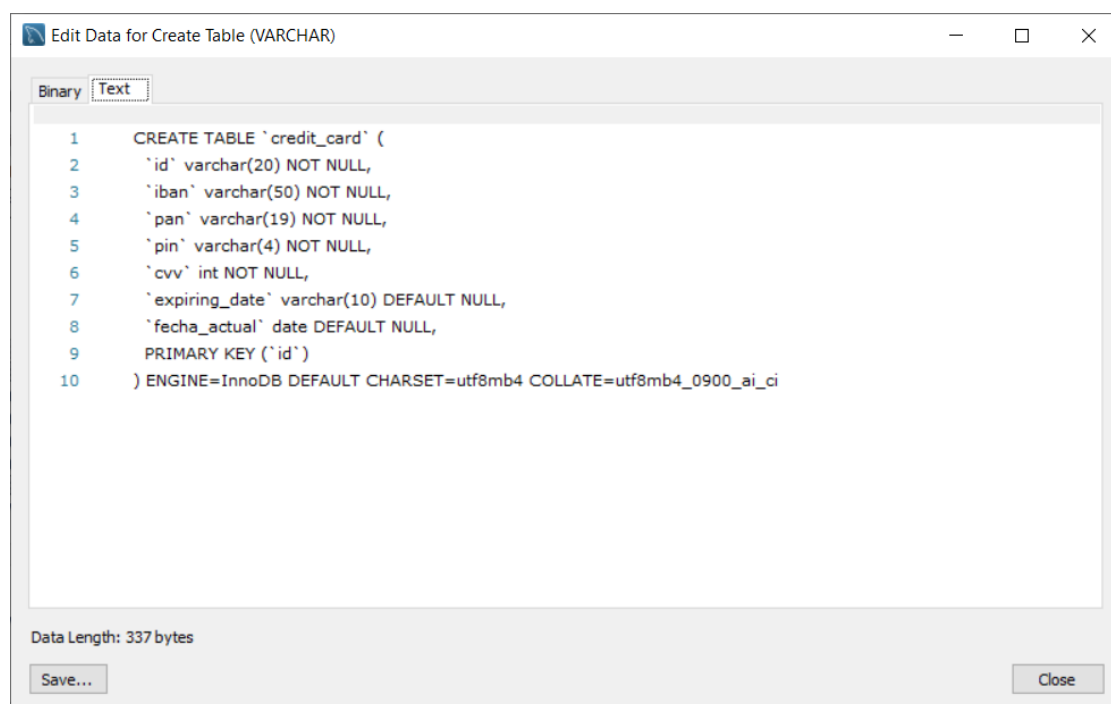
#	Time	Action	Message
✓ 1	11:30:24	USE bbdd_tasca_4	0 row(s) affected
✓ 2	11:30:24	CREATE TABLE users_ca LIKE users	0 row(s) affected
✓ 3	11:30:24	CREATE TABLE users_uk LIKE users	0 row(s) affected
✓ 4	11:30:24	CREATE TABLE users_usa LIKE users	0 row(s) affected

2.1.4 Creació de la taula credit_card

Com que veig que les columnes de credit_card.csv no tenen el mateix ordre que els Sprints anteriors, el que faré és un SHOW CREATE TABLE, copiaré el codi, i l'insertaré al Workbench i faré les modificacions pertinents.

```
40 • USE transactions;
41 • SHOW CREATE TABLE credit_card;
42
43
```

#	Time	Action	Message
✓ 1	12:36:19	USE transactions	0 row(s) affected
✓ 2	12:36:19	SHOW CREATE TABLE credit_card	1 row(s) returned



Refrescant l'esquema també veig com es la nova taula i també veig que *user_id* és clau externa.

Table: credit_card**Columns:**

id	varchar(20) PK
user_id	int
iban	varchar(50)
pan	varchar(19)
pin	char(4)
cvv	int
track1	varchar(100)
track2	varchar(100)
expiring_date	varchar(10)

2.1.5 Creació de l'estructura de la taula transactions

Com que l'ordre de les columnes és diferent en aquest cas, es més fàcil copiar l'estructura del SHOW CREATE TABLE al Workbench i després canviar l'ordre i els noms tal com l'arxiu csv.

The screenshot shows the MySQL Workbench interface. The SQL editor contains the following commands:

```

39 -- Creació taula transaction
40 USE transactions;
41 SHOW CREATE TABLE transaction;

```

The 'Result Grid' shows the output of the 'SHOW CREATE TABLE' command:

Table	Create Table
transaction	CREATE TABLE `transaction` (`id` varchar(255) NOT NULL, `credit_card_id` varchar(15) DEFAULT NULL, `company_id` var

The 'Output' pane shows the execution results:

#	Time	Action	Message
1	12:27:56	USE transactions	0 row(s) affected
2	12:27:56	SHOW CREATE TABLE transaction	1 row(s) returned

The screenshot shows the 'Edit Data for Create Table (VARCHAR)' dialog box. The 'Text' tab is selected, displaying the full CREATE TABLE statement for the 'transaction' table:

```

1 CREATE TABLE `transaction` (
2   `id` varchar(255) NOT NULL,
3   `credit_card_id` varchar(15) DEFAULT NULL,
4   `company_id` varchar(20) DEFAULT NULL,
5   `user_id` int DEFAULT NULL,
6   `lat` float DEFAULT NULL,
7   `longitude` float DEFAULT NULL,
8   `timestamp` timestamp NULL DEFAULT NULL,
9   `amount` decimal(10,2) DEFAULT NULL,
10  `declined` tinyint(1) DEFAULT NULL,
11  PRIMARY KEY (`id`),
12  KEY `company_id` (`company_id`),
13  KEY `transaction` (`credit_card_id`),
14  KEY `idx_user_id` (`user_id`),
15  CONSTRAINT `fk_credit_card_id` FOREIGN KEY (`credit_card_id`) REFERENCES `credit_card` (`id`),
16  CONSTRAINT `fk_user_id` FOREIGN KEY (`user_id`) REFERENCES `user` (`id`),
17  CONSTRAINT `transaction_ibfk_1` FOREIGN KEY (`company_id`) REFERENCES `company` (`id`)
18 ) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci

```

The 'Data Length' is 815 bytes. The 'Save...' button is visible at the bottom left, and the 'Close' button is at the bottom right.

Com que l'ordre i els noms de les columnes em canvien respecte al arxiu *transactions.csv* com abans m'és més còmode copiar el codi al Workbench i modificar-lo.

Així doncs:

```

67 • USE bdd_tasca_4;
68 • CREATE TABLE IF NOT EXISTS transactions (
69     id varchar(255) NOT NULL,
70     card_id varchar(15) DEFAULT NULL,
71     business_id varchar(20) DEFAULT NULL,
72     timestamp timestamp NULL DEFAULT NULL,
73     amount decimal(10,2) DEFAULT NULL,
74     declined tinyint(1) DEFAULT NULL,
75     -- Afegeixo aquest camp
76     product_ids VARCHAR(20) DEFAULT NULL,
77     user_id int DEFAULT NULL,
78     lat float DEFAULT NULL,
79     longitude float DEFAULT NULL,
80     PRIMARY KEY (id),
81     -- Deixo els índexs qque m'aniran bé per fer les consultes més ràpides
82     KEY company_id (business_id),
83     KEY transactions (card_id),
84     KEY idx_user_id (user_id),
85     CONSTRAINT fk_card_id FOREIGN KEY (card_id) REFERENCES credit_card (id),
86     CONSTRAINT fk2_user_id FOREIGN KEY (user_id) REFERENCES users (id),
87     CONSTRAINT fk_business_id FOREIGN KEY (business_id) REFERENCES companies (company_id)
88 ) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci;

```

#	Time	Action	Message
3	13:41:16	USE bdd_tasca_4	0 row(s) affected
4	13:41:16	CREATE TABLE IF NOT EXISTS transactions (id varchar(255) NOT NULL, card_id varchar(15) DE...	0 row(s) affected, 1 warning(s): 1681 Integer display width is deprecated and will be removed in a future...

He mirat el Warning i és un tema de versió, però no sembla que hagi de donar problemes.

2.1.6 Automatitzar en Excel per generar codi SQL per inserir les dades a la taula users

De la taula *user_usa.csv*, fem separació de columnes i obtenim un arxiu *user_usa.xlsx*. A la última columna de la fila 2 inserim el següent codi (cel.la K2):

```

=CONCATENAR("INSERT INTO users_usa
('$A$1;";"$B$1;";"$C$1;";"$D$1;";"$E$1;";"$F$1;";"$G$1;";"$H$1;";"$I$1;";"$J$1; ") VALUES
("$A2;";";";B2;";";";C2;";";";D2;";";";E2;";";";F2;";";";G2;";";";H2;";";";I2;";";";J2;";";");")

```

Arrastrem per totes les files de l'arxiu, i finalment peguem el codi al Workbench i ho executem en un nou arxiu denominat: .

Comprovo el codi sql, i veig que per culpa del cognom de *O'donnell* ens fallaria a partir del *id=45*. Així el que faig es escriure 'O'donnell', per tal que l'apòstrof del cognom no l'agafi com un operador.

```

38 • postal_code,address) VALUES (36,'Raymond','Thornton','1-581-648-7426','enim.nisl@google.edu','Dec 6, 1982','United States','Kansas City','26231',
39 • postal_code,address) VALUES (37,'Graiden','Glover','(888) 957-3868','non.hendrerit@hotmail.ca','Nov 11, 1987','United States','Portland','35397',
40 • postal_code,address) VALUES (38,'Abra','Doyle','(367) 861-9621','augue.eu@outlook.edu','Aug 22, 1986','United States','Chicago','54137','409-9169',
41 • postal_code,address) VALUES (39,'Nyssa','Shaffer','1-899-494-4941','malesuada.fames@google.ca','Jul 2, 1991','United States','Columbus','27828',
42 • postal_code,address) VALUES (40,'Astra','Alexander','1-877-546-5066','lectus.nullam.suscipit@google.org','Mar 12, 1983','United States','Columbus',
43 • postal_code,address) VALUES (41,'Uriel','Hebert','1-265-846-2455','donec@outlook.com','Nov 30, 1981','United States','Juneau','33549','670-5867 E
44 • postal_code,address) VALUES (42,'Lucy','Branch','(459) 164-9989','odio.etiam@aol.couk','Oct 31, 1991','United States','Joliet','27874','134-848 0
45 • postal_code,address) VALUES (43,'Jayme','Chavez','(542) 568-7326','fusce.feugiat@outlook.com','Jul 29, 1984','United States','Aurora','28283','86
46 • postal_code,address) VALUES (44,'Aquila','Haley','1-951-243-1892','tempus.risus@outlook.edu','Jan 21, 1996','United States','Newark','51734','Ap
47 • postal_code,address) VALUES (45,'Richard','O'Donnell','1-275-844-6782','ac.nulla@outlook.org','Oct 4, 1986','United States','Frankfort','72520',
48 • postal_code,address) VALUES (46,'Alika','Valdez','(781) 178-0838','dapibus.gravida@yahoo.net','Aug 8, 1990','United States','Salem','55729','P.O.
49 • postal_code,address) VALUES (47,'Herrod','Wright','(575) 645-3218','odio.auctor.vitae@yahoo.edu','Nov 11, 1999','United States','Fort Wayne','728
50 • postal_code,address) VALUES (48,'Patrick','Reyes','1-607-729-5993','conubia.nostra@icloud.com','Jul 29, 1986','United States','San Jose','96740',
51 • postal_code,address) VALUES (49,'Lev','Roth','1-685-331-7392','auctor.vitae.aliquet@yahoo.net','Dec 3, 1981','United States','Richmond','52748',
52 • postal_code,address) VALUES (50,'Aretha','Chang','1-634-250-1977','suspendisse.aliquet.molestie@hotmail.edu','May 11, 1998','United States','Jone
53 • postal_code,address) VALUES (51,'Lionel','Griffith','1-816-243-8788','ultrices.sem.magna@yahoo.org','Apr 3, 1993','United States','Wichita','176

```

```

1 • USE bbdd_tasca_4;
2
3 • INSERT INTO users_usa (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (1,'Zeus','Gamble','1-282-581-0551','interdum.enim@protonmail.edu','Nov 17, 1985','Unit
4 • INSERT INTO users_usa (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (2,'Garrett','Mcconnell','(718) 257-2412','integer.vitae.nibh@protonmail.org','Aug 23, 1
5 • INSERT INTO users_usa (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (3,'Ciaran','Harrison','(522) 598-1365','interdum.feugiat@aol.org','Apr 29, 1998','Unit
6 • INSERT INTO users_usa (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (4,'Howard','Stafford','1-411-740-3269','ornare.egestas@icloud.edu','Feb 18, 1989','Unit
7 • INSERT INTO users_usa (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (5,'Hayfa','Pierce','1-554-541-2077','et.malesuada.fames@hotmail.org','Sep 26, 1998','Ur
8 • INSERT INTO users_usa (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (6,'Joel','Tyson','(718) 288-8020','gravida.nunc.sed@yahoo.ca','Oct 15, 1989','United St
9 • INSERT INTO users_usa (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (7,'Rafael','Jimenez','(817) 689-0478','eget@outlook.ca','Dec 4, 1981','United States',
10 • INSERT INTO users_usa (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (8,'Missin','Franks','(692) 157-3469','egestas.aliquam.fringilla@google.ca','Aug 1, 199
11 • INSERT INTO users_usa (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (9,'Mannix','Mcclain','(598) 883-2184','aliquam.nisl@outlook.com','Jan 24, 1987','Unit
12 • INSERT INTO users_usa (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (10,'Robert','McCarthy','(324) 746-6771','fermentum@protonmail.com','Apr 30, 1984','Unit
13 • INSERT INTO users_usa (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (11,'Joan','Baird','(981) 429-8106','et@outlook.net','Feb 25, 1990','United States','Lir
14 • INSERT INTO users_usa (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (12,'Benedict','Wheeler','1-515-824-2855','tincidunt.donec.vitae@hotmail.couk','Aug 6, 1
15 • INSERT INTO users_usa (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (13,'Allegra','Stanton','1-927-753-6488','proin.eget@protonmail.ca','May 19, 1990','Unit
16 • INSERT INTO users_usa (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (14,'Sara','Flynn','1-311-646-9333','integer@outlook.net','Dec 27, 1988','United States'
17 • INSERT INTO users_usa (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (15,'Noelani','Patrick','1-723-488-5894','sem.magna@google.com','Sep 17, 1993','United S
18 • INSERT INTO users_usa (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (16,'Eric','Roth','1-218-549-8253','lorem.sit@yahoo.net','Sep 7, 1988','United States',
19 • INSERT INTO users_usa (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (17,'Bruce','Gill','(744) 732-8628','metus@aol.net','Mar 4, 1990','United States','Daver
20 • INSERT INTO users_usa (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (18,'Russell','Jimenez','(657) 779-2438','orci@outlook.edu','Aug 26, 1993','United State
21 • INSERT INTO users_usa (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (19,'Nicholas','Travis','1-330-223-9652','libero.dui@hotmail.com','Jul 15, 1981','Unit
22 • INSERT INTO users_usa (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (20,'Kelsey','Bates','(653) 724-4754','ullamcorper.nisl@aol.com','May 6, 1981','United S
23 • INSERT INTO users_usa (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (21,'Hall','Reeves','(241) 759-9235','erat.eget@hotmail.edu','Jul 22, 1987','United Stat
24 • INSERT INTO users_usa (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (22,'Allistair','Holmes','1-265-323-0812','donec.tempor.est@protonmail.com','Nov 5, 199
25 • INSERT INTO users_usa (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (23,'Kelsie','Bass','1-837-832-5631','consequat@google.ca','Apr 2, 1990','United States'
26 • INSERT INTO users_usa (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (24,'Nolan','Cash','(273) 334-3785','nam@hotmail.com','Sep 9, 1994','United States','Owe
27 • INSERT INTO users_usa (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (25,'Wanda','Campbell','(702) 823-5535','sagittis@google.couk','May 31, 1999','United St
28 • INSERT INTO users_usa (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (26,'Aquila','Strickland','1-246-231-5495','enim.sit@icloud.com','Sep 28, 1982','United
29 • INSERT INTO users_usa (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (27,'Diana','Williamson','1-285-365-7779','id.nunc@google.com','Dec 14, 1991','United St
30 • INSERT INTO users_usa (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (28,'Elmo','Cain','1-663-583-6021','nec.metus.facilisis@google.org','Oct 13, 1980','Unit

```

Output

#	Time	Action	Message
146	12:09:30	INSERT INTO users_usa (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (144,'Jeanette','Blanchard','1-287-35...	1 row(s) affected
147	12:09:30	INSERT INTO users_usa (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (145,'Ursula','Stewart','1-442-838-67...	1 row(s) affected
148	12:09:30	INSERT INTO users_usa (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (146,'Priscilla','Skinner','(468) 855-07...	1 row(s) affected
149	12:09:30	INSERT INTO users_usa (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (147,'Brody','Talley','(307) 307-2751...	1 row(s) affected
150	12:09:30	INSERT INTO users_usa (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (148,'Kemy','Adkins','(520) 872-1974...	1 row(s) affected
151	12:09:30	INSERT INTO users_usa (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (149,'Brook','Doyle','(265) 140-9567...	1 row(s) affected
152	12:09:30	INSERT INTO users_usa (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (150,'Oleg','Coleman','1-131-139-567...	1 row(s) affected

Fem el mateix per la taula *users_uk*. També ens apareix un error al id=181 al cognom que corregim com per tal que puguem executar sense errors. Després tornarem a posar els noms correctes com teníem a les dades del csv amb un UPDATE.

```

155 -- Insertem les dades a la taula users_uk
156 • USE bbdd_tasca_4;
157 • INSERT INTO users_uk (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (151,'Meghan','Hayden
158 • INSERT INTO users_uk (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (152,'Hakeem','Alford
159 • INSERT INTO users_uk (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (153,'Keegan','Pugh',
160 • INSERT INTO users_uk (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (154,'Cooper','Bulloc
161 • INSERT INTO users_uk (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (155,'Joshua','Russel
162 • INSERT INTO users_uk (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (156,'Remedios','Case
163 • INSERT INTO users_uk (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (157,'Philip','Carey'.
164 • INSERT INTO users_uk (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (158,'Fatima','Dyer',
165 • INSERT INTO users_uk (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (159,'Kyllynn','Acevedo
166 • INSERT INTO users_uk (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (160,'Lael','Moody','i
167 • INSERT INTO users_uk (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (161,'Nora','Reeves',
168 • INSERT INTO users_uk (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (162,'Francesca','Saw
169 • INSERT INTO users_uk (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (163,'Denton','Blackb
170 • INSERT INTO users_uk (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (164,'Preston','Hood'.
171 • INSERT INTO users_uk (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (165,'Nora','Cantrell
172 • INSERT INTO users_uk (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (166,'Matthew','Wooda
173 • INSERT INTO users_uk (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (167,'Sheila','Dicker
174 • INSERT INTO users_uk (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (168,'Donna','Rivers'.
175 • INSERT INTO users_uk (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (169,'Linda','Gaines'.
176 • INSERT INTO users_uk (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (170,'William','Benja
177 • INSERT INTO users_uk (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (171,'Gary','Robbins'.
178 • INSERT INTO users_uk (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (172,'Yoko','Calhoun'.
179 • INSERT INTO users_uk (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (173,'Bertha','Sloan'.
180 • INSERT INTO users_uk (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (174,'Amal','Kennedy'.
181 • INSERT INTO users_uk (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (175,'Brent','Bates',

```

Output

Action Output

#	Time	Action	Message
✓ 45	12:19:20	INSERT INTO users_uk (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (194,'Porter','Francis','0500 257479','...	1 row(s) affected
✓ 46	12:19:20	INSERT INTO users_uk (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (195,'Roselyn','Blake','(015905) 2845...	1 row(s) affected
✓ 47	12:19:20	INSERT INTO users_uk (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (196,'Blaze','Duke','0800 060 8337','q...	1 row(s) affected
✓ 48	12:19:20	INSERT INTO users_uk (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (197,'Carly','Mathews','(024) 5216 76...	1 row(s) affected
✓ 49	12:19:20	INSERT INTO users_uk (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (198,'Keely','Fox','0800 1111','id.mollis...	1 row(s) affected
✓ 50	12:19:20	INSERT INTO users_uk (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (199,'Lewis','Melendez','(016977) 575...	1 row(s) affected
✓ 51	12:19:20	INSERT INTO users_uk (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (200,'Nero','Mills','056 4507 5712','adi...	1 row(s) affected

Veiem que s'executa correctament.

Fem el mateix per la taula *users_ca*:

```

208 • USE bbdd_tasca_4;
209 • INSERT INTO users_ca (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (201,'Iola','Powers','018-139-4717','ante.blandit@outlook.edu','Mar 20, 2000','Canada','F
210 • INSERT INTO users_ca (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (202,'Maxwell','Holden','045-402-7693','donec@hotmail.edu','Dec 2, 1986','Canada','Murdoc
211 • INSERT INTO users_ca (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (203,'Jarrod','Fields','010-741-8105','sit.amet@google.couk','Jan 6, 1982','Canada','Bade
212 • INSERT INTO users_ca (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (204,'Emerson','Sharp','068-138-9383','ante.iaculis@outlook.ca','Oct 15, 1994','Canada','
213 • INSERT INTO users_ca (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (205,'Sonya','McKee','041-151-9737','magna.phasellus.dolor@google.ca','May 7, 1983','Cane
214 • INSERT INTO users_ca (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (206,'Harper','Hart','030-656-1670','fringilla.donec@outlook.net','Nov 17, 2000','Canada'
215 • INSERT INTO users_ca (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (207,'Yvonne','Hatfield','003-854-1445','magna.et.ipsu@google.edu','Sep 22, 1981','Canac
216 • INSERT INTO users_ca (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (208,'Burke','Graham','064-568-4454','vel@yahoo.org','Feb 23, 1993','Canada','Annapolis F
217 • INSERT INTO users_ca (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (209,'Athena','Malone','027-280-8275','pellentesque.tincidunt@yahoo.ca','Dec 14, 1991','C
218 • INSERT INTO users_ca (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (210,'Slade','Poole','084-771-1363','amet@icloud.com','Feb 16, 2001','Canada','Ottawa','/
219 • INSERT INTO users_ca (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (211,'Larissa','Carpenter','066-617-3711','congue@aol.org','Jan 21, 1998','Canada','Cumbe
220 • INSERT INTO users_ca (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (212,'Zeph','Schmidt','056-157-7412','vestibulum.lorem@hotmail.ca','Apr 10, 1986','Canada
221 • INSERT INTO users_ca (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (213,'Blake','Strickland','067-339-3024','ac.libero.nec@yahoo.com','Apr 15, 1983','Canada
222 • INSERT INTO users_ca (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (214,'Cleo','George','026-867-1198','pellentesque.habitant@outlook.net','Dec 24, 1998','C
223 • INSERT INTO users_ca (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (215,'Keegan','Watson','058-771-3718','interdum.enim.non@protonmail.edu','May 2, 1996','C
224 • INSERT INTO users_ca (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (216,'Tana','Stout','035-569-5523','et.magnis.dis@aol.net','Jun 28, 1983','Canada','Munic
225 • INSERT INTO users_ca (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (217,'Auye','Key','016-727-3427','non.dui@yahoo.net','Mar 16, 1987','Canada','Marystown','
226 • INSERT INTO users_ca (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (218,'Sonia','Dejesus','091-540-1865','ipsum.porta@google.edu','Jun 13, 1997','Canada','f
227 • INSERT INTO users_ca (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (219,'Ivan','Saunders','036-230-9218','egestas.blandit.nam@icloud.org','Jul 7, 1985','Car
228 • INSERT INTO users_ca (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (220,'Martha','Roth','077-482-6236','semper.rutrum@yahoo.edu','Apr 5, 1994','Canada','Gar
229 • INSERT INTO users_ca (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (221,'Sasha','Emerson','024-226-4281','tempor.augue.ac@icloud.couk','Aug 24, 1981','Canac
230 • INSERT INTO users_ca (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (222,'Theodore','Barry','098-447-1583','at.pede.cras@google.ca','Feb 16, 1983','Canada','
231 • INSERT INTO users_ca (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (223,'Linus','Willis','056-347-2535','ultrices.posuere@yahoo.couk','Mar 23, 1992','Canadi

```

Output

#	Time	Action	Message
70	12:24:21	INSERT INTO users_ca (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (269,'Haley','Fitzpatrick','055-871-666...	1 row(s) affected
71	12:24:21	INSERT INTO users_ca (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (270,'Elton','Roberson','096-325-5107...	1 row(s) affected
72	12:24:21	INSERT INTO users_ca (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (271,'Leandra','Chery','089-285-7016...	1 row(s) affected
73	12:24:21	INSERT INTO users_ca (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (272,'Hedwig','Gilbert','064-204-8788...	1 row(s) affected
74	12:24:21	INSERT INTO users_ca (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (273,'Hilary','Ferguson','060-710-1604...	1 row(s) affected
75	12:24:21	INSERT INTO users_ca (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (274,'Jameson','Hunt','024-732-2321...	1 row(s) affected
76	12:24:21	INSERT INTO users_ca (id,name,surname,phone,email,birth_date,country,city,postal_code,address) VALUES (275,'Kenyon','Hartman','082-871-724...	1 row(s) affected

I ara fusionem les tres taules per inserir-les a la taula users, que sabem que tenen id diferents amb un UNION.

```

285 -- Fusionem les tres taules en una única. No cal fer UNION DISTINCT, ja que hem vist que el id és diferent per totes les taules.
286 • INSERT INTO users
287 SELECT * FROM users_usa
288 UNION
289 SELECT * FROM users_uk
290 UNION
291 SELECT * FROM users_ca;

```

Output

#	Time	Action	Message
1	12:43:49	INSERT INTO users SELECT * FROM users_usa UNION SELECT * FROM users_uk UNION SELECT * FROM users_ca	275 row(s) affected Records: 275 Duplicates: 0 Warnings: 0

Si faig un SELECT de la taula users clarament té 275 files, i es verifica que és la suma de les files de les taules *users_usa*, *users_uk* i *users_ca*.

1 • `SELECT * FROM bbdd_tasca_4.users;`

id	name	surname	phone	email	birth_date	country	city	postal_code	address
1	Zeus	Gamble	1-282-581-0551	interdum.enim@protonmail.edu	Nov 17, 1985	United States	Lowell	73544	348-7818 Sagittis St.
2	Garrett	Mcconnell	(718) 257-2412	integer.vitae.nibh@protonmail.org	Aug 23, 1992	United States	Des Moines	59464	903 Sit Ave
3	Ciaran	Harrison	(522) 598-1365	interdum.feugiat@aol.org	Apr 29, 1998	United States	Columbus	56518	736-2063 Tellus St.
4	Howard	Stafford	1-411-740-3269	ornare.egestas@icloud.edu	Feb 18, 1989	United States	Kailua	77417	Ap #545-2244 Erat. Rd.
5	Hayfa	Pierce	1-554-541-2077	et.malesuada.fames@hotmail.org	Sep 26, 1998	United States	Sandy	31564	341-2821 Ultrices Av.
6	Joel	Tyson	(718) 288-8020	gravida.nunc.sed@yahoo.ca	Oct 15, 1989	United States	Nashville	96838	888-2799 Amet Street
7	Rafael	Jimenez	(817) 689-0478	eget@outlook.ca	Dec 4, 1981	United States	Hillsboro	29874	8627 Malesuada Rd.
8	Nissim	Franks	(692) 157-3469	egestas.aliquam.fringilla@google.ca	Aug 1, 1993	United States	Jackson	61750	Ap #251-7144 Integer St.
9	Mannix	Mcclain	(590) 883-2184	aliquam.nisl@outlook.com	Jan 24, 1987	United States	Richmond	35987	647-3080 Lacus. St.
10	Robert	Mccarthy	(324) 746-6771	fermentum@protonmail.com	Apr 30, 1984	United States	Eugene	85526	P.O. Box 773, 3594 Ornare St.
11	Joan	Baird	(981) 429-8106	et@outlook.net	Feb 25, 1990	United States	Lincoln	35211	P.O. Box 687, 8917 Ligula St.
12	Benedict	Wheeler	1-515-824-2855	tincidunt.donec.vitae@hotmail.couk	Aug 6, 1999	United States	Lewiston	92393	748-8694 Porttitor Avenue

users 1 x

Output

Action Output

#	Time	Action	Message
1	16:25:59	SELECT * FROM bbdd_tasca_4.users LIMIT 0, 1000	275 row(s) returned

Podria eliminar les taules *users_usa*, *users_uk*, i *users_ca* però de moment les deixo a la base de dades ja que no molesten.

2.1.7 Automatitzar en Excel per generar codi SQL per inserir les dades a la taula companies

Fem una fórmula en Excel a la cel.la G2 de l'arxiu companies.xlsx tal com l'apartat anterior per generar el codi sql.

=CONCATENAR("INSERT INTO companies (";\$A\$1;"";;\$B\$1;"";;\$C\$1;"";;\$D\$1;"";;\$E\$1;"";;\$F\$1;"") VALUES ("";;"A2;"";;"";;"B2;"";;"";;"C2;"";;"";;"D2;"";;"";;"E2;"";;"";;"F2;"";;"")

Ho arrosseguem per totes les files i copiem el codi al Workbench. Executem i veiem que no hi ha errors.


```

1 • USE bbdd_tasca_4;
2 • INSERT INTO companies (company_id,company_name,phone,email,country,website) VALUES ('b-2222','Ac Fermentum Incorporated','06 85 56 52 33','donec.porttitor.tellus@yahoo.net','Germany','https://
3 • INSERT INTO companies (company_id,company_name,phone,email,country,website) VALUES ('b-2226','Magna A Neque Industries','04 14 44 64 62','risus.donec.nibh@icloud.org','Australia','https://wha
4 • INSERT INTO companies (company_id,company_name,phone,email,country,website) VALUES ('b-2230','Fusce Corp.','08 14 97 58 85','risus@protonmail.edu','United States','https://pinterest.com/sub/c
5 • INSERT INTO companies (company_id,company_name,phone,email,country,website) VALUES ('b-2234','Convallis In Incorporated','06 66 57 29 50','mauris.ut@aol.couk','Germany','https://cnn.com/user/
6 • INSERT INTO companies (company_id,company_name,phone,email,country,website) VALUES ('b-2238','Ante Iaculis Nec Foundation','08 23 04 99 53','sed.dictum.proin@outlook.ca','New Zealand','https:
7 • INSERT INTO companies (company_id,company_name,phone,email,country,website) VALUES ('b-2242','Donec Ltd','01 25 51 37 37','at.iaculis@hotmail.couk','Norway','https://nytimes.com/user/110');
8 • INSERT INTO companies (company_id,company_name,phone,email,country,website) VALUES ('b-2246','Sed Nunc Ltd','02 62 64 73 48','nibh@yahoo.org','United Kingdom','https://cnn.com/one');
9 • INSERT INTO companies (company_id,company_name,phone,email,country,website) VALUES ('b-2250','Amet Nulla Donec Corporation','07 15 25 14 74','mattis.integer.eu@protonmail.net','Italy','https:
10 • INSERT INTO companies (company_id,company_name,phone,email,country,website) VALUES ('b-2254','Nascetur Ridiculus Mus Inc.','06 26 87 61 84','suspendisse.dui@icloud.net','United States','https
11 • INSERT INTO companies (company_id,company_name,phone,email,country,website) VALUES ('b-2258','Vestibulum Lorem PC','02 02 87 33 40','aenean.massa.integer@aol.net','Belgium','https://pinterest
12 • INSERT INTO companies (company_id,company_name,phone,email,country,website) VALUES ('b-2262','Gravida Sagittis LLP','03 81 28 33 97','turpis.vitae@google.ca','Sweden','https://naver.com/site'
13 • INSERT INTO companies (company_id,company_name,phone,email,country,website) VALUES ('b-2266','Mus Aenean Eget Foundation','06 25 15 52 43','mi.duis@hotmail.net','Sweden','https://instagram.cc

```

Output

#	Time	Action	Message
77	13:31:39	INSERT INTO companies (company_id,company_name,phone,email,country,website) VALUES ('b-2522','Viverra Donec Foundation','03 33 12 32 7...	1 row(s) affected
78	13:31:39	INSERT INTO companies (company_id,company_name,phone,email,country,website) VALUES ('b-2526','Amet Luctus Vulputate Foundation','03 18 ...	1 row(s) affected
79	13:31:39	INSERT INTO companies (company_id,company_name,phone,email,country,website) VALUES ('b-2530','Tincidunt Associates','09 82 63 76 61','ne...	1 row(s) affected
80	13:31:39	INSERT INTO companies (company_id,company_name,phone,email,country,website) VALUES ('b-2534','Mattis Foundation','06 74 03 95 74','sed@...	1 row(s) affected
81	13:31:39	INSERT INTO companies (company_id,company_name,phone,email,country,website) VALUES ('b-2538','At Associates','09 56 61 10 65','inistique n...	1 row(s) affected
82	13:31:39	INSERT INTO companies (company_id,company_name,phone,email,country,website) VALUES ('b-2542','Nunc In Foundation','03 79 81 18 92','ac,f...	1 row(s) affected
83	13:31:39	INSERT INTO companies (company_id,company_name,phone,email,country,website) VALUES ('b-2546','Lorem Ipsum Dolor Corp.','09 03 14 76 02...	1 row(s) affected
84	13:31:39	INSERT INTO companies (company_id,company_name,phone,email,country,website) VALUES ('b-2550','Auctor Mauris Corp.','05 62 87 14 41','eget...	1 row(s) affected
85	13:31:39	INSERT INTO companies (company_id,company_name,phone,email,country,website) VALUES ('b-2554','Cras Vehicula Aliquet Industries','03 37 86 ...	1 row(s) affected
86	13:31:39	INSERT INTO companies (company_id,company_name,phone,email,country,website) VALUES ('b-2558','Nulla Integer Vulputate Corp.','04 57 50 84...	1 row(s) affected
87	13:31:39	INSERT INTO companies (company_id,company_name,phone,email,country,website) VALUES ('b-2562','Dictum Eu Corp.','03 04 73 67 31','donec...	1 row(s) affected
88	13:31:39	INSERT INTO companies (company_id,company_name,phone,email,country,website) VALUES ('b-2566','Aliquam PC','01 45 73 52 16','scelerisque...	1 row(s) affected
89	13:31:39	INSERT INTO companies (company_id,company_name,phone,email,country,website) VALUES ('b-2570','Aliquet Diam Limited','02 76 61 47 46','eu...	1 row(s) affected
90	13:31:39	INSERT INTO companies (company_id,company_name,phone,email,country,website) VALUES ('b-2574','Orci Adipiscing Limited','03 18 00 77 81','d...	1 row(s) affected
91	13:31:39	INSERT INTO companies (company_id,company_name,phone,email,country,website) VALUES ('b-2578','Dui Quis Institute','06 93 28 72 81','luctus...	1 row(s) affected
92	13:31:39	INSERT INTO companies (company_id,company_name,phone,email,country,website) VALUES ('b-2582','Nibh Phasellus Corporation','08 48 67 57 4...	1 row(s) affected
93	13:31:39	INSERT INTO companies (company_id,company_name,phone,email,country,website) VALUES ('b-2586','Tempor Diam Institute','05 01 94 80 87','c...	1 row(s) affected
94	13:31:39	INSERT INTO companies (company_id,company_name,phone,email,country,website) VALUES ('b-2590','Euismod Mauris Institute','02 13 69 54 85','...	1 row(s) affected
95	13:31:39	INSERT INTO companies (company_id,company_name,phone,email,country,website) VALUES ('b-2594','Et Magnis Ltd','03 53 76 11 76','dapibus l...	1 row(s) affected
96	13:31:39	INSERT INTO companies (company_id,company_name,phone,email,country,website) VALUES ('b-2598','Aliquam Iaculis Lacus Corp.','04 43 07 91 ...	1 row(s) affected
97	13:31:39	INSERT INTO companies (company_id,company_name,phone,email,country,website) VALUES ('b-2602','Placerat LLP','05 43 67 24 41','tellus susp...	1 row(s) affected
98	13:31:39	INSERT INTO companies (company_id,company_name,phone,email,country,website) VALUES ('b-2606','Sed Est Corp.','04 58 02 37 91','tempor bib...	1 row(s) affected
99	13:31:39	INSERT INTO companies (company_id,company_name,phone,email,country,website) VALUES ('b-2610','Egestas Nunc Sed Limited','06 01 02 70 4...	1 row(s) affected
100	13:31:39	INSERT INTO companies (company_id,company_name,phone,email,country,website) VALUES ('b-2614','Rutrum Non Inc.','02 66 31 61 09','neque...	1 row(s) affected

I fent un SELECT comprovo que companyies té 100 files tal com el seu csv.

```

1 • SELECT * FROM bbdd_tasca_4.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
	b-2242	Donec Ltd	01 25 51 37 37	at.iaculis@hotmail.couk	Norway	https://nytimes.com/user/110
	b-2246	Sed Nunc Ltd	02 62 64 73 48	nibh@yahoo.org	United Kingdom	https://cnn.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 87 61 84	suspendisse.dui@icloud.net	United States	https://ebay.com/sub
	b-2258	Vestibulum Lorem PC	02 02 87 33 40	aenean.massa.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.duis@hotmail.net	Sweden	https://instagram.com/group/9

companies 1 x

Output

#	Time	Action	Message
1	16:25:15	SELECT * FROM bbdd_tasca_4.companies LIMIT 0, 1000	100 row(s) returned

2.1.7.1 Variant de la solució anterior utilitzant instrucció LOAD DATA (millor opció)

He investigat i una millor opció per introduir dades massives seria fent un LOAD ja que si tinguéssim més d'un milió de files al csv, ja no podríem passar per l'Excel per generar el codi INSERT. Ho provaré creant una taula companies_2 només per aprendre més.

Executo el següent codi i...

```

107 • LOAD DATA
108 INFILE 'D:/Classificació nova/36. Des pers/9. Form/2. Formació Data Science and Business Analytics\Curs Data Analyst (IT Academy 03-04-24)/4. Sprint 4. Modelat SQL/7. Tasca 4/companie
109 INTO TABLE companies_2
110 FIELDS TERMINATED BY ','
111 ENCLOSED BY '"'
112 IGNORE 1 ROWS;

```

Output

Action Output

#	Time	Action	Message
1	13:48:12	LOAD DATA INFILE 'D:/Classificació nova/36. Des pers/9. Form/2. Formació Data Science and Business Analytics\Curs Data Analyst (IT Academy 03-04-24)/4. Sprint 4. Modelat SQL/7. Tasca 4/companie	Error Code: 1290. The MySQL server is running with the --secure-file-priv option so it cannot execute this statement

I em surt un error, que al principi em va costar una mica analitzar-ho

13:48:12 **LOAD DATA INFILE 'D:/Classificació nova/36. Des pers/9. Form/2. Formació Data Science and Business Analytics\Curs Data Analyst (IT Academy 03-04-24)/4. Sprint 4. Modelat SQL/7. Tasca 4/companies.csv' INTO TABLE companies_2 FIELDS TERMINATED BY ',' ENCLOSED BY '"' IGNORE 1 ROWS** **Error Code: 1290. The MySQL server is running with the --secure-file-priv option so it cannot execute this statement** **0.000 sec**

Faig aleshores el següent per si puc veure aquesta variable *secure-file-priv* al Workbench:

```

114 • SHOW VARIABLES;

```

Result Grid

Variable_name	Value
schema_definition_cache	256
secondary_engine_cost_t...	100000.000000
secure_file_priv	C:\ProgramData\MySQL\MySQL Server 8.0\Uploads\
select_into_buffer_size	131072
select_into_disk_sync	OFF
select_into_disk_sync_delay	0
server_id	1
server_id_bits	32
server_uuid	406b599f-fd75-11ee-a594-00d861edfc86
session_track_gtid	OFF
session_track_schema	ON
session_track_state_change	OFF
session_track_system_var...	time_zone,autocommit,character_set_client,character_set_results,character_set_connection

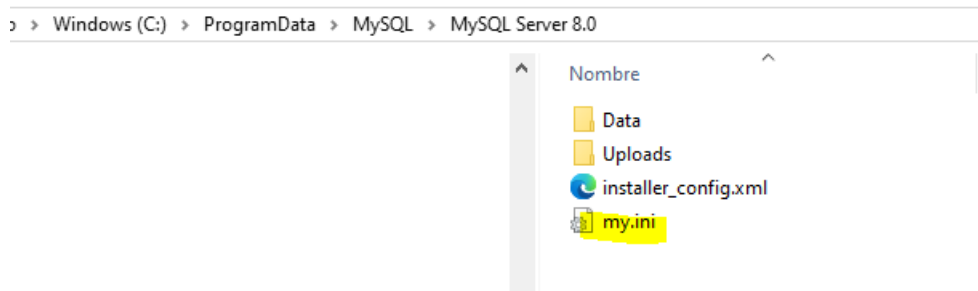
Result 3 x

Output

Action Output

#	Time	Action	Message
1	13:53:11	SHOW VARIABLES LIKE "secure-file-priv"	0 row(s) returned
2	13:53:19	SHOW VARIABLES	657 row(s) returned

Efectivament, veig que existeix i veig que té un valor que sembla com si fos una ruta on accepta pujar als arxius al MySQL Server. Potser és per un tema de seguretat. Investigo on es troba aquesta configuració, i és a l'arxiu marcat en groc.



```
# This variable is used to limit the effect of data import and export operations, such as  
# those performed by the LOAD DATA and SELECT ... INTO OUTFILE statements and the  
# LOAD_FILE() function. These operations are permitted only to users who have the FILE privilege.  
secure-file-priv="C:/ProgramData/MySQL/MySQL Server 8.0/Uploads"
```

I efectivament m'explica el que em suposava. Aleshores mouré l'arxiu *companies.csv* a la carpeta *Uploads*.

Executo i ja funciona:

```
116 • LOAD DATA  
117 INFILE 'C:/ProgramData/MySQL/MySQL Server 8.0/Uploads/companies.csv'  
118 INTO TABLE companies_2  
119 FIELDS TERMINATED BY ','  
120 ENCLOSED BY ''''  
121 IGNORE 1 ROWS;  
122
```

Output			
Action Output			
#	Time	Action	Message
✓ 1	13:58:57	LOAD DATA INFILE 'C:/ProgramData/MySQL/MySQL Server 8.0/Uploads/companies.csv' INTO TABLE companies_2 FIELDS TERMINATED...	100 row(s) affected Records: 100 Deleted: 0 Skipped: 0 Warnings: 0

Comprovo que companies_2 té 100 files com abans.

1 • `SELECT * FROM bbdd_tasca_4.companies_2;`

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
b-2242	Donec Ltd	01 25 51 37 37	at.iaculis@hotmail.couk	Norway	https://nytimes.com/user/110
b-2246	Sed Nunc Ltd	02 62 64 73 48	nibh@yahoo.org	United Kingdom	https://cnn.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 87 61 84	suspendisse.dui@icloud.net	United States	https://ebay.com/sub
b-2258	Vestibulum Lorem PC	02 02 87 33 40	aenean.massa.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.duis@hotmail.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.couk	New Zealand	https://reddit.com/user/110
b-2290	Quisque Libero LLC	01 45 48 71 11	sapien.molestie.orci@hotmail.couk	China	https://baidu.com/group/9
b-2294	Auctor Mauris Vel LLP	08 09 28 74 14	nec.tempus@icloud.couk	United States	https://instagram.com/fr
b-2298	Elit Etiam Laoreet Associates	07 69 74 17 45	ultrices@google.couk	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	Non Magna LLC	06 71 73 13 17	nisl.quisque.fringilla@hotmail.ca	United Kingdom	https://whatsapp.com/site
b-2314	A Institute	03 34 91 68 65	metus.aliquam@google.edu	Belgium	https://reddit.com/fr
b-2318	Quam A Felis Industries	04 87 10 27 16	proin.velit@icloud.edu	Italy	https://ebay.com/settings
b-2322	Integer Mollis Corp.	03 12 20 45 24	eu.eros@protonmail.ca	Italy	https://netflix.com/group/9
b-2326	Enim Condimentum Ltd	09 55 51 66 25	imperdiet.non.vestibulum@yahoo...	United Kingdom	https://cnn.com/group/9
b-2330	Donec Fringilla PC	01 51 58 14 44	ut.tincidunt@hotmail.ca	France	https://google.com/fr
b-2334	Amet Institute	06 33 40 21 33	nullam.lobortis.quam@outlook.net	Australia	https://nytimes.com/one

companies_2 1 ×

Output

#	Time	Action	Message
1	13:58:57	LOAD DATA INFILE 'C:/ProgramData/MySQL/MySQL Server 8.0/Uploads/companies.csv' INTO TABLE companies_2 FIELDS TERMINATE...	100 row(s) affected Recc
2	14:02:07	SELECT * FROM bbdd_tasca_4.companies_2 LIMIT 0, 1000	100 row(s) returned

Posteriorment elimino la taula companies_2 que només era un exemple.

2.1.8 Automatitzar en Excel per generar codi SQL per inserir les dades a la taula credit_card

També genero el codi en Excel a la fila J2 a l'arxiu credit_card.xlsx

```
=CONCATENAR("INSERT INTO credit_card  
("$A$1,";$B$1,";$C$1,";$D$1,";$E$1,";$F$1,";$G$1,";$H$1,";$I$1;) VALUES  
(";"A2;";"B2;";"C2;";"D2;";"E2;";"F2;";"G2;";"H2;";"I2;"");")
```

Arrossego per totes les files i ja tinc tot el codi que pegaré al Workbench.

```

1 • USE bdd_tasca_4;
2 • INSERT INTO credit_card (id,user_id,iban,pan,pin,cv,track1,track2,expiring_date) VALUES ('Ccu-2938',275,'TR301950312213576817638661','5424465566813630','3257',984,'X88383712448554646'Wovsx);
3 • INSERT INTO credit_card (id,user_id,iban,pan,pin,cv,track1,track2,expiring_date) VALUES ('Ccu-2945',274,'D026854763748537475216568689','5142423821948820','9080',887,'X84621311609958661'Uftuy);
4 • INSERT INTO credit_card (id,user_id,iban,pan,pin,cv,track1,track2,expiring_date) VALUES ('Ccu-2952',273,'B645IVQL52710525608255','4556 453 55 5287','4598',438,'X82183285104307591'CddytcUbwf);
5 • INSERT INTO credit_card (id,user_id,iban,pan,pin,cv,track1,track2,expiring_date) VALUES ('Ccu-2959',272,'CR7242477244335841535','372461377349375','3583',667,'X87281111956795320'XocddjBckecc);
6 • INSERT INTO credit_card (id,user_id,iban,pan,pin,cv,track1,track2,expiring_date) VALUES ('Ccu-2966',271,'B672LKTQL5627628377363','448566 886747 7265','4900',130,'X84728932322756223'JhlgsuFl);
7 • INSERT INTO credit_card (id,user_id,iban,pan,pin,cv,track1,track2,expiring_date) VALUES ('Ccu-2973',270,'PT87806228135092429456346','544 58654 54343 384','8760',887,'X84761405253275637'Hjnni);
8 • INSERT INTO credit_card (id,user_id,iban,pan,pin,cv,track1,track2,expiring_date) VALUES ('Ccu-2980',269,'DE39241881883086277136','402400 7145845969','5075',596,'X87320483593870549'OokzqrHpe);
9 • INSERT INTO credit_card (id,user_id,iban,pan,pin,cv,track1,track2,expiring_date) VALUES ('Ccu-2987',268,'GE89681434837748781813','3763 747687 76666','2298',797,'X84750646345146674'PjlnYrfgw);
10 • INSERT INTO credit_card (id,user_id,iban,pan,pin,cv,track1,track2,expiring_date) VALUES ('Ccu-2994',267,'BH62714428368066765294','344283273252593','7545',595,'X81583759784015674'GmqoyhtUtoqr);
11 • INSERT INTO credit_card (id,user_id,iban,pan,pin,cv,track1,track2,expiring_date) VALUES ('Ccu-3001',266,'CY49087426654774581266832110','511722 924833 2244','9562',867,'X86227288756728648'Aw);
12 • INSERT INTO credit_card (id,user_id,iban,pan,pin,cv,track1,track2,expiring_date) VALUES ('Ccu-3008',265,'LU507216693616119230','44857444464433880','1856',740,'X87182449430529226'Ykoutyhtfdvpc);
13 • INSERT INTO credit_card (id,user_id,iban,pan,pin,cv,track1,track2,expiring_date) VALUES ('Ccu-3015',264,'PS119398216295715968342456821','3784 662233 17389','3246',822,'X85776250106724742'Qv);

```

Output

#	Time	Action	Message
254	13:41:49	INSERT INTO credit_card (id,user_id,iban,pan,pin,cv,track1,track2,expiring_date) VALUES (Ccu-4702:23,'DK772824378841077','3486426768...	1 row(s) affected
255	13:41:49	INSERT INTO credit_card (id,user_id,iban,pan,pin,cv,track1,track2,expiring_date) VALUES (Ccu-4709:22,'GE45504127369280160124','453233 ...	1 row(s) affected
256	13:41:49	INSERT INTO credit_card (id,user_id,iban,pan,pin,cv,track1,track2,expiring_date) VALUES (Ccu-4716:21,'PL75422719203842155307261926','5...	1 row(s) affected
257	13:41:49	INSERT INTO credit_card (id,user_id,iban,pan,pin,cv,track1,track2,expiring_date) VALUES (Ccu-4723:20,'FI8248793454336573','3414 376437 ...	1 row(s) affected
258	13:41:49	INSERT INTO credit_card (id,user_id,iban,pan,pin,cv,track1,track2,expiring_date) VALUES (Ccu-4730:19,'EE541536644818872885','37339676...	1 row(s) affected
259	13:41:49	INSERT INTO credit_card (id,user_id,iban,pan,pin,cv,track1,track2,expiring_date) VALUES (Ccu-4737:18,'AT278617748359359721','3426 5552...	1 row(s) affected
260	13:41:49	INSERT INTO credit_card (id,user_id,iban,pan,pin,cv,track1,track2,expiring_date) VALUES (Ccu-4744:17,'AZ58751886174806034766368322','...	1 row(s) affected
261	13:41:49	INSERT INTO credit_card (id,user_id,iban,pan,pin,cv,track1,track2,expiring_date) VALUES (Ccu-4751:16,'PK83730469333040326464','3436 ...	1 row(s) affected
262	13:41:49	INSERT INTO credit_card (id,user_id,iban,pan,pin,cv,track1,track2,expiring_date) VALUES (Ccu-4758:15,'GB51GUVH61469185263634','37848...	1 row(s) affected
263	13:41:49	INSERT INTO credit_card (id,user_id,iban,pan,pin,cv,track1,track2,expiring_date) VALUES (Ccu-4765:14,'SA2888713798782221436615','440 5...	1 row(s) affected
264	13:41:49	INSERT INTO credit_card (id,user_id,iban,pan,pin,cv,track1,track2,expiring_date) VALUES (Ccu-4772:13,'ME59832015454148127328','455 634...	1 row(s) affected
265	13:41:49	INSERT INTO credit_card (id,user_id,iban,pan,pin,cv,track1,track2,expiring_date) VALUES (Ccu-4779:12,'FI9109231810971761','513 92416 26...	1 row(s) affected
266	13:41:49	INSERT INTO credit_card (id,user_id,iban,pan,pin,cv,track1,track2,expiring_date) VALUES (Ccu-4786:11,'SI51703104173167515','557 97688 7...	1 row(s) affected
267	13:41:49	INSERT INTO credit_card (id,user_id,iban,pan,pin,cv,track1,track2,expiring_date) VALUES (Ccu-4793:10,'HU95215627749276573565556322','...	1 row(s) affected
268	13:41:49	INSERT INTO credit_card (id,user_id,iban,pan,pin,cv,track1,track2,expiring_date) VALUES (Ccu-4800:9,'SI97824334522161436','5455 7952 55...	1 row(s) affected
269	13:41:49	INSERT INTO credit_card (id,user_id,iban,pan,pin,cv,track1,track2,expiring_date) VALUES (Ccu-4807:8,'LB19298318715580851625676971','45...	1 row(s) affected
270	13:41:49	INSERT INTO credit_card (id,user_id,iban,pan,pin,cv,track1,track2,expiring_date) VALUES (Ccu-4814:7,'MR4845282437847152280636374','37...	1 row(s) affected
271	13:41:49	INSERT INTO credit_card (id,user_id,iban,pan,pin,cv,track1,track2,expiring_date) VALUES (Ccu-4821:6,'LT253147505686466784','453987 787...	1 row(s) affected
272	13:41:49	INSERT INTO credit_card (id,user_id,iban,pan,pin,cv,track1,track2,expiring_date) VALUES (Ccu-4828:5,'BG11ILMJ3014367569464','4485252...	1 row(s) affected
273	13:41:49	INSERT INTO credit_card (id,user_id,iban,pan,pin,cv,track1,track2,expiring_date) VALUES (Ccu-4835:4,'PT34592171131763200132583','3723 ...	1 row(s) affected
274	13:41:49	INSERT INTO credit_card (id,user_id,iban,pan,pin,cv,track1,track2,expiring_date) VALUES (Ccu-4842:3,'SA2156708581957118818229','3774 6...	1 row(s) affected
275	13:41:49	INSERT INTO credit_card (id,user_id,iban,pan,pin,cv,track1,track2,expiring_date) VALUES (Ccu-4849:2,'SE2813123487163628531121','52233...	1 row(s) affected
276	13:41:49	INSERT INTO credit_card (id,user_id,iban,pan,pin,cv,track1,track2,expiring_date) VALUES (Ccu-4856:1,'TR373872558313545667124286','349...	1 row(s) affected

Si haguéssim inserit aquestes dades a la taula *credit_card* abans d'haver inserit dades de la taula *users*, no ens ho hauria deixat fer, doncs *user_id* és clau externa en aquesta taula de la taula *users*. També podem veure que qualsevol fila amb un valor *user_id* està a la taula *users*.

I fent un SELECT veig que *credit_card* té 275 files tal com el seu csv.

1 • `SELECT * FROM bbdd_tasca_4.credit_card;`

id	user_id	iban	pan	pin	cvv	track1	track2	expiring_date
CcU-2938	275	TR301950312213576817638661	5424465566813630	3257	984	%B8383712448554646^WovsxjDpwiev^8604...	%B7653863056044187=8007163336?3	10/30/22
CcU-2945	274	DO26854763748537475216568689	5142423821948820	9080	887	%B4621311609958661^UftuyfsSeimxn^06106...	%B4149568437843501=5107140330?1	08/24/23
CcU-2952	273	BG45IVQL52710525608255	4556 453 55 5287	4598	438	%B2183285104307501^CddyttUxwfdq^5907...	%B6778580257827162=69068597400?7	06/29/21
CcU-2959	272	CR7242477244335841535	372461377349375	3583	667	%B7281111956795320^XocddjBdcecd^09016...	%B4246154489281853=2805223916?8	02/24/23
CcU-2966	271	BG72LKTQ15627628377363	448566 886747 7265	4900	130	%B4728932322756223^JhlgvsuFbmwgj^7202...	%B2318571115599881=8908215784?5	10/29/24
CcU-2973	270	PT87806228135092429456346	544 58654 54343 384	8760	887	%B4761405253275637^HjnnipoBlejrl^7108515...	%B7816169831446746=13102772?9	01/30/25
CcU-2980	269	DE39241881883086277136	402400 7145845969	5075	596	%B7320483593870549^OokzqxrtHpsed^4901...	%B2474313962214151=0412219131?5	07/24/22
CcU-2987	268	GE89681434837748781813	3763 747687 76666	2298	797	%B4750646345146674^PjnllyrfGwwtrf^83051...	%B5441935173418615=4103704536?7	10/31/23
CcU-2994	267	BH62714428368066765294	344283273252593	7545	595	%B1583759784015674^GmqoyhtUtoqrn^2507...	%B411467473024349=65068009550?4	02/28/22
CcU-3001	266	CY49087426654774581266832110	511722 924833 2244	9562	867	%B6227288756728648^AwxifcFmgvdy^2808...	%B3429355750963453=5305268305?3	09/16/22
CcU-3008	265	LU507216693616119230	4485744464433880	1856	740	%B7182449430529226^MkoutyHTfdvpo^1708...	%B6235123731781366=9405638166?8	45781
CcU-3015	264	PS119398216295715968342456821	3784 662233 17389	3246	822	%B5776250106724742^QvzvzrcCwrovrm^530...	%B3561372148267521=1905473166?7	01/31/22

credit_card 1 x

Output: Action Output

#	Time	Action	Message
1	16:24:03	SELECT * FROM bbdd_tasca_4.credit_card LIMIT 0, 1000	275 row(s) returned

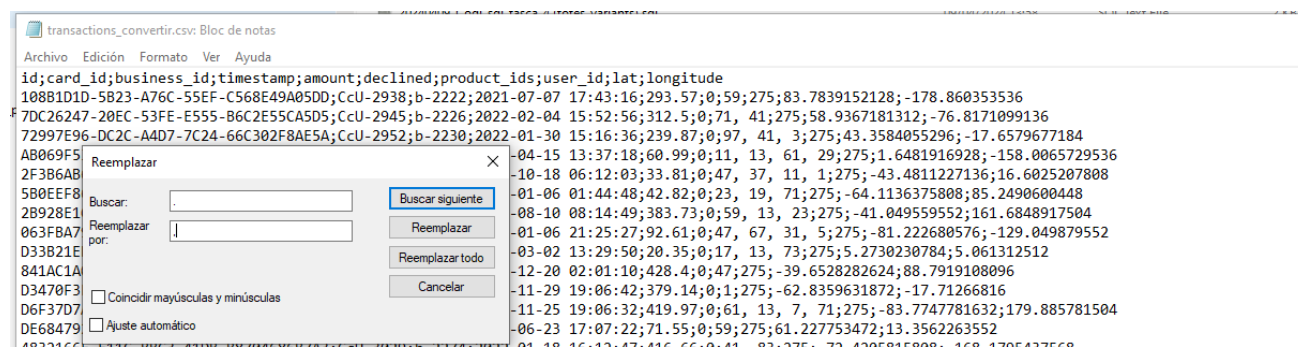
2.1.9 Automatitzar en Excel per generar codi SQL per inserir les dades a la taula transactions

Per la taula de *transactions* fem el mateix, convertim l'arxiu a *transactions.xlsx* i posem una fórmula al final de les columnes i de la fila 2 i arrastrem fins al final. Això sí, com que hi ha varis valors en format decimal amb punt, abans d'obrir l'Excel he de canviar la configuració regional per tal que el punt en l'Excel sigui el decimal. Sinó quan l'obri perdria els punts. He canviat en format regional el decimal per punt, però quan obro l'Excel perdo els decimals del camp Longitud i Latitud. Busco una alternativa. Torno a posar el decimal com el format regional.

El que farem és obrir l'arxiu *transactions.csv* en bloc de notes i canviarem tots els punts per decimals amb un reemplaçar massiu.

Originalment tenim:

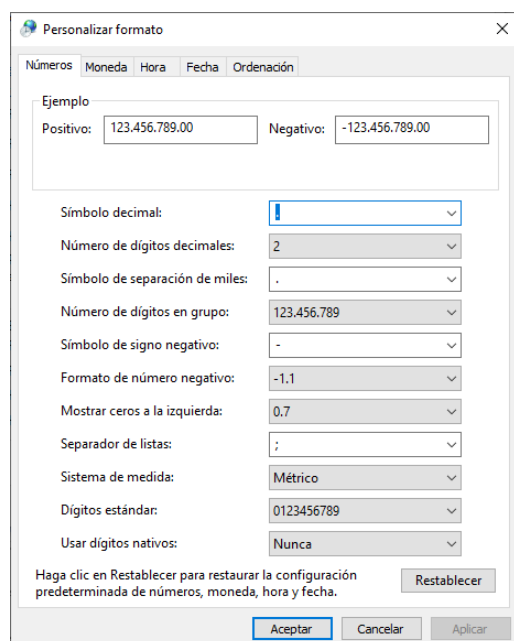
```
id;card_id;business_id;timestamp;amount;declined;product_ids;user_id;lat;longitude
108B1D1D-5B23-A76C-55EF-C568E49A05DD;CcU-2938;b-2222;2021-07-07 17:43:16;293.57;0;59;275;83.7839152128;-178.860353536
7DC26247-20EC-53FE-E555-B6C2E55CA5D5;CcU-2945;b-2226;2022-02-04 15:52:56;312.5;0;71, 41;275;58.9367181312;-76.8171099136
72997E96-DC2C-A4D7-7C24-66C302F8AE5A;CcU-2952;b-2230;2022-01-30 15:16:36;239.87;0;97, 41, 3;275;43.3584055296;-17.6579677184
AB069F53-965E-A2A8-CE06-CA8C4FD92501;CcU-2959;b-2234;2021-04-15 13:37:18;60.99;0;11, 13, 61, 29;275;1.6481916928;-158.0065729536
2F3B6AB6-147D-EB0B-FE8D-9A4E2EA9D8D5;CcU-2966;b-2238;2021-10-18 06:12:03;33.81;0;47, 37, 11, 1;275;-43.4811227136;16.6025207808
5B0EEF86-B8A1-EFAA-5EE1-27E7DC8F54A4;CcU-2973;b-2242;2022-01-06 01:44:48;42.82;0;23, 19, 71;275;-64.1136375808;85.2490600448
2B928E1C-EC14-A760-0A75-871477649D6A;CcU-2980;b-2246;2021-08-10 08:14:49;383.73;0;59, 13, 23;275;-41.049559552;161.6848917504
063FBA79-99EC-66FB-29F7-25726D1764A5;CcU-2987;b-2250;2022-01-06 21:25:27;92.61;0;47, 67, 31, 5;275;-81.222680576;-129.049879552
```



L'obro amb Excel i ja amb comes els camps *amount* i *lat* i *longitude*:

id	card_id	business_id	timestamp	amount	declined	product_ids	user_id	lat	longitude
108B1D1D-5E	CcU-2938	b-2222	07/07/2021 17:43	293,57	0	59	275	83,7839152	-178,860354
7DC26247-20	CcU-2945	b-2226	04/02/2022 15:52	312,5	0	71, 41	275	58,9367181	-76,8171099
72997E96-DC	CcU-2952	b-2230	30/01/2022 15:16	239,87	0	97, 41, 3	275	43,3584055	-17,6579677
AB069F53-96	CcU-2959	b-2234	15/04/2021 13:37	60,99	0	11, 13, 61, 29	275	1,64819169	-158,0065729
2F3B6AB6-14	CcU-2966	b-2238	18/10/2021 6:12	33,81	0	47, 37, 11, 1	275	-43,4811227	16,6025208
5B0EEF86-B8	CcU-2973	b-2242	06/01/2022 1:44	42,82	0	23, 19, 71	275	-64,1136376	85,24906
2B928E1C-EC	CcU-2980	b-2246	10/08/2021 8:14	383,73	0	59, 13, 23	275	-41,0495596	161,684892
063FBA79-99	CcU-2987	b-2250	06/01/2022 21:25	92,61	0	47, 67, 31, 5	275	-81,2226806	-129,04988
D33B21EB-Af	CcU-2994	b-2254	02/03/2022 13:29	20,35	0	17, 13, 73	275	5,27302308	5,06131251
841AC1A0-9C	CcU-3001	b-2258	20/12/2021 2:01	428,4	0	47	275	-39,6528283	88,7919108
D3470F3E-96	CcU-3008	b-2262	29/11/2021 19:06	379,14	0	1	275	-62,8359632	-17,7126682
D6F37D7A-A	CcU-3015	b-2266	25/11/2021 19:06	419,97	0	61, 13, 7, 71	275	-83,7747782	179,885782
DE684792-5D	CcU-3022	b-2270	23/06/2021 17:07	71,55	0	59	275	61,2277535	13,3562264

Ara torno al format regional a posar els decimals com a punts:



Passo l'arxiu csv a Excel i ja tinc el format dels números tal com vol el MySQL.

	A	B	C	D	E	F	G	H	I	J
	id	card_id	business_id	timestamp	amount	declined	product_ids	user_id	lat	longitude
1	108B1D1D-5E	CcU-2938	b-2222	07/07/2021 17:43	293.57	0	59	275	83.7839152	-178.860354
2	7DC26247-20	CcU-2945	b-2226	04/02/2022 15:52	312.5	0	71, 41	275	58.9367181	-76.8171099
3	72997E96-DC	CcU-2952	b-2230	30/01/2022 15:16	239.87	0	97, 41, 3	275	43.3584055	-17.6579677
4	AB069F53-96	CcU-2959	b-2234	15/04/2021 13:37	60.99	0	11, 13, 61, 29	275	1.64819169	-158.006573
5	2F3B6AB6-14	CcU-2966	b-2238	18/10/2021 6:12	33.81	0	47, 37, 11, 1	275	-43.4811227	16.6025208
6	5B0EEF86-B8	CcU-2973	b-2242	06/01/2022 1:44	42.82	0	23, 19, 71	275	-64.1136376	85.24906
7	2B928E1C-EC	CcU-2980	b-2246	10/08/2021 8:14	383.73	0	59, 13, 23	275	-41.0495596	161.684892
8	063FBA79-99	CcU-2987	b-2250	06/01/2022 21:25	92.61	0	47, 67, 31, 5	275	-81.2226806	-129.04988
9	D33B21EB-AE	CcU-2994	b-2254	02/03/2022 13:29	20.35	0	17, 13, 73	275	5.27302308	5.06131251
10	841AC1A0-9C	CcU-3001	b-2258	20/12/2021 2:01	428.4	0	47	275	-39.6528283	88.7919108
11	D3470F3E-96	CcU-3008	b-2262	29/11/2021 19:06	379.14	0	1	275	-62.8359632	-17.7126682
12	D6F37D7A-A	CcU-3015	b-2266	25/11/2021 19:06	419.97	0	61, 13, 7, 71	275	-83.7747782	179.885782
13	DE684792-5D	CcU-3022	b-2270	23/06/2021 17:07	71.55	0	59	275	61.2277535	13.3562264
14	4832166E-E1	CcU-3029	b-2274	18/01/2022 16:12	416.66	0	41, 83	275	-72.4205816	-168.179544
15	1788C881-EE	CcU-3036	b-2278	16/01/2022 8:19	486.83	0	7, 2, 79	275	55.9134551	110.554949
16	4B3FF0B5-15	CcU-3043	b-2282	04/12/2021 23:00	63.12	0	83	275	48.9972804	-50.5497548

A continuació al final de la columna J i a la fila 2 genero el codi que em servirà per inserir les dades.

```
=CONCATENAR("INSERT INTO transactions
(';$A$1;";;$B$1;";;$C$1;";;$D$1;";;$E$1;";;$F$1;";;$G$1;";;$H$1;";;$I$1;";;$J$1;") VALUES
('";A2;";";";B2;";";";C2;";";";K2;";";";E2;";";F2;";";";G2;";";";H2;";";I2;";";J2;");")
```

Es important notar, que el valor K2 correspon a la columna *timestamp* (es troba a D2) però modificada. Com que *timestamp* (columna D) ens ve en format 07/07/2021 17:43, a l'Excel fem una altra columna auxiliar a K2 fent:

=TEXT(D2;"AAAA-MM-DD HH:MM:SS"). D'aquesta manera el format de *timestamp* sí ens l'interpretarà al MySQL amb el format adequat i no ens ha suposat molta feina fer-ho a l' Excel.

Com sempre arrastrem al final per generar automàticament totes les fórmules i després pego el codi al Workbench.

id	card_id	business_id	timestamp	amount	declined	product_ids	user_id	lat	longitude	timestamp_aux	
108B1D1D-5E	CcU-2938	b-2222	07/07/2021 17:43	293.57	0	59	275	83.7839152	-178.860354	2021-07-07 17:43:16	INSERT INTO transaction
7DC26247-20	CcU-2945	b-2226	04/02/2022 15:52	312.5	0	71, 41	275	58.9367181	-76.8171099	2022-02-04 15:52:56	INSERT INTO transaction
72997E96-DC	CcU-2952	b-2230	30/01/2022 15:16	239.87	0	97, 41, 3	275	43.3584055	-17.6579677	2022-01-30 15:16:36	INSERT INTO transaction
AB069F53-96	CcU-2959	b-2234	15/04/2021 13:37	60.99	0	11, 13, 61, 29	275	1.64819169	-158.006573	2021-04-15 13:37:18	INSERT INTO transaction
2F3B6AB6-14	CcU-2966	b-2238	18/10/2021 6:12	33.81	0	47, 37, 11, 1	275	-43.4811227	16.6025208	2021-10-18 06:12:03	INSERT INTO transaction
5B0EEF86-B8	CcU-2973	b-2242	06/01/2022 1:44	42.82	0	23, 19, 71	275	-64.1136376	85.24906	2022-01-06 01:44:48	INSERT INTO transaction


```

1 • USE bdd_tasca_4;
2 • INSERT INTO transactions (id,card_id,business_id,timestamp,amount,declined,product_ids,user_id,lat,longitude) VALUES ('10881D1D-5823-A76C-55EF-C568E49A05D0','CcU-2938','b-2222','2021-07-07 17
3 • INSERT INTO transactions (id,card_id,business_id,timestamp,amount,declined,product_ids,user_id,lat,longitude) VALUES ('7DC26247-20EC-53FE-E555-B6C2E55CA5D5','CcU-2945','b-2226','2022-02-04 15
4 • INSERT INTO transactions (id,card_id,business_id,timestamp,amount,declined,product_ids,user_id,lat,longitude) VALUES ('72997E96-DC2C-A4D7-7C24-66C302F8AE5A','CcU-2952','b-2230','2022-01-30 15
5 • INSERT INTO transactions (id,card_id,business_id,timestamp,amount,declined,product_ids,user_id,lat,longitude) VALUES ('A8069F53-965E-A2A8-CE06-CAB4CFD92501','CcU-2959','b-2234','2021-04-15 11
6 • INSERT INTO transactions (id,card_id,business_id,timestamp,amount,declined,product_ids,user_id,lat,longitude) VALUES ('2F3B6A86-147D-E808-FE8D-9A4E2EA90BD5','CcU-2966','b-2238','2021-10-18 06
7 • INSERT INTO transactions (id,card_id,business_id,timestamp,amount,declined,product_ids,user_id,lat,longitude) VALUES ('580EEF86-B8A1-EFAA-5EE1-27E7DC8F5444','CcU-2973','b-2242','2022-01-06 01
8 • INSERT INTO transactions (id,card_id,business_id,timestamp,amount,declined,product_ids,user_id,lat,longitude) VALUES ('28928E1C-EC14-A768-0A75-87147764906A','CcU-2980','b-2246','2021-08-10 06
9 • INSERT INTO transactions (id,card_id,business_id,timestamp,amount,declined,product_ids,user_id,lat,longitude) VALUES ('063FBA79-99EC-66FB-29F7-25726D1764A5','CcU-2987','b-2250','2022-01-06 21
10 • INSERT INTO transactions (id,card_id,business_id,timestamp,amount,declined,product_ids,user_id,lat,longitude) VALUES ('D33B21E8-A61E-B08C-50E7-10A4AC210AE6','CcU-2994','b-2254','2022-03-02 11
11 • INSERT INTO transactions (id,card_id,business_id,timestamp,amount,declined,product_ids,user_id,lat,longitude) VALUES ('841AC1A0-9CA6-2AF7-EB2C-BC9C77C1EBB8','CcU-3001','b-2258','2021-12-20 01
12 • INSERT INTO transactions (id,card_id,business_id,timestamp,amount,declined,product_ids,user_id,lat,longitude) VALUES ('D3470F3E-9683-799A-40F1-E42C1438AC5A','CcU-3008','b-2262','2021-11-29 15
13 • INSERT INTO transactions (id,card_id,business_id,timestamp,amount,declined,product_ids,user_id,lat,longitude) VALUES ('D6F37D7A-A87E-01AA-DE27-476C89D26A8E','CcU-3015','b-2266','2021-11-25 15
14 • INSERT INTO transactions (id,card_id,business_id,timestamp,amount,declined,product_ids,user_id,lat,longitude) VALUES ('DE684792-5DEE-5E12-D085-C5661D48F42A','CcU-3022','b-2270','2021-06-23 17
15 • INSERT INTO transactions (id,card_id,business_id,timestamp,amount,declined,product_ids,user_id,lat,longitude) VALUES ('4832166E-E11C-B8C3-41D8-B870468687A3','CcU-3029','b-2274','2022-01-18 16
16 • INSERT INTO transactions (id,card_id,business_id,timestamp,amount,declined,product_ids,user_id,lat,longitude) VALUES ('1788C881-EE67-98AB-377A-4C78E7721608','CcU-3036','b-2278','2022-01-16 06
17 • INSERT INTO transactions (id,card_id,business_id,timestamp,amount,declined,product_ids,user_id,lat,longitude) VALUES ('483FF085-1547-801E-D5B0-44EDB2F62210','CcU-3043','b-2282','2021-12-04 21
18 • INSERT INTO transactions (id,card_id,business_id,timestamp,amount,declined,product_ids,user_id,lat,longitude) VALUES ('2C7D9865-2629-CAB1-5010-77BD1A74ADA6','CcU-3050','b-2286','2021-07-08 21
19 • INSERT INTO transactions (id,card_id,business_id,timestamp,amount,declined,product_ids,user_id,lat,longitude) VALUES ('71983A22-79E9-4843-60E8-B935637FFAA4','CcU-3057','b-2290','2022-01-10 11
20 • INSERT INTO transactions (id,card_id,business_id,timestamp,amount,declined,product_ids,user_id,lat,longitude) VALUES ('91C71934-D65D-B4A1-005E-670A47D0AC93C','CcU-3064','b-2294','2022-01-22 22
21 • INSERT INTO transactions (id,card_id,business_id,timestamp,amount,declined,product_ids,user_id,lat,longitude) VALUES ('798621A9-3FAA-41E4-2845-30E6532C7430','CcU-3071','b-2298','2021-05-09 01
22 • INSERT INTO transactions (id,card_id,business_id,timestamp,amount,declined,product_ids,user_id,lat,longitude) VALUES ('63288EE9-4725-E15C-7FC4-585D7EC5BD29','CcU-3078','b-2302','2021-08-27 22
23 • INSERT INTO transactions (id,card_id,business_id,timestamp,amount,declined,product_ids,user_id,lat,longitude) VALUES ('C798917A-76A1-9A57-A9DF-DBCAD4C91684','CcU-3085','b-2306','2022-01-04 06

```

Output

#	Time	Action	Message
576	17:05:18	INSERT INTO transactions (id,card_id,business_id,timestamp,amount,declined,product_ids,user_id,lat,longitude) VALUES ('943113EA-A763-9D81-0...	1 row(s) affected
577	17:05:18	INSERT INTO transactions (id,card_id,business_id,timestamp,amount,declined,product_ids,user_id,lat,longitude) VALUES ('5568A583-1E05-6B1F-B...	1 row(s) affected
578	17:05:18	INSERT INTO transactions (id,card_id,business_id,timestamp,amount,declined,product_ids,user_id,lat,longitude) VALUES ('73A71CC9-4812-F2BF-4...	1 row(s) affected
579	17:05:18	INSERT INTO transactions (id,card_id,business_id,timestamp,amount,declined,product_ids,user_id,lat,longitude) VALUES ('A8B58331-8394-8277-4...	1 row(s) affected
580	17:05:18	INSERT INTO transactions (id,card_id,business_id,timestamp,amount,declined,product_ids,user_id,lat,longitude) VALUES ('8626B8B9-6D87-C136-...	1 row(s) affected
581	17:05:18	INSERT INTO transactions (id,card_id,business_id,timestamp,amount,declined,product_ids,user_id,lat,longitude) VALUES ('E6512B38-3AB7-7128-7...	1 row(s) affected
582	17:05:18	INSERT INTO transactions (id,card_id,business_id,timestamp,amount,declined,product_ids,user_id,lat,longitude) VALUES ('C65220DF-35E3-CC92-...	1 row(s) affected
583	17:05:18	INSERT INTO transactions (id,card_id,business_id,timestamp,amount,declined,product_ids,user_id,lat,longitude) VALUES ('1517E8A8-9B44-A7C9-6...	1 row(s) affected
584	17:05:18	INSERT INTO transactions (id,card_id,business_id,timestamp,amount,declined,product_ids,user_id,lat,longitude) VALUES ('C1DCC32D-E42A-F2D6-...	1 row(s) affected
585	17:05:18	INSERT INTO transactions (id,card_id,business_id,timestamp,amount,declined,product_ids,user_id,lat,longitude) VALUES ('5C3A8A3D-8974-40A6-...	1 row(s) affected
586	17:05:18	INSERT INTO transactions (id,card_id,business_id,timestamp,amount,declined,product_ids,user_id,lat,longitude) VALUES ('D6EB93C6-5733-84C3-...	1 row(s) affected
587	17:05:18	INSERT INTO transactions (id,card_id,business_id,timestamp,amount,declined,product_ids,user_id,lat,longitude) VALUES ('A4D0D84F-4622-BB83-...	1 row(s) affected
588	17:05:18	INSERT INTO transactions (id,card_id,business_id,timestamp,amount,declined,product_ids,user_id,lat,longitude) VALUES ('9F8B3D61-D3C2-E5B8-...	1 row(s) affected

Finalment fem un SELECT, i veiem que *transactions* té 587 files com l'arxiu csv i les dades en el format que tocava.

1 • `SELECT * FROM bbdd_tasca_4.transactions;`

	id	card_id	business_id	timestamp	amount	declined	product_ids	user_id	lat	longitude
▶	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	CcU-4219	b-2302	2021-07-26 07:29:18	49.53	0	47, 97, 43	170	-43.9695	-117.525
	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
	0668296C-CD89-A883-76BC-2E4C4F8C8AE	CcU-3743	b-2618	2022-01-26 02:07:14	394.18	0	89, 83, 79	265	-34.3593	-100.556
	06CD9AA5-9B42-D684-DDDD-A5E394FEB99	CcU-2959	b-2346	2021-10-26 23:00:01	279.93	0	43, 31	92	33.7381	158.298
	07A46D48-31A3-7E87-65B9-0DA902AD109F	CcU-3225	b-2386	2021-06-28 21:11:42	340.87	1	47, 23	272	38.8342	92.1905
	09DE92CE-6F27-2BB7-13B5-9385B2B3B8E2	CcU-3071	b-2298	2021-05-11 20:40:06	303.05	1	67, 7	275	71.1706	10.5757
	0A476ED9-0C13-1962-F87B-D3563924B539	CcU-4359	b-2302	2022-02-26 20:33:54	430.49	0	29, 41, 11	221	-56.4901	114.801
	0BEB80B7-9D66-1707-CE4B-9DC7E71914B5	CcU-3141	b-2338	2022-03-04 14:54:35	288.81	1	19, 41, 29, 3	272	23.3264	-13.6037
	0C7C3A33-9947-3BC1-846D-7BE3D0D17598	CcU-3309	b-2434	2021-04-10 20:58:41	103.44	1	89, 31	272	63.3615	-68.6667
	0CE957A6-CCAA-2B7A-6839-8A4B1B324853	CcU-3435	b-2506	2022-02-02 07:29:36	428.69	1	83, 43, 73, 61	269	-69.3537	-10.26
	0DD2E608-5C9E-D1B3-4999-B99F43AD735A	CcU-2959	b-2234	2021-04-17 05:30:17	252.47	1	7, 47, 17	275	9.68811	130.282

transactions 2 x

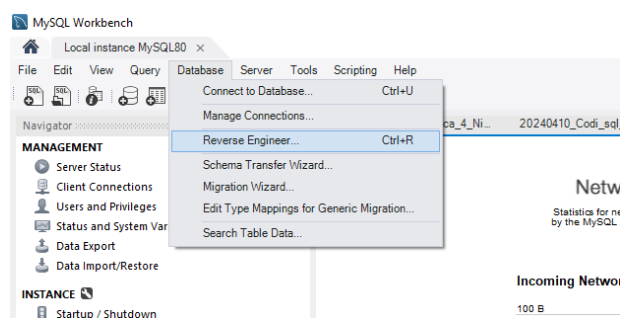
Output

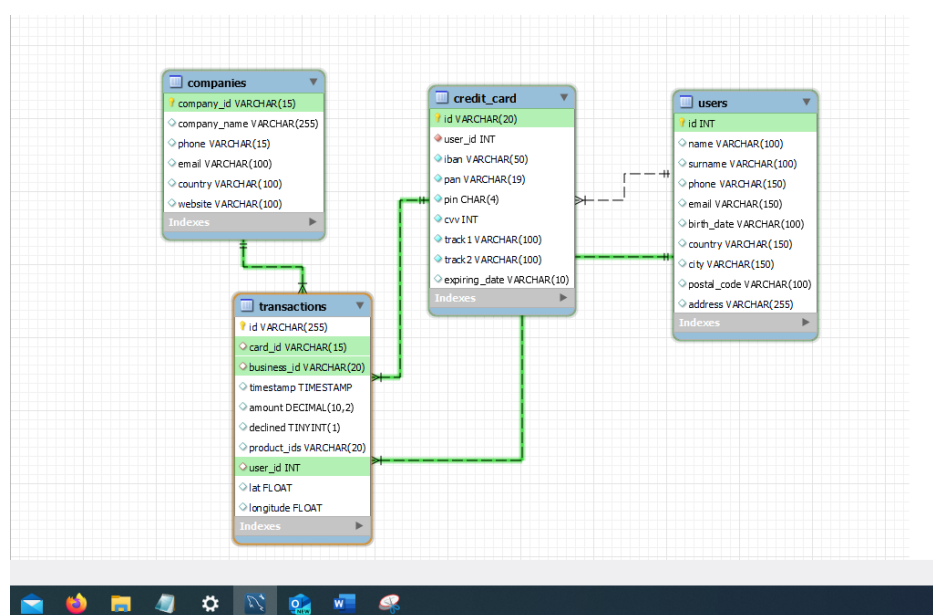
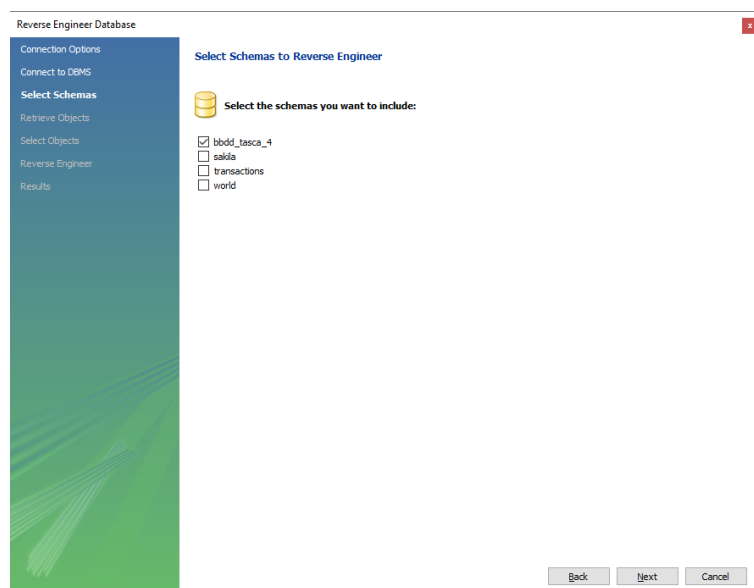
Action Output

#	Time	Action	Message
✓ 1	17:06:13	SELECT * FROM bbdd_tasca_4.transactions LIMIT 0, 1000	587 row(s) returned

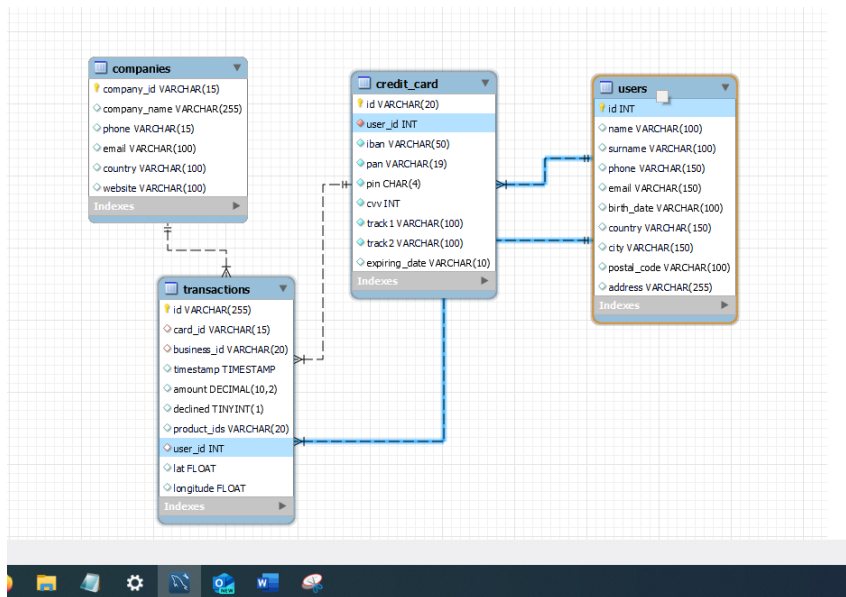
Com que hem pogut introduir totes les dades, significa que les clau externes que havíem creat inicialment són correctes.

2.1.10 Diagrama de la base de dades a MySQL Workbench





Es mostra el diagrama de la base de dades i es marquen les claus primàries i les claus externes. *company_id* és clau primària a *companies* i externa a *transactions*. Es la relació de 1 a molts, ja que una mateixa companyia pot fer moltes transaccions. *id* a *credit_cards*, és una clau primària i té una relació amb *transactions* de 1 a molts. Es així doncs per una mateixa targeta de crèdit es poden fer moltes operacions.



user_id apareix com una clau externa a *credit_card* i té una relació de 1 a molts ja que un usuari podria tenir més d'una targeta de crèdit. També *user_id* apareix com una clau externa a *credit_card*.

2.2 Exercici 1

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

2.2.1 Codi sql de la solució

La consulta més interna faig una agrupació de *user_id* i miro quants tenen més de 30 transaccions amb el HAVING COUNT. Gràcies al filtre del HAVING COUNT, puc mostrar com a sortida de la subconsulta t.user_id. Aleshores la consulta principal, mitjançant un WHERE em permet mostrar tots els camps de la taula d'usuaris amb més de 30 transaccions, que al final són 4 usuaris.

```

5 • USE bbdd_tasca_4;
6 • SELECT
7   u.*
8   FROM users u
9   WHERE u.id IN (
10    SELECT
11     t.user_id
12    FROM transactions t
13    GROUP BY t.user_id
14    HAVING COUNT(t.user_id)>30);

```

Result Grid

	id	name	surname	phone	email	birth_date	country	city	postal_code	address
▶	92	Lynn	Riddle	1-387-885-4057	vitae.aliquet@outlook.edu	Sep 21, 1984	United States	Bozeman	61871	P.O. Box 712, 7907 Est St.
	267	Ocean	Nelson	079-481-2745	aenean@yahoo.com	Dec 26, 1991	Canada	Charlottetown	85X 3P4	Ap #732-8357 Pede, Rd.
	272	Hedwig	Gilbert	064-204-8788	sem.eget@icloud.edu	Apr 16, 1991	Canada	Tuktoyaktuk	Q4C 3G7	P.O. Box 496, 5145 Sapien Road
	275	Kenyon	Hartman	082-871-7248	convallis.ante.lectus@yahoo.com	Aug 3, 1982	Canada	Richmond	R8H 2K2	8564 Facilis. St.
*	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

users 5 x

Output

Action Output

#	Time	Action	Message
✓ 1	17:58:25	USE bbdd_tasca_4	0 row(s) affected
✓ 2	17:58:25	SELECT u.* FROM users u WHERE u.id IN (SELECT t.user_id FROM transactions t GROUP BY t.user_id HAVING COUNT(t.user_id)>30) LIMIT 0, ...	4 row(s) returned

2.3 Exercici 2

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



2.3.1 Codi sql de la solució

Sabem que *credit_card* i *transactions* estan relacionades per la variable *id* i *card_id*. Aleshores amb un INNER JOIN podem relacionar aquestes dues taules. Només volem fer l'agrupació del *iban* i la mitjana del *iban* de les companyies *t.business_id* de la taula *transactions* que compleixin la condició de la subconsulta més interna, és a dir que *t.business_id* sigui el de la companyia 'Donec Ltd'

```

17  -- EXERCICI 2
18  • USE bdd_tasca_4;
19  • SELECT
20    c.iban,
21    AVG(t.amount)
22  FROM transactions t
23  INNER JOIN credit_card c ON t.card_id=c.id
24  WHERE t.business_id IN (SELECT c.company_id FROM companies c WHERE c.company_name='Donec Ltd')
25  GROUP BY c.iban;
26

```

Result Grid	
Filter Rows:	Export:  Wrap Cell Content: 
iban	AVG(t.amount)
PT87806228135092429456346	203.715000

Result 2 x			
Output			
Action Output			
#	Time	Action	Message
✓ 1	14:42:39	USE bdd_tasca_4	0 row(s) affected
✓ 2	14:42:39	SELECT c.iban, AVG(t.amount) FROM transactions t INNER JOIN credit_card c ON t.card_id=c.id WHERE t.business_id IN (SELECT c.comp...	1 row(s) returned

3 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.

3.1 Creació taula Estat targetes de crèdit

En aquest cas crearem una vista en comptes de fer un CREATE TABLE. El motiu és el següent. L'objectiu d'una vista és no contaminar la base de dades bdd_tasca_4. del esquema principal amb altres i considerem més apropiat fer una vista

Al final la solució més senzilla és utilitzant un ROW_NUMBER().

La subconsulta més interna el que fem bàsicament és enumerar tots els registres que tinguin el mateix *t.card_id* (identificador de targetes de crèdit), amb numeració diferent segons el camp *t.timestamp* de forma descendent, de manera que els registres amb la columna *row_num*, que valguin 1, 2, i 3 seran les últimes tres transaccions per la mateixa *t.card_id*, és a dir les últimes tres dates de *t.timestamp*. Amb el WHERE següent ens quedem amb aquests tres registres per *t.card_id*.

Posteriorment la subconsulta de més alt nivell que l'anterior fem una agrupació de *t_row_num.card_id* i sumem el camp de declinades (*t_row_num.declined*). Finalment a la consulta de més alt nivell (la principal) és on identifiquem si una targeta estarà activa o no tal com passa a la vida real. És a dir si falles amb el pin 3 vegades o es declina tres vegades la operació consecutivament, la targeta passarà a inactiva.

```

31 •      USE bdd_tasca_4;
32      -- Creem una vista que s'anomena estat_targetes
33 •      CREATE VIEW estat_targetes AS
34      SELECT
35          t_num_dec.card_id,
36          IF (t_num_dec.num_declinades=3, 'No','Sí') Tar_Activa
37      FROM (SELECT
38          t_row_num.card_id,
39          SUM(t_row_num.declined) num_declinades
40      FROM (SELECT
41          t1.card_id,
42          t1.id,
43          t1.timestamp,
44          t1.declined,
45          ROW_NUMBER() OVER (PARTITION BY t1.card_id ORDER BY t1.timestamp DESC) row_num
46      FROM transactions t1) t_row_num
47      WHERE t_row_num.row_num<=3
48      GROUP BY t_row_num.card_id) t_num_dec;

```

Output

Action Output

#	Time	Action	Message
✓ 1	16:24:52	USE bdd_tasca_4	0 row(s) affected
✓ 2	16:24:52	CREATE VIEW estat_targetes AS SELECT t_num_dec.card_id, IF (t_num_dec.num_declinades=3, 'No','Sí') Tar_Activa FROM (SEL...	0 row(s) affected

A continuació mostrem el resultat d'alguns registres de la vista *estat_targetes*.

The screenshot shows a SQL IDE interface. At the top, a query editor contains the SQL statement: `SELECT * FROM bbdd_tasca_4.estat_targetes`. Below the editor, the 'Result Grid' tab is active, displaying a table with two columns: `card_id` and `Tar_Activa`. The table contains five rows of data, all with `Tar_Activa` set to 'Sí'. The rows are: `CcU-2938`, `CcU-2945`, `CcU-2952`, `CcU-2959`, and `CcU-2966`. Below the result grid, the 'Output' tab is active, showing a log of actions. The first action is a successful query execution: `SELECT * FROM bbdd_tasca_4.estat_targetes LIMIT 0, 1000`, executed at 16:26:04.

card_id	Tar_Activa
CcU-2938	Sí
CcU-2945	Sí
CcU-2952	Sí
CcU-2959	Sí
CcU-2966	Sí

#	Time	Action
1	16:26:04	SELECT * FROM bbdd_tasca_4.estat_targetes LIMIT 0, 1000

3.2 Exercici 1

Quantes targetes estan actives?

3.2.1 Codi sql de la solució

Veiem que totes les targetes estan Actives, doncs la vista *estat_targetes* té 275 files.

```

50      -- EXERCICI 1
51      USE bdd_tasca_4;
52      SELECT
53      COUNT(*)
54      FROM estat_targetes e
55      WHERE e.Tar_Activa='Sí';
56

```

Result Grid

	COUNT(*)
▶	275

Result 3 ×

Output

Action Output

#	Time	Action	Message
✓ 1	16:37:33	USE bdd_tasca_4	0 row(s) affected
✓ 2	16:37:33	SELECT COUNT(*) FROM estat_targetes e WHERE e.Tar_Activa='Sí' LIMIT 0, 1000	1 row(s) returned

4 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:

4.1 Exercici 1

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

4.1.1 Creació estructura taula product_ids

```

264  -- NIVELL 3 -----
265  -- EXERCICI 1
266  • USE bbdd_tasca_4;
267  • CREATE TABLE IF NOT EXISTS products_ids (
268      id INT PRIMARY KEY,
269      product_name VARCHAR(50),
270      price FLOAT,
271      colour VARCHAR(20),
272      weight DECIMAL(3,1),
273      warehouse_id VARCHAR(20)
274  ) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci;
---
```

Veient les dades de *products.csv* creem l'estructura de la taula *products_ids*.

Action Output						
#	Time	Action				Message
✓ 1	16:32:51	USE bbdd_tasca_4				0 row(s) affected
✓ 2	16:32:51	CREATE TABLE IF NOT EXISTS products_ids (id INT PRIMARY KEY, product_name VARCHAR(50), price DECIMAL(3,2), colour VARCHAR(...				0 row(s) affected

4.1.2 Automatitzar en Excel per generar codi sql per inserir les dades a la taula *product_ids*

Aquestes són les fórmules Excel que introduïm per cada fila de l'arxiu *products.xlsx* i ho arrastrem per totes les files i ja tenim el codi per introduir totes les dades a la taula *products_ids*

```
=CONCATENAR("INSERT INTO products_ids
(";$A$1;"";;$B$1;"";;$C$1;"";;$D$1;"";;$E$1;"";;$F$1;) VALUES
(";A2;"";;"B2;"";;"EXTRAEC(C2;2;LARGO(C2));";;"D2;"";;"E2;"";;"F2;"";;"")
```

Peguem el codi al Workbench.

```

1
2 • USE bbdd_tasca_4;
3 • INSERT INTO products_ids (id,product_name,price,colour,weight,warehouse_id) VALUES (1,'Direwolf Stannis',161.11,'#7c7c7c',1,'WH-4');
4 • INSERT INTO products_ids (id,product_name,price,colour,weight,warehouse_id) VALUES (2,'Tarly Stark',9.24,'#919191',2,'WH-3');
5 • INSERT INTO products_ids (id,product_name,price,colour,weight,warehouse_id) VALUES (3,'duel tourney Lannister',171.13,'#d8d8d8',1.5,'WH-2');
6 • INSERT INTO products_ids (id,product_name,price,colour,weight,warehouse_id) VALUES (4,'warden south duel',71.89,'#111111',3,'WH-1');
7 • INSERT INTO products_ids (id,product_name,price,colour,weight,warehouse_id) VALUES (5,'skywalker ewok',171.22,'#dbdbdb',3.2,'WH-0');
8 • INSERT INTO products_ids (id,product_name,price,colour,weight,warehouse_id) VALUES (6,'dooku solo',136.60,'#c4c4c4',0.8,'WH--1');
9 • INSERT INTO products_ids (id,product_name,price,colour,weight,warehouse_id) VALUES (7,'north of Casterly',63.33,'#b7b7b7',0.6,'WH--2');
10 • INSERT INTO products_ids (id,product_name,price,colour,weight,warehouse_id) VALUES (8,'Winterfell',32.37,'#383838',1.4,'WH--3');
11 • INSERT INTO products_ids (id,product_name,price,colour,weight,warehouse_id) VALUES (9,'Winterfell',76.40,'#b5b5b5',1.2,'WH--4');
12 • INSERT INTO products_ids (id,product_name,price,colour,weight,warehouse_id) VALUES (10,'Karstark Dorne',119.52,'#f4f4f4',2.4,'WH--5');
13 • INSERT INTO products_ids (id,product_name,price,colour,weight,warehouse_id) VALUES (11,'Karstark Dorne',49.70,'#141414',2.7,'WH--6');
14 • INSERT INTO products_ids (id,product_name,price,colour,weight,warehouse_id) VALUES (12,'duel Direwolf',181.60,'#a8a8a8',2.1,'WH--7');
15 • INSERT INTO products_ids (id,product_name,price,colour,weight,warehouse_id) VALUES (13,'palpatine chewbacca',139.59,'#2b2b2b',1,'WH--8');
16 • INSERT INTO products_ids (id,product_name,price,colour,weight,warehouse_id) VALUES (14,'Direwolf',147.53,'#c4c4c4',2,'WH--9');
17 • INSERT INTO products_ids (id,product_name,price,colour,weight,warehouse_id) VALUES (15,'Stannis warden',194.29,'#dbdbdb',1.5,'WH--10');
18 • INSERT INTO products_ids (id,product_name,price,colour,weight,warehouse_id) VALUES (16,'the duel warden',180.91,'#666666',3,'WH--11');
19 • INSERT INTO products_ids (id,product_name,price,colour,weight,warehouse_id) VALUES (17,'skywalker ewok sith',91.89,'#7c7c7c',3.2,'WH--12');
20 • INSERT INTO products_ids (id,product_name,price,colour,weight,warehouse_id) VALUES (18,'Karstark warden',148.91,'#c4c4c4',0.8,'WH--13');
21 • INSERT INTO products_ids (id,product_name,price,colour,weight,warehouse_id) VALUES (19,'dooku solo',60.33,'#3f3f3f',0.6,'WH--14');
22 • INSERT INTO products_ids (id,product_name,price,colour,weight,warehouse_id) VALUES (20,'warden Karstark',91.96,'#b5b5b5',1.4,'WH--15');
23 • INSERT INTO products_ids (id,product_name,price,colour,weight,warehouse_id) VALUES (21,'duel Direwolf',96.90,'#e2e2e2',1.2,'WH--16');
24 • INSERT INTO products_ids (id,product_name,price,colour,weight,warehouse_id) VALUES (22,'chewbacca mustafar',150.02,'#fcfcfc',2.4,'WH--17');
25 • INSERT INTO products_ids (id,product_name,price,colour,weight,warehouse_id) VALUES (23,'riverlands north',169.96,'#545454',2.7,'WH--18');
26 • INSERT INTO products_ids (id,product_name,price,colour,weight,warehouse_id) VALUES (24,'south duel tourney',48.99,'#aaaaaa',2.1,'WH--19');
27 • INSERT INTO products_ids (id,product_name,price,colour,weight,warehouse_id) VALUES (25,'skywalker ewok',157.53,'#2b2b2b',1,'WH--20');
28 • INSERT INTO products_ids (id,product_name,price,colour,weight,warehouse_id) VALUES (26,'Stark Karstark',53.01,'#898989',2,'WH--21');
29 • INSERT INTO products_ids (id,product_name,price,colour,weight,warehouse_id) VALUES (27,'Stannis riverlands',172.93,'#7a7a7a',1.5,'WH--22');

```

Output

#	Time	Action	Message
94	16:39:00	INSERT INTO products_ids (id,product_name,price,colour,weight,warehouse_id) VALUES (93,'Littlefinger Tarly Stark',192.60,'#efefef',1.2,'W...	1 row(s) affected
95	16:39:00	INSERT INTO products_ids (id,product_name,price,colour,weight,warehouse_id) VALUES (94,'In south Winterfell',51.94,'#3a3a3a',2.4,'WH-8...	1 row(s) affected
96	16:39:00	INSERT INTO products_ids (id,product_name,price,colour,weight,warehouse_id) VALUES (95,'riverlands north Direwolf',6.90,'#c1c1c1',2.7,'...	1 row(s) affected
97	16:39:00	INSERT INTO products_ids (id,product_name,price,colour,weight,warehouse_id) VALUES (96,'dooku solo',20.92,'#282828',2.1,'WH-91')	1 row(s) affected
98	16:39:00	INSERT INTO products_ids (id,product_name,price,colour,weight,warehouse_id) VALUES (97,'inn Winterfell',65.25,'#bababa',1,'WH-92')	1 row(s) affected
99	16:39:00	INSERT INTO products_ids (id,product_name,price,colour,weight,warehouse_id) VALUES (98,'Direwolf Littlefinger',38.33,'#bababa',2,'WH-93')	1 row(s) affected
100	16:39:00	INSERT INTO products_ids (id,product_name,price,colour,weight,warehouse_id) VALUES (99,'the duel',151.78,'#212121',1.5,'WH-94')	1 row(s) affected
101	16:39:00	INSERT INTO products_ids (id,product_name,price,colour,weight,warehouse_id) VALUES (100,'south duel',40.43,'#6d6d6d',3,'WH-95')	1 row(s) affected

Es generen 100 files tal com l'arxiu *products.csv*

4.1.3 Construir taula intermèdia que relacioni transaccions i productes venuts

Result Grid										
Filter Rows:										
Edit:										
Export/Import:										
Wrap Cell Content:										
	id	card_id	business_id	timestamp	amount	declined	product_ids	user_id	lat	longitude
▶	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	CcU-4219	b-2302	2021-07-26 07:29:18	49.53	0	47, 97, 43	170	-43.9695	-117.525
	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
	0668296C-CDB9-A883-76BC-2E4C44F8C8AE	CcU-3743	b-2618	2022-01-26 02:07:14	394.18	0	89, 83, 79	265	-34.3593	-100.556
	06CD9AA5-9B42-D684-DDDD-A5E394FEBA99	CcU-2959	b-2346	2021-10-26 23:00:01	279.93	0	43, 31	92	33.7381	158.298
	07A46D48-31A3-7E87-65B9-0DA902AD109F	CcU-3225	b-2386	2021-06-28 21:11:42	340.87	1	47, 23	272	38.8342	92.1905
	09DE92CE-6F27-2B87-13B5-9385B2B388E2	CcU-3071	b-2298	2021-05-11 20:40:06	303.05	1	67, 7	275	71.1706	10.5757
	0A476ED9-0C13-1962-F87B-D3563924B539	CcU-4359	b-2302	2022-02-26 20:33:54	430.49	0	29, 41, 11	221	-56.4901	114.801
	08EB80B7-9D66-1707-CE4B-9DC7E71914B5	CcU-3141	b-2338	2022-03-04 14:54:35	288.81	1	19, 41, 29, 3	272	23.3264	-13.6037
	0C7C3A33-9947-3BC1-846D-7BE3D0D17598	CcU-3309	b-2434	2021-04-10 20:58:41	103.44	1	89, 31	272	63.3615	-68.6667
	0CE957A6-CCAA-2B7A-6839-8A4B1B324853	CcU-3435	b-2506	2022-02-02 07:29:36	428.69	1	83, 43, 73, 61	269	-69.3537	-10.26

El camp *product_ids* de la taula *transactions* no ens anirà bé per poder extreure la informació, així doncs fem la taula intermèdia encara que haurem de generar codi amb sql. Aquesta taula intermèdia tindrà dos camps, el camp *id* i el camp *product_ids* nou.

Hem optimitzat el codi per tal d'evitar de crear taules auxiliar a la base de dades i després haver de eliminar-les.

```

83 • USE bdd_tasca_4;
84 -- CREATE TABLE trans_x_product_aux
85 • CREATE TABLE trans_x_product
86     WITH trans_x_product_aux_1 AS
87     (SELECT
88         t.id,
89         t.product_ids
90     FROM transactions t),
91 -- el camp products_ids, que com a molt hem vist que només pot contenir 4 productes per transacció, el separem en diferents columnes
92     trans_x_product_aux_2 AS
93     (SELECT
94         t.id,
95         TRIM(SUBSTRING_INDEX(SUBSTRING_INDEX(t.product_ids, ',', 1), ',', -1)) AS valor_1,
96         TRIM(SUBSTRING_INDEX(SUBSTRING_INDEX(t.product_ids, ',', 2), ',', -1)) AS valor_2,
97         TRIM(SUBSTRING_INDEX(SUBSTRING_INDEX(t.product_ids, ',', 3), ',', -1)) AS valor_3,
98         TRIM(SUBSTRING_INDEX(SUBSTRING_INDEX(t.product_ids, ',', 4), ',', -1)) AS valor_4
99     FROM trans_x_product_aux_1 t),
100 -- Hem de convertir la consulta anterior en una taula de dues columnes
101     trans_x_product_aux_3 AS
102     (SELECT
103         id,
104         t.valor_1
105     FROM trans_x_product_aux_2 t
106     UNION
107     SELECT
108         t.id,
109         t.valor_2
110     FROM trans_x_product_aux_2 t
111     UNION
112     SELECT
113         t.id,
114         t.valor_3
115     FROM trans_x_product_aux_2 t
116     UNION
117     SELECT
118         t.id,
119         t.valor_4
120     FROM trans_x_product_aux_2 t)
121
122     SELECT
123         t3.id,
124         t3.valor_1 product_ids
125     FROM trans_x_product_aux_3 t3
126     ORDER BY t3.id;

```

Anem mostrant resultats intermedis del codi anterior, tot i que tal com s'ha fet donarà directament la taula que necessitem *trans_x_product*.

El codi sql el que fem bàsicament és crear consultes temporals, amb la clàusula WITH. La primera subconsulta *trans_x_product_aux_1*, obté els camps *id* i *product_ids* de la taula *transactions*.

Result Grid		
Filter Rows:		
	id	product_ids
►	02C6201E-D90A-1859-B4EE-88D2986D3B02	71, 1, 19
	0466A42E-47CF-8D24-FD01-C0B689713128	47, 97, 43
	063FBA79-99EC-66FB-29F7-25726D1764A5	47, 67, 31, 5
	0668296C-CDB9-A883-76BC-2E4C4F8C8AE	89, 83, 79
	06CD9AA5-9B42-D684-DDDD-A5E394FEB9A9	43, 31
	07A46D48-31A3-7E87-65B9-0DA902AD109F	47, 23
	09DE92CE-6F27-2BB7-13B5-9385B2B3B8E2	67, 7
	0A476FD9-0C13-1962-F87B-D3563924B539	29, 41, 11

transactions 9 ×

La següent subconsulta, que anomenem *trans_x_product_aux_2* ens dona el següent:

Result Grid					
Filter Rows:		Export:		Wrap Cell Content:	
	id	valor_1	valor_2	valor_3	valor_4
▶	02C6201E-D90A-1859-B4EE-88D2986D3B02	71	1	19	19
	0466A42E-47CF-8D24-FD01-C0B689713128	47	97	43	43
	063FBA79-99EC-66FB-29F7-25726D1764A5	47	67	31	5
	0668296C-CDB9-A883-76BC-2E4C44F8C8AE	89	83	79	79
	06CD9AA5-9B42-D684-DDDD-A5E394FEBA99	43	31	31	31

Bàsicament separem el camp *product_ids*, que com a molt sempre tindrà 4 productes en diferents columnes¹

Finalment, la última consulta la *trans_x_product_aux_3*, ens agafa les combinacions *id* amb els diferents columnes de valors, per obtenir la taula que busquem. És interessant que fem UNION i no UNION ALL, ja que sinó hi haurien files repetides si s'analitza bé com funciona la consulta .

	id	valor_1
▶	02C6201E-D90A-1859-B4EE-88D2986D3B02	71
	0466A42E-47CF-8D24-FD01-C0B689713128	47
	063FBA79-99EC-66FB-29F7-25726D1764A5	47
	0668296C-CDB9-A883-76BC-2E4C44F8C8AE	89
	06CD9AA5-9B42-D684-DDDD-A5E394FEBA99	43
	07A46D48-31A3-7F87-65B9-0DAD907AD109F	47

Posteriorment després d'una clàusula WITH niada, al final a d'acabar amb una consulta i per això posem

```

121      SELECT
122      t3.id,
123      t3.valor_1 product_ids
124      FROM trans_x_product_aux_3 t3
125      ORDER BY t3.id;
```

Com que tot la solució és temporal, encapsulem les tres subconsultes amb un CREATE TABLE al principi de tot per obtenir la taula *trans_x_product* que desitjàvem, on es pot veure el resultat de l'execució directa:

¹ Si el número de productes que es poguessin assignar a la columna *product_ids* fos indeterminat. El codi de *trans_x_product_aux_2* no ens serviria. Sabem que hauríem de posar un codi on utilitza les avantatges dels arxius *json*. No ho fem tant general, doncs fem la solució òptima que ens serveix pel nostre exercici.

#	Time	Action	Message
1	17:51:44	USE bbdd_tasca_4	0 row(s) affected
2	17:51:44	CREATE TABLE trans_x_product WITH trans_x_product_aux_1 AS (SELECT t.id, t.product_ids FROM transactions t); -- el camp products_ids...	1457 row(s) affected Records: 1457 Duplicates: 0 Warnings: 0

Mostrem el resultat de la taula *trans_x_product* intermèdia que necessitàvem, tot i que encara no hem acabat, ja que ens falten les relacions.

```
1 • SELECT * FROM bbdd_tasca_4.trans_x_product;
```

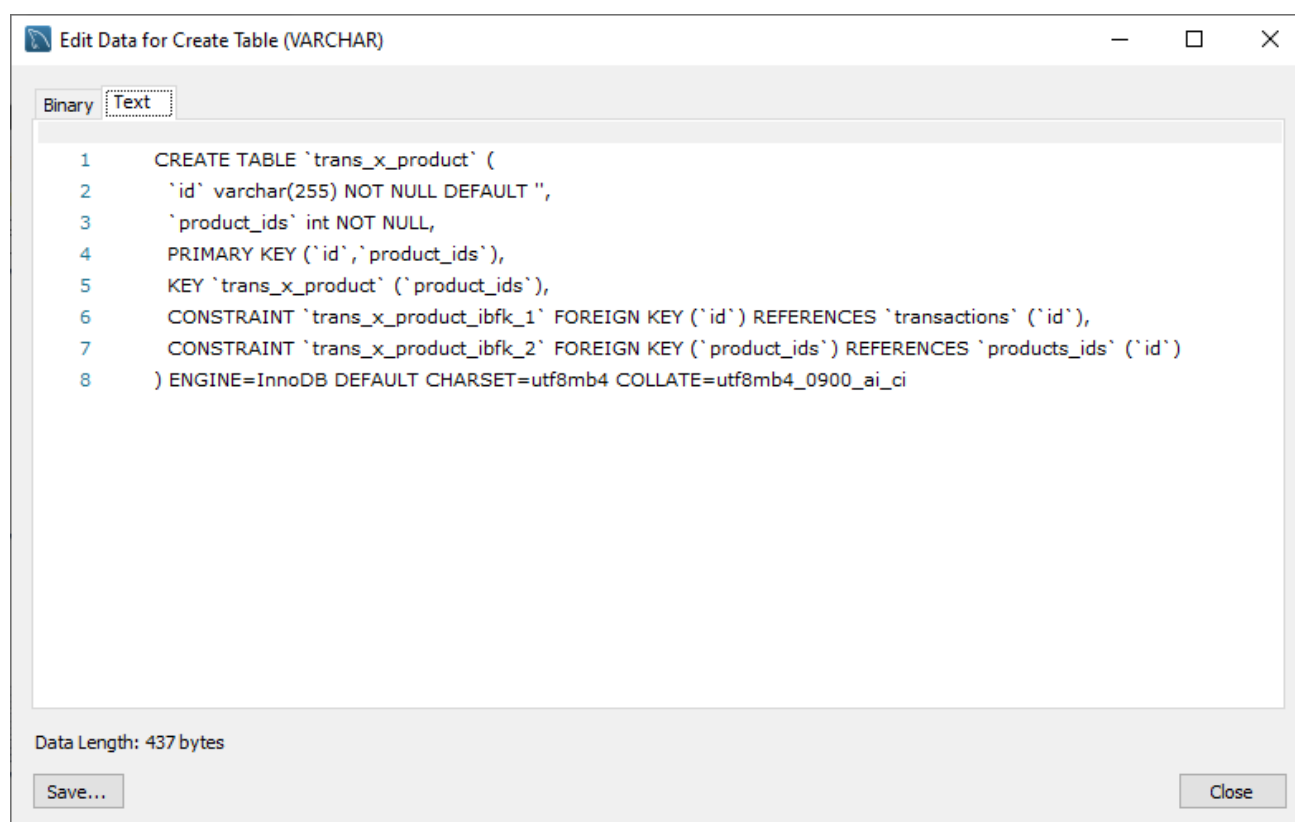
Result Grid		Filter Rows:	Export:	Wrap Cell Content:
	id	product_ids		
▶	02C6201E-D90A-1859-84EE-88D2986D3B02	71		
	02C6201E-D90A-1859-84EE-88D2986D3B02	1		
	02C6201E-D90A-1859-84EE-88D2986D3B02	19		
	0466A42E-47CF-8D24-FD01-C0B689713128	47		
	0466A42E-47CF-8D24-FD01-C0B689713128	43		
	0466A42E-47CF-8D24-FD01-C0B689713128	97		
	063FBA79-99EC-66FB-29F7-25726D1764A5	47		
	063FBA79-99EC-66FB-29F7-25726D1764A5	5		
	063FBA79-99EC-66FB-29F7-25726D1764A5	67		
	063FBA79-99EC-66FB-29F7-25726D1764A5	31		
	0668296C-CDB9-A883-76BC-2E4C44F8C8AE	89		
	0668296C-CDB9-A883-76BC-2E4C44F8C8AE	83		
	0668296C-CDB9-A883-76BC-2E4C44F8C8AE	79		
	06CD9AA5-9B42-D684-DDDD-A5E394FEB99	43		
	06CD9AA5-9B42-D684-DDDD-A5E394FEB99	31		
	07A46D48-31A3-7E87-65B9-0DA902AD109F	47		
	07A46D48-31A3-7E87-65B9-0DA902AD109F	23		
	09DE92CE-6F27-2BB7-13B5-9385B2B3B8E2	67		
	09DE92CE-6F27-2BB7-13B5-9385B2B3B8E2	7		
	0A476ED9-0C13-1962-F87B-D3563924B539	29		
	0A476ED9-0C13-1962-F87B-D3563924B539	41		
	0A476ED9-0C13-1962-F87B-D3563924B539	11		
	0BEB80B7-9D66-1707-CE4B-9DC7E71914B5	19		
trans_x_product 2 x				
Output				
Action Output				
#	Time	Action		
1	18:02:06	SELECT * FROM bbdd_tasca_4.trans_x_product LIMIT 0, 1000		

4.1.4 Relacions taula intermèdia trans_x_product amb base de dades bbdd_tasca_4

```

324 • SHOW CREATE TABLE trans_x_product;
325 -- ALTER TABLE trans_x_product DROP FOREIGN KEY trans_x_product_ibfk_2;
326 • ALTER TABLE trans_x_product MODIFY product_ids INT;
327 • ALTER TABLE trans_x_product ADD PRIMARY KEY (id,product_ids);
328 -- Afegeixo les claus externes, encara que el nom de la clau externa me'l triarà ell
329 • ALTER TABLE trans_x_product ADD FOREIGN KEY trans_x_product(id) REFERENCES transactions(id);
330 • ALTER TABLE trans_x_product ADD FOREIGN KEY trans_x_product(product_ids) REFERENCES products_ids(id);
331 • SHOW CREATE TABLE trans_x_product;

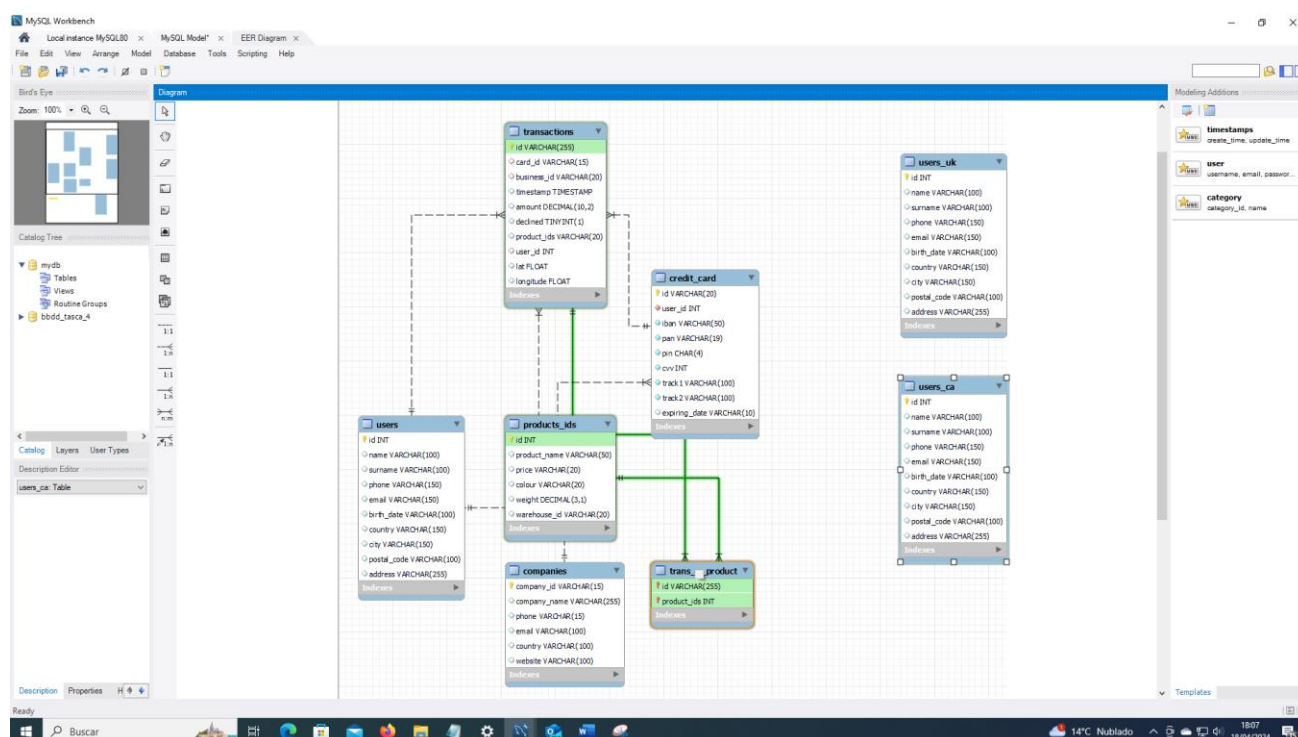
```



Veiem que hem creat una clau primària composta, formada per *id* i *product_ids* i també les relacions de cada un dels camps amb les altres taules de la base de dades *bbdd_tasca_4*.

4.1.5 Diagrama de la base de dades al afegir taula intermèdia trans_x_product

Aquí podem veure com ha canviat la base de dades al afegir *trans_x_product*.




4.1.6 Codi sql que dona resposta a la pregunta de l'exercici

```


333  -- EXERCICI 1 -----
334  -- Número de ventas per cada producte
335  •  USE bbdd_tasca_4;
336  •  SELECT
337      t.product_ids,
338      COUNT(t.product_ids)
339  FROM trans_x_product t
340  GROUP BY 1
341  ORDER BY 1;
342

```

I aquesta és la taula que conté el número de vendes per cada un dels productes, que veiem que com que només té 26 files, només s'han venut 26 productes dels 100 que té la taula *products_ids*.

Result Grid  Filter Rows:

	product_ids	COUNT(t.product_ids)
▶	1	61
	2	65
	3	51
	5	49
	7	54
	11	48
	13	60
	17	61
	19	49
	23	68
	29	49
	31	47
	37	51
	41	53
	43	65
	47	62
	53	58
	59	45
	61	57
	67	68
	71	54
	73	47

Result 6 

		TIME	QUERY	MESSAGE
✓	3	11:52:42	USE bbdd_tasca_4	0 row(s) affected
✓	4	11:52:42	SELECT t.product_ids, COUNT(t.product_ids) FROM trans_x_product t GROUP BY 1 ORDER BY 1 LI...	26 row(s) returned