

Sprint 4

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:

En primer lloc, he creat les taules:

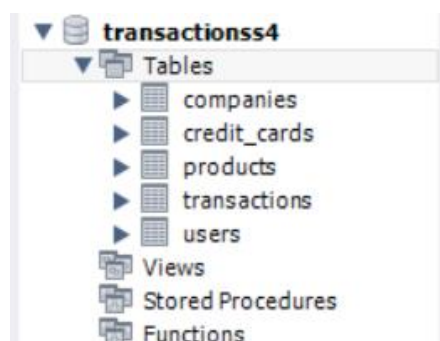
```
CREATE TABLE companies
(
  company_id VARCHAR (15) PRIMARY KEY,
  company_name VARCHAR(150),
  phone VARCHAR (25),
  email VARCHAR (150),
  country VARCHAR (150),
  website VARCHAR (150)
);

CREATE TABLE credit_cards
(
  id VARCHAR (20) PRIMARY KEY,
  user_id VARCHAR (100),
  iban VARCHAR (100) ,
  pan VARCHAR (100) ,
  pin VARCHAR (100) ,
  cvv VARCHAR (100) ,
  track1 VARCHAR (100) ,
  track2 VARCHAR (100) ,
  expiring_date VARCHAR(50)
);

CREATE TABLE products
(
  id VARCHAR(50) PRIMARY KEY,
  product_name VARCHAR (255),
  price VARCHAR (20),
  colour VARCHAR (50),
  weight DECIMAL(8,2),
  warehouse_id VARCHAR(50)
);
```

```
CREATE TABLE transactions
(
  id VARCHAR (40) PRIMARY KEY,
  card_id VARCHAR(20),
  business_id VARCHAR(20),
  timestamp DATETIME,
  amount DECIMAL (10,2),
  declined TINYINT(1),
  product_ids VARCHAR(50),
  user_id VARCHAR(20),
  lat FLOAT ,
  longitude FLOAT);
```

```
CREATE TABLE users
(
  id VARCHAR(20) PRIMARY KEY,
  name VARCHAR (200),
  surname VARCHAR(200),
  phone VARCHAR(25),
  email VARCHAR(150),
  birth_date VARCHAR(50),
  country VARCHAR (150),
  city VARCHAR (150),
  postal_code VARCHAR (50),
  address VARCHAR (150)
);
```



A continuació importem les dades:

Taula companies:

```
LOAD DATA
INFILE 'C:/Users/ereth/Desktop/archivosCSV/ITAcademy/sprint4_V2/companies.csv'
INTO TABLE companies
FIELDS TERMINATED BY ','
ENCLOSED BY '"'
IGNORE 1 ROWS;
```

A l'hora d'executar aquesta query, dona un error de seguretat a causa del fet que això restringeix des de quina carpeta es poden importar les dades.

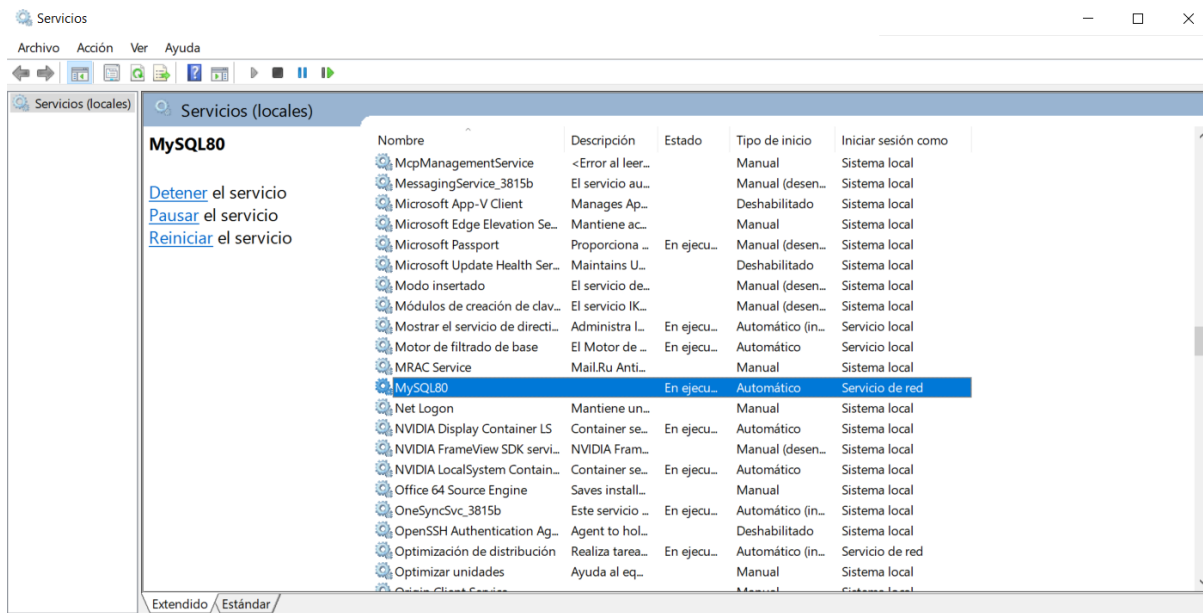
Per fer-ho, he obert l'arxiu my.ini amb el Notepad++ que es troba a la carpeta:

C:\ProgramData\MySQL\MySQL Server 8.0

Un cop aquí he esborrat el *path* que hi ha al '*secure-file*':

```
# 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=""
```

D'aquesta manera el programa em deixarà importar dades des de qualsevol *path*. Després s'ha d'aturar el servei de MySQL i tornar-ho a activar perquè es faci efectiu el canvi:



Taula 'companies' amb les dades importades:

1 • `SELECT * FROM transactionss4.companies;`

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

	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

companies 1 ×

Output

Action Output

#	Time	Action	Message
✓ 1	13:43:59	SELECT * FROM transactionss4.companies LIMIT 0, 1000	100 row(s) returned

Hem importat en total 100 línies.

Taula credit_cards:

```
LOAD DATA
INFILE 'C:/Users/ereth/Desktop/archivosCSV/ITAcademy/sprint4_V2/credit_cards.csv'
INTO TABLE credit_cards
FIELDS TERMINATED BY ','
ENCLOSED BY '"'
IGNORE 1 ROWS;
```

1 • `SELECT * FROM transactionss4.credit_cards;`

Result Grid

	id	user_id	iban	pan	pin	cvv	track1	track2	expiring_date
▶	CcU-2938	275	TR301950312213576817638661	5424465566813633	3257	984	%B8383712448554646^WovsxepDpwiev^8604...	%B7653863056044187=800716333673	10/30/22
	CcU-2945	274	DO26854763748537475216568689	5142423821948828	9080	887	%B4621311609958661^UftuyfsSeimxn^06106...	%B4149568437843501=510714033071	08/24/23
	CcU-2952	273	BG45IVQL52710525608255	4556 453 55 5287	4598	438	%B2183285104307501^CddytytUxwfdq^5907...	%B6778580257827162=6906859740077	06/29/21
	CcU-2959	272	CR7242477244335841535	372461377349375	3583	667	%B7281111956795320^XocddjBckecd^09016...	%B4246154489281853=280522391678	02/24/23
	CcU-2966	271	BG72LKTQ15627628377363	448566 886747 7265	4900	130	%B4728932322756223^JhlgvsuFbmwgj^7202...	%B2318571115599881=890821578475	10/29/24
	CcU-2973	270	PT87806228135092429456346	544 58654 54343 384	8760	887	%B4761405253275637^HjnpioBlejrl^7108515...	%B7816169831446746=1310277729	01/30/25
	CcU-2980	269	DE39241881883086277136	402400 7145845969	5075	596	%B7320483593870549^OokzqrhPased^4901...	%B2474313962214151=041221913175	07/24/22
	CcU-2987	268	GE89681434837748781813	3763 747687 76666	2298	797	%B4750646345146674^PjmlyrfGwwtrf^83051...	%B5441935173418615=410370453677	10/31/23
	CcU-2994	267	BH62714428368066765294	344283273252593	7545	595	%B1583759784015674^GmqoyhtUtoqrn^2507...	%B4141467473024349=6506800955074	02/28/22
	CcU-3001	266	CY49087426654774581266832110	511722 924833 2244	9562	867	%B6227288756728648^AwxlfcFmgvdy^2808...	%B3429355750963453=530526830573	09/16/22
	CcU-3008	265	LU507216693616119230	4485744464433884	1856	740	%B7182449430529226^MkoutyhTfdvpo^1708...	%B6235123731781366=940563816678	04/05/25
	CcU-3015	264	PS119398216295715968342456821	3784 662233 17389	3246	822	%B5776250106724742^QvzvkrCwirovm^530...	%B3561372148267521=190547316677	01/31/22
	CcU-3022	263	GT91695162850556977423121857	5164 1379 4842 3951	5610	342	%B8456622214332875^XmwxhenXwoxbt^050...	%B7761154174374063=230423342974	04/25/25
	CcU-3029	262	AZ62317413982441418123739746	3429 279566 77631	9708	505	%B9882354238385082^HrmhqsnRprjpm^1902...	%B4377026757181186=580245381976	09/02/23
	CcU-3036	261	AZ39336002925842865843941994	3768 451556 48766	2232	565	%B4814576454466431^IcszswEpgfk^92059...	%B7259434322726515=530546049573	10/27/25
	CcU-3043	260	TN6488143310514852179535	455676 6437463635	5969	196	%B6524853618888394^VjjpyyCbiopy^44067...	%B5469323811685837=2403868577	06/07/25
	CcU-3050	259	FR5167744369175836831854477	4024007123722	4834	126	%B7784177223537930^NhuwozeExiwa^9105...	%B2727867073512632=740369024475	10/09/23
	CcU-3057	258	LU931822574697545215	3484 621767 21237	6805	848	%B4513246318178918^EbmpehXroily^71025...	%B1725272041127802=520276979872	09/14/25
	CcU-3064	257	PS146965545449253377627273133	3467 732741 26810	3865	498	%B7675544533775797^XlxvwHuPwqeeK^5103...	%B2536323414661722=081233922287	06/03/25
	CcU-3071	256	NO8923814763512	3464 789562 23352	6625	661	%B8981277622416587^EhdwdwMapqxc^280...	%B8150826795832177=4708165320671	12/20/23
	CcU-3078	255	TS075177145884671770948773	4570 777 74 7777	0405	770	%B880594677676979^YvnmwDnhvnn^690	%B784773853769791=510445189471	03/08/23

credit_cards 1 x

Output

Action Output

#	Time	Action	Message
1	13:48:44	SELECT * FROM transactionss4.credit_cards LIMIT 0, 1000	275 row(s) returned

Hem importat en total 275 línies.

Taula products:

```
LOAD DATA
INFILE 'C:/Users/ereth/Desktop/archivosCSV/ITAcademy/sprint4_V2/products.csv'
INTO TABLE products
FIELDS TERMINATED BY ','
ENCLOSED BY '"'
IGNORE 1 ROWS;
```

The screenshot shows a SQL query execution interface. At the top, a query editor contains the statement: `SELECT * FROM transactionss4.products;`. Below the editor, a toolbar includes options like 'Limit to 1000 rows', 'Filter Rows', 'Edit', 'Export/Import', and 'Wrap Cell Content'. The main area displays a 'Result Grid' with the following data:

	id	product_name	price	colour	weight	warehouse_id
▶	1	Direwolf Stannis	\$161.11	#7c7c7c	1.00	WH-4
	10	Karstark Dorne	\$119.52	#f4f4f4	2.40	WH--5
	100	south duel	\$40.43	#6d6d6d	3.00	WH--95
	11	Karstark Dorne	\$49.70	#141414	2.70	WH--6
	12	duel Direwolf	\$181.60	#a8a8a8	2.10	WH--7
	13	palpatine chewbacca	\$139.59	#2b2b2b	1.00	WH--8
	14	Direwolf	\$147.53	#c4c4c4	2.00	WH--9
	15	Stannis warden	\$194.29	#dbdbdb	1.50	WH--10
	16	the duel warden	\$180.91	#666666	3.00	WH--11
	17	skywalker ewok sith	\$91.89	#7c7c7c	3.20	WH--12
	18	Karstark warden	\$148.91	#c4c4c4	0.80	WH--13
	19	dooku solo	\$60.33	#3f3f3f	0.60	WH--14
	2	Tarly Stark	\$9.24	#919191	2.00	WH-3
	20	warden Karstark	\$91.96	#b5b5b5	1.40	WH--15
	21	duel Direwolf	\$96.90	#e2e2e2	1.20	WH--16
	22	chewbacca mustafar	\$150.02	#fcfcfc	2.40	WH--17
	23	riverlands north	\$169.96	#545454	2.70	WH--18
	24	south duel tourney	\$48.99	#aaaaaa	2.10	WH--19
	25	skywalker ewok	\$157.53	#2b2b2b	1.00	WH--20
	26	Stark Karstark	\$53.01	#898989	2.00	WH--21
	27	Stannis riverlands	\$172.93	#7a7a7a	1.50	WH--22

Below the grid, an 'Output' section shows the 'Action Output' with a table:

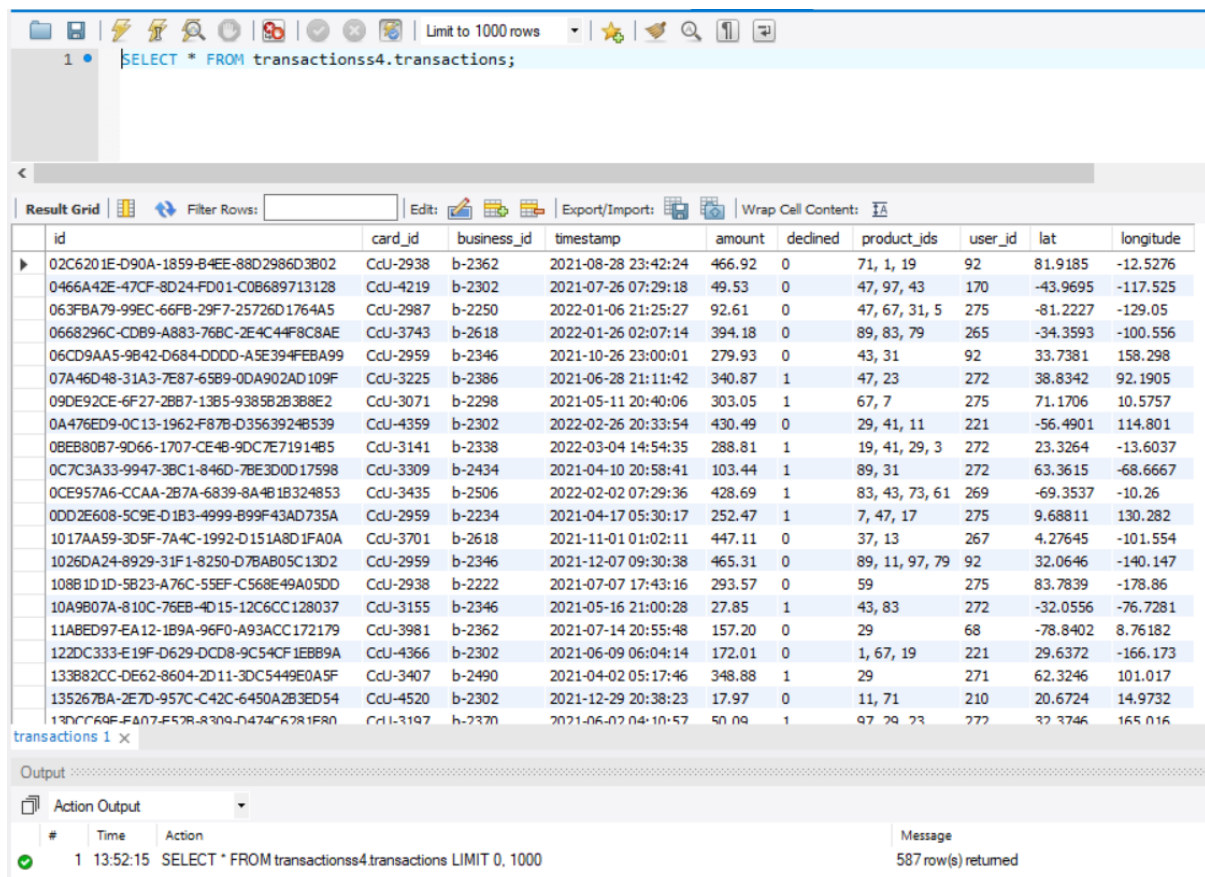
#	Time	Action	Message
✓ 1	13:50:02	SELECT * FROM transactionss4.products LIMIT 0, 1000	100 row(s) returned

Hem importat en total 100 línies.

En el cas de la taula 'transactions' l'arxiu és diferent i està separat per ','; per tant, s'ha de modificar una mica la query:

```
LOAD DATA
INFILE 'C:/Users/ereth/Desktop/archivosCSV/ITAcademy/sprint4_V2/transactions.csv'
INTO TABLE transactions
FIELDS TERMINATED BY ','
ENCLOSED BY '"'
LINES TERMINATED BY '\r\n'
IGNORE 1 ROWS;
```

D'aquesta manera indiquem que l'arxiu està separat per punt i coma. A més he afegit el 'LINES TERMINATED BY '\r\n'', perquè detectava malament el salt de línia de l'arxiu.



The screenshot shows a database query interface. At the top, a query editor contains the SQL statement: `SELECT * FROM transactionss4.transactions;`. Below the editor, a toolbar includes icons for various actions and a 'Limit to 1000 rows' dropdown. The main area displays a 'Result Grid' with columns: `id`, `card_id`, `business_id`, `timestamp`, `amount`, `declined`, `product_ids`, `user_id`, `lat`, and `longitude`. The grid contains 30 rows of data. Below the grid, an 'Output' section shows an 'Action Output' table with columns: `#`, `Time`, `Action`, and `Message`. The output shows a successful execution at 13:52:15, returning 587 rows.

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-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-A5E394FEB9A9	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-6F27-2BB7-13B5-9385B2B388E2	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
0DD2E608-5C9E-D1B3-4999-899F43AD735A	CcU-2959	b-2234	2021-04-17 05:30:17	252.47	1	7, 47, 17	275	9.68811	130.282
1017AA59-3D5F-7A4C-1992-D151A8D1FA0A	CcU-3701	b-2618	2021-11-01 01:02:11	447.11	0	37, 13	267	4.27645	-101.554
1026DA24-8929-31F1-8250-D7B8B05C13D2	CcU-2959	b-2346	2021-12-07 09:30:38	465.31	0	89, 11, 97, 79	92	32.0646	-140.147
108B1D1D-5B23-A76C-55EF-C568E49A05DD	CcU-2938	b-2222	2021-07-07 17:43:16	293.57	0	59	275	83.7839	-178.86
10A9B07A-810C-76EB-4D15-12C6CC128037	CcU-3155	b-2346	2021-05-16 21:00:28	27.85	1	43, 83	272	-32.0556	-76.7281
11ABED97-EA12-1B9A-96F0-A93ACC172179	CcU-3981	b-2362	2021-07-14 20:55:48	157.20	0	29	68	-78.8402	8.76182
122DC333-E19F-D629-DCD8-9C54CF1EBB9A	CcU-4366	b-2302	2021-06-09 06:04:14	172.01	0	1, 67, 19	221	29.6372	-166.173
133882CC-DE62-8604-2D11-3DC5449E0A5F	CcU-3407	b-2490	2021-04-02 05:17:46	348.88	1	29	271	62.3246	101.017
135267BA-2E7D-957C-C42C-6450A2B3ED54	CcU-4520	b-2302	2021-12-29 20:38:23	17.97	0	11, 71	210	20.6724	14.9732
137C769F-F407-F57B-8309-D474C6281F80	CcU-3197	b-2370	2021-06-02 04:10:57	50.09	1	97, 29, 73	272	32.3746	165.016

transactions 1 x

Output

#	Time	Action	Message
1	13:52:15	SELECT * FROM transactionss4.transactions LIMIT 0, 1000	587 row(s) returned

Hem importat 587 línies.

En el cas de la taula 'users', tenim tres arxius diferents separats per 'country', he decidit importar-les totes a la mateixa taula, ja que no és necessari que estiguin separats.

A més, a la columna 'adress' hi ha registres que entre cometes "" i això pot donar error a l'hora d'importar, perquè no registra bé el salt de línia. Per tant, també hem d'indicar quan canviar de línia:

201,101d,F0WE15,V10-137-4117,antc.dianhite@outlook.edu,"Dec 2, 1986",Canada,Murdochville,87E 6E0,Ap #880-6372 Ultrices. St.
202,Maxwell,Holden,045-402-7693,donec@hotmail.edu,"Dec 2, 1986",Canada,Murdochville,87E 6E0,Ap #880-6372 Ultrices. St.
203,Jarrod,Fields,010-741-8105,sit.amet@google.couk,"Jan 6, 1982",Canada,Baddeck,K3X 6Z5,441-8969 Rhoncus Road
204,Emerson,Sharp,068-138-9383,ante.iaculis@outlook.ca,"Oct 15, 1994",Canada,Maple Creek,Y2C 9E6,"517-6759 Ut, Av."
205,Sonya,Mckee,041-151-9737,magna.phasellus.dolor@google.ca,"May 7, 1983",Canada,Dieppe,E7S 4P8,Ap #916-8051 A St.
206,Harper,Hart,030-656-1670,fringilla.donec@outlook.net,"Nov 17, 2000",Canada,Québec City,B4K 0J6,8588 Massa. Ave
207,Yvonne,Hatfield,003-854-1445,magna.et.ipsu@google.edu,"Sep 22, 1981",Canada,Rae-Edzo,20Y 8L2,Ap #636-8055 Egestas St.
208,Burke,Graham,064-568-4454,vel@yahoo.org,"Feb 23, 1993",Canada,Annapolis Royal,S4Y 8V5,Ap #983-6042 Amet Street
209,Athena,Malone,027-280-8275,pellentesque.tincidunt@yahoo.ca,"Dec 14, 1991",Canada,Cambridge Bay,9Z3 5S5,Ap #388-8542 Est St.

```

LOAD DATA
INFILE 'C:/Users/ereth/Desktop/archivosCSV/ITAcademy/sprint4_V2/users_ca.csv'
INTO TABLE users
FIELDS TERMINATED BY ','
ENCLOSED BY '"'
LINES TERMINATED BY '\r\n'
IGNORE 1 ROWS;

LOAD DATA
INFILE 'C:/Users/ereth/Desktop/archivosCSV/ITAcademy/sprint4_V2/users_uk.csv'
INTO TABLE users
FIELDS TERMINATED BY ','
ENCLOSED BY '"'
LINES TERMINATED BY '\r\n'
IGNORE 1 ROWS;

LOAD DATA
INFILE 'C:/Users/ereth/Desktop/archivosCSV/ITAcademy/sprint4_V2/users_usa.csv'
INTO TABLE users
FIELDS TERMINATED BY ','
ENCLOSED BY '"'
LINES TERMINATED BY '\r\n'
IGNORE 1 ROWS;

```

<

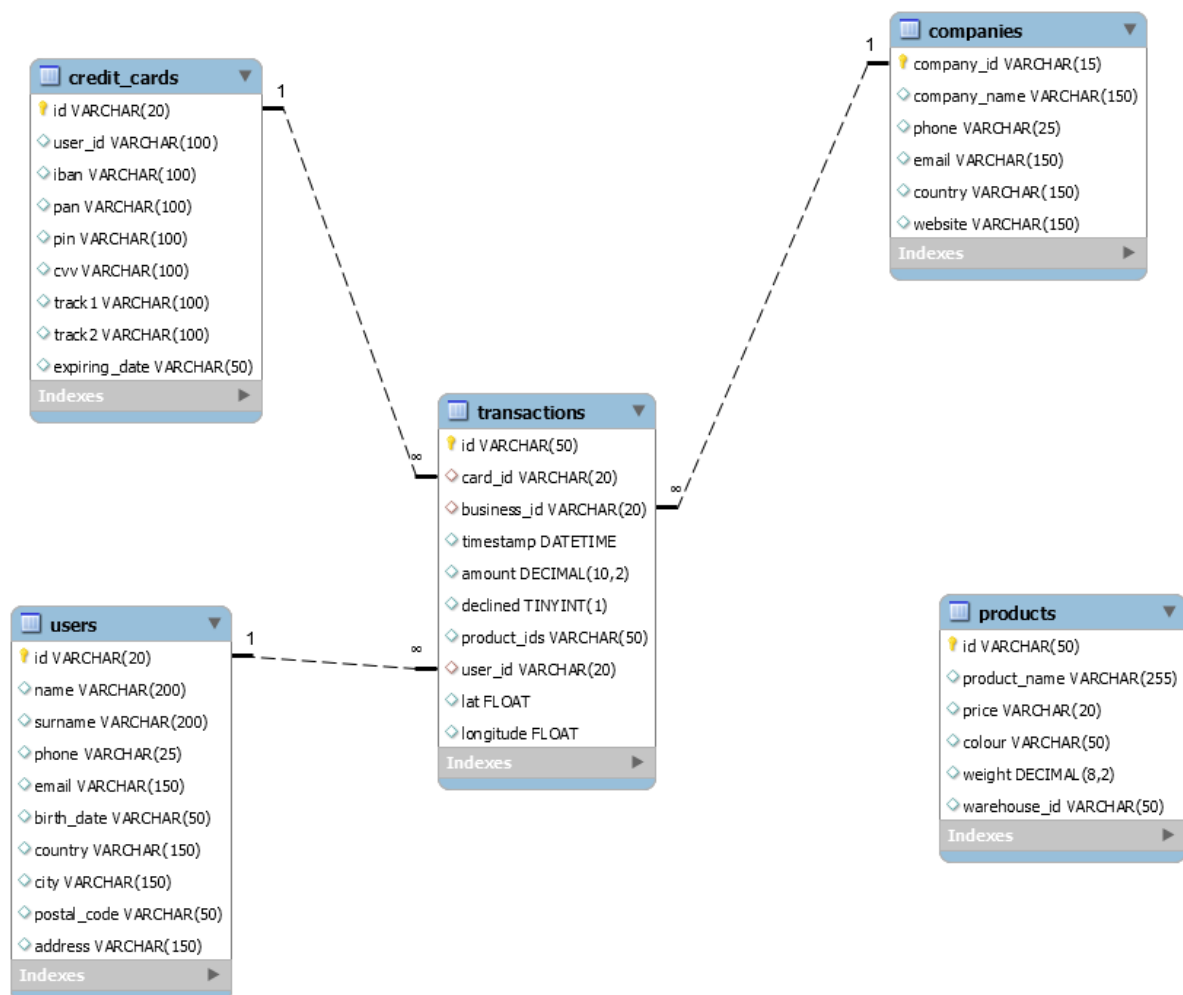
A continuació establím les relacions entre taules:

```

ALTER TABLE transactions
ADD CONSTRAINT fk_companies
FOREIGN KEY (business_id)
REFERENCES companies(company_id),
ADD CONSTRAINT fk_credit_cards
FOREIGN KEY (card_id)
REFERENCES credit_cards(id),
ADD CONSTRAINT fk_users
FOREIGN KEY (user_id)
REFERENCES users (id);

```

Encara no podem establir la relació amb 'products', ja que a la taula 'transactions' el camp amb el qual el relacionaríem és 'products_ids' però aquest conté més d'un id separat per comes. Això ho haurem de solucionar més endavant en un altre exercici.



Exercici 1

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

```
SELECT users.name, users.surname
FROM users
WHERE users.id IN (SELECT transactions.user_id
                  FROM transactions
                  GROUP BY user_id
                  HAVING count(*) >30);
```

Resultat:

	name	surname
▶	Ocean	Nelson
	Hedwig	Gilbert
	Kenyon	Hartman
	Lynn	Riddle

Ens retorna 4 línies amb el nom i cognoms dels 'users' que han fet més de 30 transactions.

Exercici 2

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

```
SELECT iban, AVG(amount) |
FROM transactions
LEFT JOIN credit_cards
ON transactions.card_id = credit_cards.id
LEFT JOIN companies
ON transactions.business_id = companies.company_id
WHERE company_name LIKE ('Donec Ltd')
GROUP BY iban;
```

Resultat:

	iban	AVG(amount)
▶	PT87806228135092429456346	203.715000

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:

```
CREATE TABLE Estado_Tarjetas AS
SELECT
    card_id,
    CASE
        WHEN COUNT(*) < 3 THEN 'Activa'
        WHEN SUM(declined) = 3 THEN 'Inactiva'
        ELSE 'Activa'
    END AS Estado
FROM (
    SELECT
        card_id,
        declined,
        ROW_NUMBER() OVER(PARTITION BY card_id ORDER BY timestamp DESC) AS Rank_Transaccion
    FROM transactions
) AS Transacciones_Ordenadas
WHERE Rank_Transaccion <= 3
GROUP BY card_id;
```

```
SELECT
    card_id,
    declined,
    ROW_NUMBER() OVER(PARTITION BY card_id ORDER BY timestamp DESC) AS Rank_Transaccion
FROM transactions
```

Aquesta part de la consulta està ordenant per data les transaccions de cada 'credit_card' i li col·loca un nombre ordinal, és a dir, les transaccions més noves, tenen un número més baix:

	card_id	declined	Rank_Transaccion
►	CcU-2938	0	1
	CcU-2938	0	2
	CcU-2938	0	3
	CcU-2938	0	4
	CcU-2938	0	5
	CcU-2938	0	6
	CcU-2938	0	7
	CcU-2938	0	8
	CcU-2938	0	9
	CcU-2938	0	10
	CcU-2938	0	11
	CcU-2938	0	12
	CcU-2938	0	13
	CcU-2938	0	14
	CcU-2938	0	15
	CcU-2938	0	16
	CcU-2938	0	17
	CcU-2938	0	18
	CcU-2938	1	19
	CcU-2938	0	20

Després filtra només les 3 últimes transaccions, ja que només selecciona si tenen el valor 3 o menys de Rank_transaction

```
WHERE Rank_Transaccion <= 3
```

```
CREATE TABLE Estado_Tarjetas AS
SELECT
  card_id,
  CASE
    WHEN COUNT(*) < 3 THEN 'Activa'
    WHEN SUM(declined) = 3 THEN 'Inactiva'
    ELSE 'Activa'
  END AS Estado
```

Aquesta part està agrupant per 'card_id' i calcula l'estat basat en les últimes 3 transaccions:

- Si el nombre total de transaccions per una targeta és inferior a 3, la targeta es considera 'Activa'.
- Si el nombre total de transaccions declinades és igual a 3, la targeta es considera 'Inactiva'.
- En tots els altres casos, la targeta es considera 'Activa'.

Finalment, la consulta està creant una taula i emmagatzemant els resultats de la consulta anterior:

```
CREATE TABLE Estado_Tarjetas AS
```

Resultado:

	card_id	Estado
►	CcU-2938	Activa
	CcU-2945	Activa
	CcU-2952	Activa
	CcU-2959	Activa
	CcU-2966	Activa
	CcU-2973	Activa
	CcU-2980	Activa
	CcU-2987	Activa
	CcU-2994	Activa
	CcU-3001	Activa
	CcU-3008	Activa
	CcU-3015	Activa
	CcU-3022	Activa
	CcU-3029	Activa
	CcU-3036	Activa
	CcU-3043	Activa
	CcU-3050	Activa
	CcU-3057	Activa
	CcU-3064	Activa
	CcU-3071	Activa
	CcU-3078	Activa

Exercici 1

Quantes targetes estan actives?

```
SELECT COUNT(*) AS Tarjetas_activas  
FROM Estado_tarjetas  
WHERE Estado = 'Activa';
```

Amb aquesta consulta, seleccionem les targetes que tenen estat = 'Activa'. L'alias té únicament finalitat estètica i per millorar la comprensió de la visualització de la resposta:

	Tarjetas_activas
►	275

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:

Primer he creat la Taula amb les columnes de transaction_id i product_ids

```
CREATE TABLE transaction_products (  
  transaction_id VARCHAR(40),  
  product_id VARCHAR(50),  
  PRIMARY KEY (transaction_id, product_id),  
  FOREIGN KEY (transaction_id) REFERENCES transactions(id),  
  FOREIGN KEY (product_id) REFERENCES products(id));
```

A continuació he importat les dades de la següent manera:

```
INSERT INTO transaction_products (transaction_id, product_id)  
SELECT transactions.id, products.id  
FROM transactions  
JOIN products ON FIND_IN_SET(products.id, REPLACE(transactions.product_ids, ' ', ','));
```

Aquest script, està important les dades de transactions i products, mitjançant un JOIN per trobar els productes associats a cada transacció.

La funció REPLACE la fem servir per manipular la columna product_ids de la taula transactions. Aquesta columna conté una llista de IDS separats per comes i espais. Per poder fer servir la següent funció (FIND_IN_SET) necessitem que només estiguin separats per comes i no per comes i espais. La funció REPLACE ens ajuda a aconseguir-ho substituint ' ' per ','.

```
JOIN products ON FIND_IN_SET(products.id, REPLACE(transactions.product_ids, ' ', ','));
```

Ara la funció FIND_IN_SET pot buscar els ID de productes de la llista d'ID de products associats a cada transacció. A cada fila de la taula transactions busca els id de product_ids que hem manipulat anteriorment i el busca a la taula products a la columna id. Si el troba, posa aquest ID el col·loca, si no, col·loca un 0.

Resultat:

	transaction_id	product_id
▶	02C6201E-D90A-1859-B4EE-88D2986D3B02	1
	02C6201E-D90A-1859-B4EE-88D2986D3B02	19
	02C6201E-D90A-1859-B4EE-88D2986D3B02	71
	0466A42E-47CF-8D24-FD01-C0B689713128	43
	0466A42E-47CF-8D24-FD01-C0B689713128	47
	0466A42E-47CF-8D24-FD01-C0B689713128	97
	063FBA79-99EC-66FB-29F7-25726D1764A5	31
	063FBA79-99EC-66FB-29F7-25726D1764A5	47
	063FBA79-99EC-66FB-29F7-25726D1764A5	5
	063FBA79-99EC-66FB-29F7-25726D1764A5	67

Podem observar totes els product_id associats a cada transaction.

Exercici 1

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

```
SELECT products.product_name, Count(product_id) AS num_ventas
FROM transaction_products
LEFT JOIN products
ON transaction_products.product_id=products.id
GROUP BY product_name
ORDER BY num_ventas desc
;
```

Resultat:

	product_name	num_ventas
►	Direwolf Stannis	106
	skywalker ewok	100
	Winterfell	68
	riverlands north	68
	Direwolf riverlands the	66
	duel	65
	Tarly Stark	65
	Tully	62
	skywalker ewok sith	61
	jinn Winterfell	61
	palpatine chewbacca	60
	kingsblood Littlefinger...	58

Result 4 ×

Output

Action Output

#	Time	Action	Message
✓ 18	16:25:49	SELECT products.product_name, Count(product_id) AS num_ventas FROM tr...	24 row(s) returned
✓ 19	16:25:53	SELECT products.product_name, Count(product_id) AS num_ventas FROM tr...	24 row(s) returned