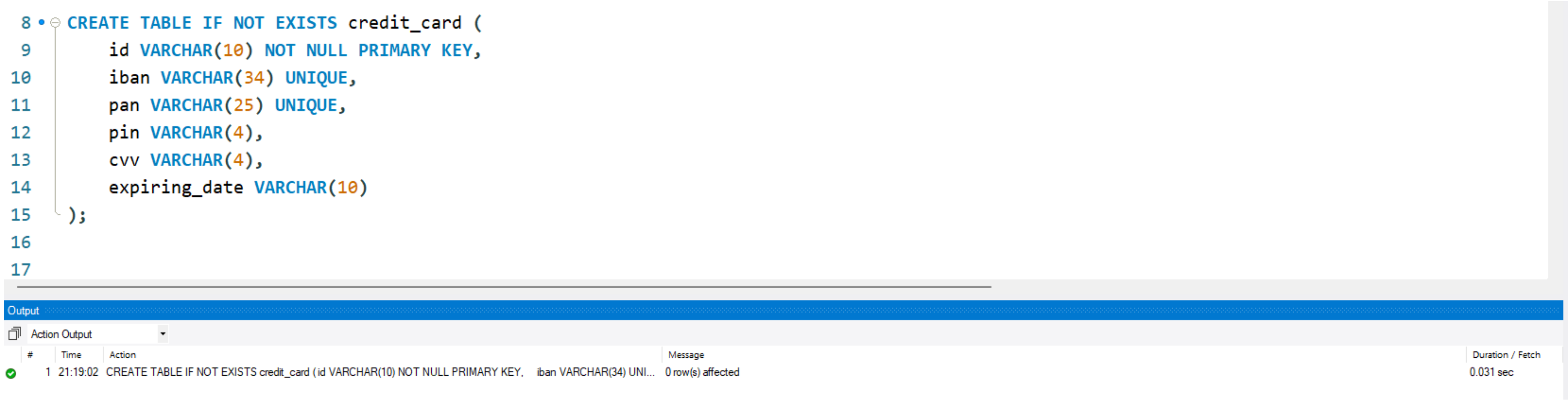
Nivell 1 – Exercici 1

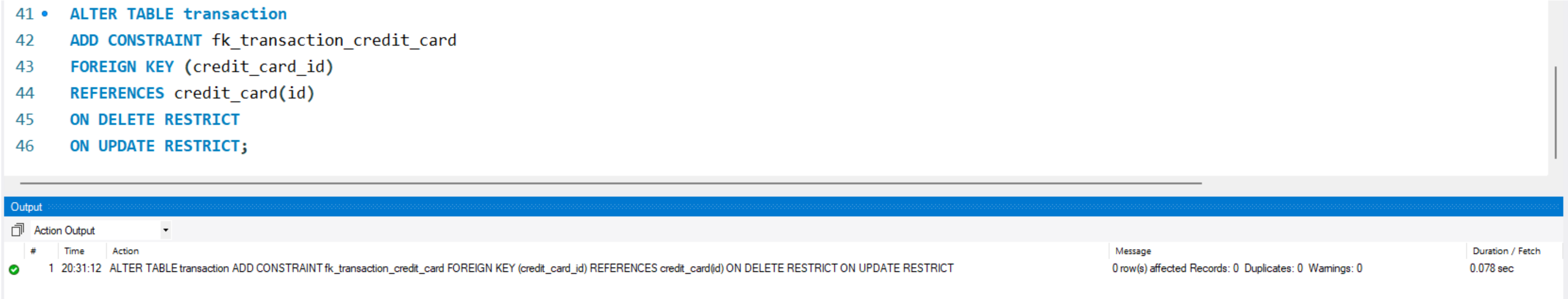
Creo la taula "credit_card" amb una FOREIGN KEY NOT NULL i assignant el tipus de dades a cada camp que correspon al tipus i llarg dels dades proporcionades a l'arxiu SQL.



```sql
CREATE TABLE IF NOT EXISTS credit_card (
    id VARCHAR(10) NOT NULL PRIMARY KEY,
    iban VARCHAR(34) UNIQUE,
    pan VARCHAR(25) UNIQUE,
    pin VARCHAR(4),
    cvv VARCHAR(4),
    expiring_date VARCHAR(10)
);
```

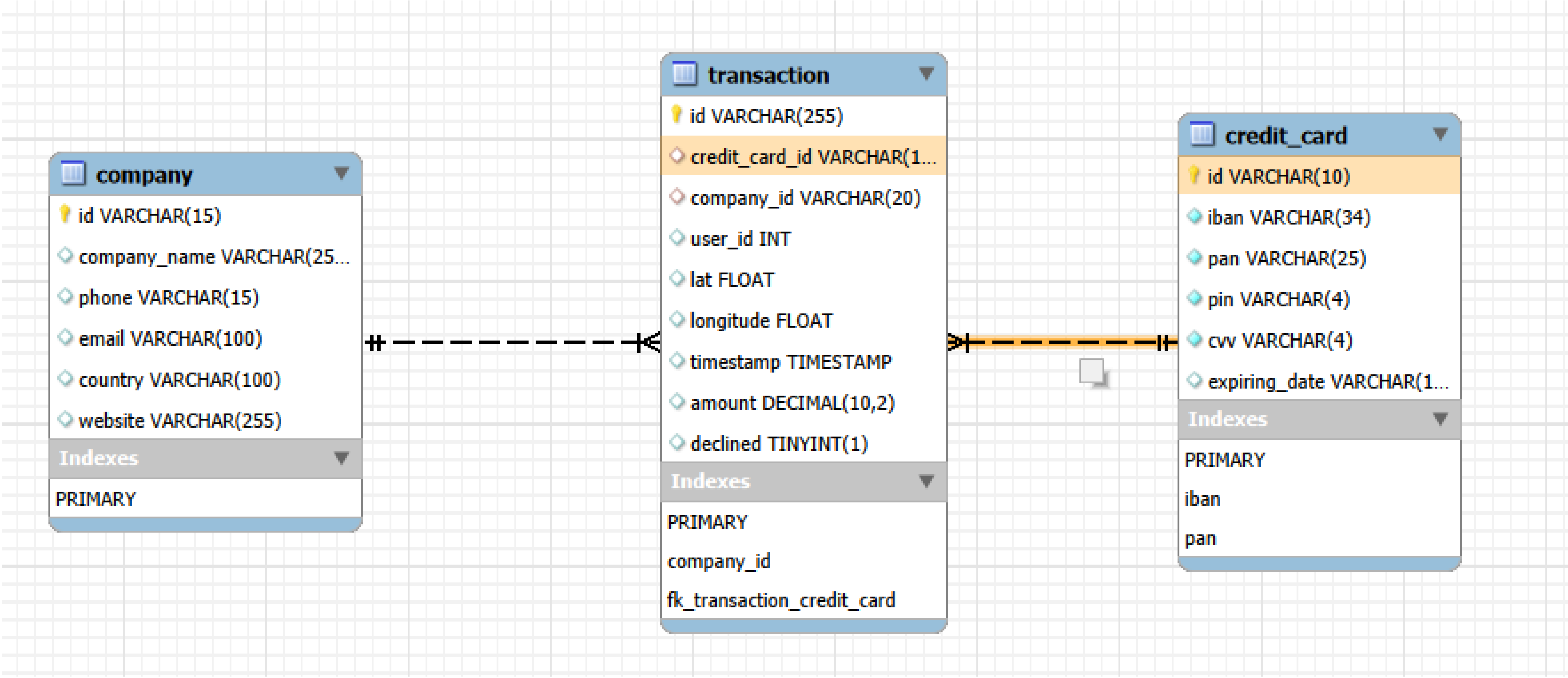
```
#   Time      Action                                                                                      Message               Duration / Fetch
1   21:19:02  CREATE TABLE IF NOT EXISTS credit_card ( id VARCHAR(10) NOT NULL PRIMARY KEY,    iban VARCHAR(34) UNI...   0 row(s) affected   0.031 sec
```

Creo la FOREIGN KEY a la taula "transaction" per vincular-la a la taula "credit_card" recentment creada.



```sql
ALTER TABLE transaction
ADD CONSTRAINT fk_transaction_credit_card
FOREIGN KEY (credit_card_id)
REFERENCES credit_card(id)
ON DELETE RESTRICT
ON UPDATE RESTRICT;
```

```
#   Time      Action                                                                                                                                  Message                                                      Duration / Fetch
1   20:31:12  ALTER TABLE transaction ADD CONSTRAINT fk_transaction_credit_card FOREIGN KEY (credit_card_id) REFERENCES credit_card(id) ON DELETE RESTRICT ON UPDATE RESTRICT   0 row(s) affected Records: 0  Duplicates: 0  Warnings: 0   0.078 sec
```



company

id VARCHAR(15)
company_name VARCHAR(25...
phone VARCHAR(15)
email VARCHAR(100)
country VARCHAR(100)
website VARCHAR(255)

Indexes

PRIMARY

transaction

id VARCHAR(255)
credit_card_id VARCHAR(1...
company_id VARCHAR(20)
user_id INT
lat FLOAT
longitude FLOAT
timestamp TIMESTAMP
amount DECIMAL(10,2)
declined TINYINT(1)

Indexes

PRIMARY
company_id
fk_transaction_credit_card

credit_card

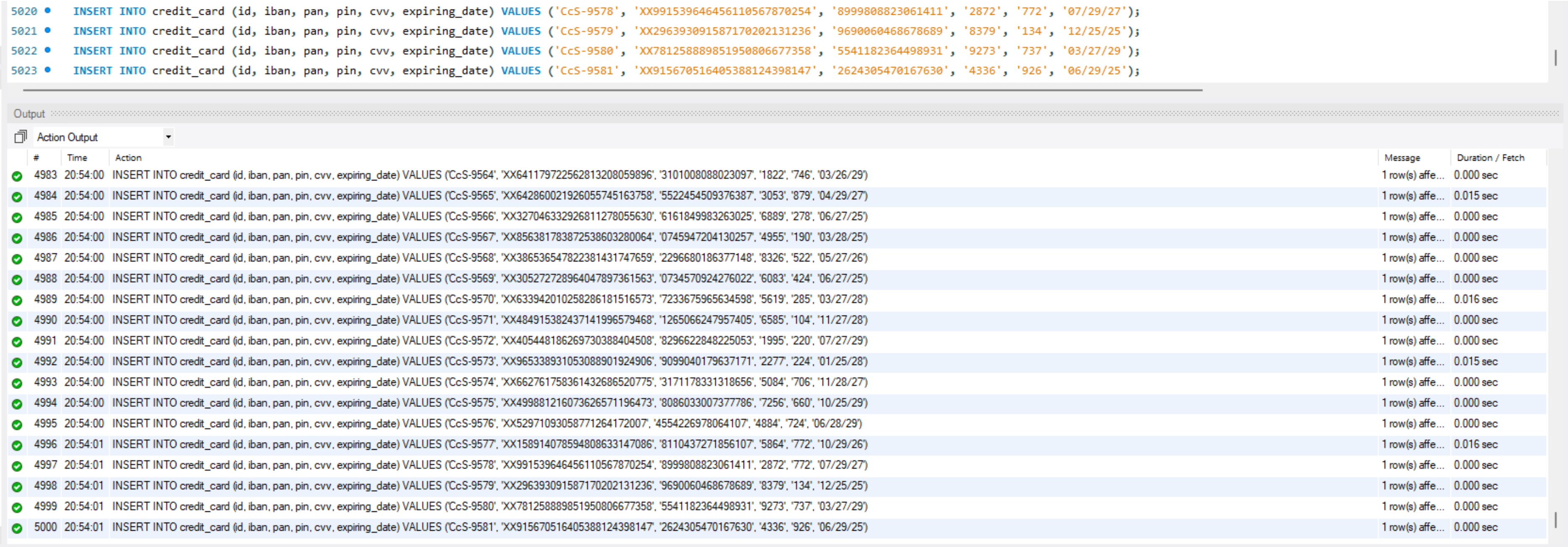
id VARCHAR(10)
iban VARCHAR(34)
pan VARCHAR(25)
pin VARCHAR(4)
cvv VARCHAR(4)
expiring_date VARCHAR(1...

Indexes

PRIMARY
iban
pan

La relacio cardinal es (1:N) entre “credit_card” i “transaction” i tambe entre “company” i “transaction” en ambdós casos a través de claus externes amb restriccions específiques per garantir la coherència i la fiabilitat de les dades entre les taules.

Introdueixo les dades a la taula "credit_card"

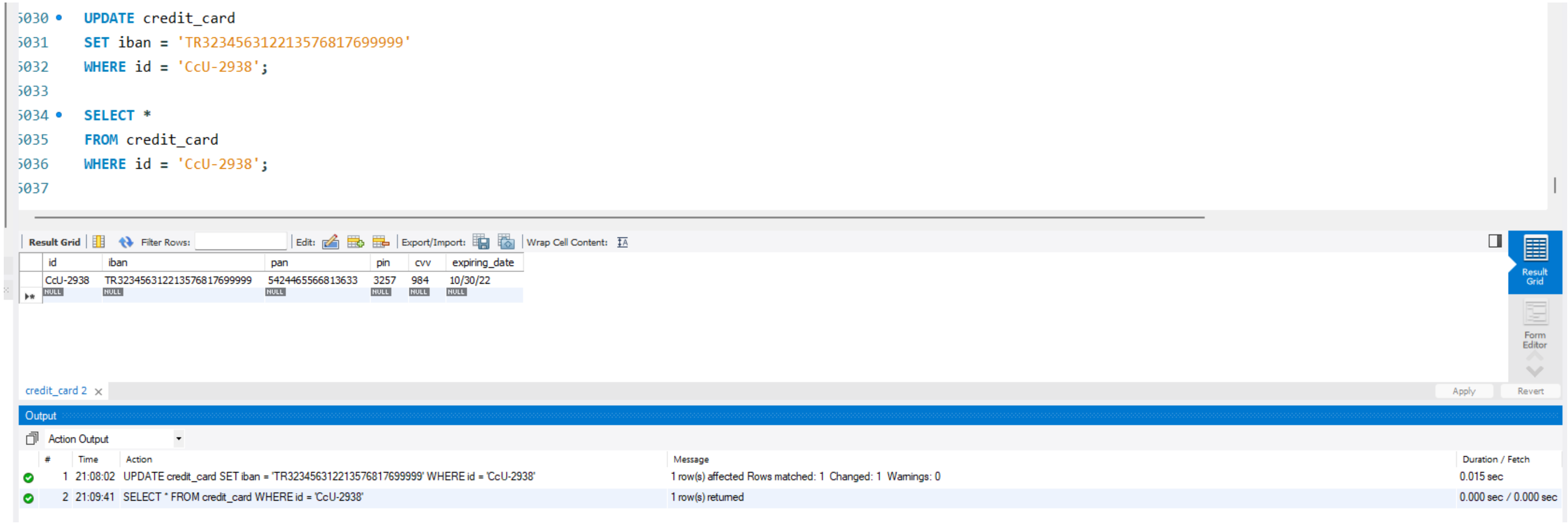


```sql
INSERT INTO credit_card (id, iban, pan, pin, cvv, expiring_date) VALUES ('CcS-9578', 'XX991539646456110567870254', '8999808823061411', '2872', '772', '07/29/27');
INSERT INTO credit_card (id, iban, pan, pin, cvv, expiring_date) VALUES ('CcS-9579', 'XX296393091587170202131236', '9690060468678689', '8379', '134', '12/25/25');
INSERT INTO credit_card (id, iban, pan, pin, cvv, expiring_date) VALUES ('CcS-9580', 'XX781258889851950806677358', '5541182364498931', '9273', '737', '03/27/29');
INSERT INTO credit_card (id, iban, pan, pin, cvv, expiring_date) VALUES ('CcS-9581', 'XX915670516405388124398147', '2624305470167630', '4336', '926', '06/29/25');
```

```
#     Time      Action                                                                                                                                              Message           Duration / Fetch
4983  20:54:00  INSERT INTO credit_card (id, iban, pan, pin, cvv, expiring_date) VALUES ('CcS-9564', 'XX641179722562813208059896', '3101008088023097', '1822', '746', '03/26/29')  1 row(s) affe...  0.000 sec
4984  20:54:00  INSERT INTO credit_card (id, iban, pan, pin, cvv, expiring_date) VALUES ('CcS-9565', 'XX642860021926055745163758', '5522454509376387', '3053', '879', '04/29/27')  1 row(s) affe...  0.015 sec
4985  20:54:00  INSERT INTO credit_card (id, iban, pan, pin, cvv, expiring_date) VALUES ('CcS-9566', 'XX327046332926811278055630', '6161849983263025', '6889', '278', '06/27/25')  1 row(s) affe...  0.000 sec
4986  20:54:00  INSERT INTO credit_card (id, iban, pan, pin, cvv, expiring_date) VALUES ('CcS-9567', 'XX856381783872538603280064', '0745947204130257', '4955', '190', '03/28/25')  1 row(s) affe...  0.000 sec
4987  20:54:00  INSERT INTO credit_card (id, iban, pan, pin, cvv, expiring_date) VALUES ('CcS-9568', 'XX386536547822381431747659', '2296680186377148', '8326', '522', '05/27/26')  1 row(s) affe...  0.000 sec
4988  20:54:00  INSERT INTO credit_card (id, iban, pan, pin, cvv, expiring_date) VALUES ('CcS-9569', 'XX305272728964047897361563', '0734570924276022', '6083', '424', '06/27/25')  1 row(s) affe...  0.000 sec
4989  20:54:00  INSERT INTO credit_card (id, iban, pan, pin, cvv, expiring_date) VALUES ('CcS-9570', 'XX633942010258286181516573', '7233675965634598', '5619', '285', '03/27/28')  1 row(s) affe...  0.016 sec
4990  20:54:00  INSERT INTO credit_card (id, iban, pan, pin, cvv, expiring_date) VALUES ('CcS-9571', 'XX484915382437141996579468', '1265066247957405', '6585', '104', '11/27/28')  1 row(s) affe...  0.000 sec
4991  20:54:00  INSERT INTO credit_card (id, iban, pan, pin, cvv, expiring_date) VALUES ('CcS-9572', 'XX405448186269730388404508', '8296622848225053', '1995', '220', '07/27/29')  1 row(s) affe...  0.000 sec
4992  20:54:00  INSERT INTO credit_card (id, iban, pan, pin, cvv, expiring_date) VALUES ('CcS-9573', 'XX965338931053088901924906', '9099040179637171', '2277', '224', '01/25/28')  1 row(s) affe...  0.015 sec
4993  20:54:00  INSERT INTO credit_card (id, iban, pan, pin, cvv, expiring_date) VALUES ('CcS-9574', 'XX662761758361432686520775', '3171178331318656', '5084', '706', '11/28/27')  1 row(s) affe...  0.000 sec
4994  20:54:00  INSERT INTO credit_card (id, iban, pan, pin, cvv, expiring_date) VALUES ('CcS-9575', 'XX499881216073626571196473', '8086033007377786', '7256', '660', '10/25/29')  1 row(s) affe...  0.000 sec
4995  20:54:00  INSERT INTO credit_card (id, iban, pan, pin, cvv, expiring_date) VALUES ('CcS-9576', 'XX52971093058771264172007', '4554226978064107', '4884', '724', '06/28/29')  1 row(s) affe...  0.000 sec
4996  20:54:01  INSERT INTO credit_card (id, iban, pan, pin, cvv, expiring_date) VALUES ('CcS-9577', 'XX158914078594808633147086', '8110437271856107', '5864', '772', '10/29/26')  1 row(s) affe...  0.016 sec
4997  20:54:01  INSERT INTO credit_card (id, iban, pan, pin, cvv, expiring_date) VALUES ('CcS-9578', 'XX991539646456110567870254', '8999808823061411', '2872', '772', '07/29/27')  1 row(s) affe...  0.000 sec
4998  20:54:01  INSERT INTO credit_card (id, iban, pan, pin, cvv, expiring_date) VALUES ('CcS-9579', 'XX296393091587170202131236', '9690060468678689', '8379', '134', '12/25/25')  1 row(s) affe...  0.000 sec
4999  20:54:01  INSERT INTO credit_card (id, iban, pan, pin, cvv, expiring_date) VALUES ('CcS-9580', 'XX781258889851950806677358', '5541182364498931', '9273', '737', '03/27/29')  1 row(s) affe...  0.000 sec
5000  20:54:01  INSERT INTO credit_card (id, iban, pan, pin, cvv, expiring_date) VALUES ('CcS-9581', 'XX915670516405388124398147', '2624305470167630', '4336', '926', '06/29/25')  1 row(s) affe...  0.000 sec
```

Nivell 1 – Exercici 2

Només s'utilitza la taula "credit_card", de manera que no cal fer referència a la taula a l'instrucció WHERE.



```sql
UPDATE credit_card
SET iban = 'TR323456312213576817699999'
WHERE id = 'CcU-2938';

SELECT *
FROM credit_card
WHERE id = 'CcU-2938';
```

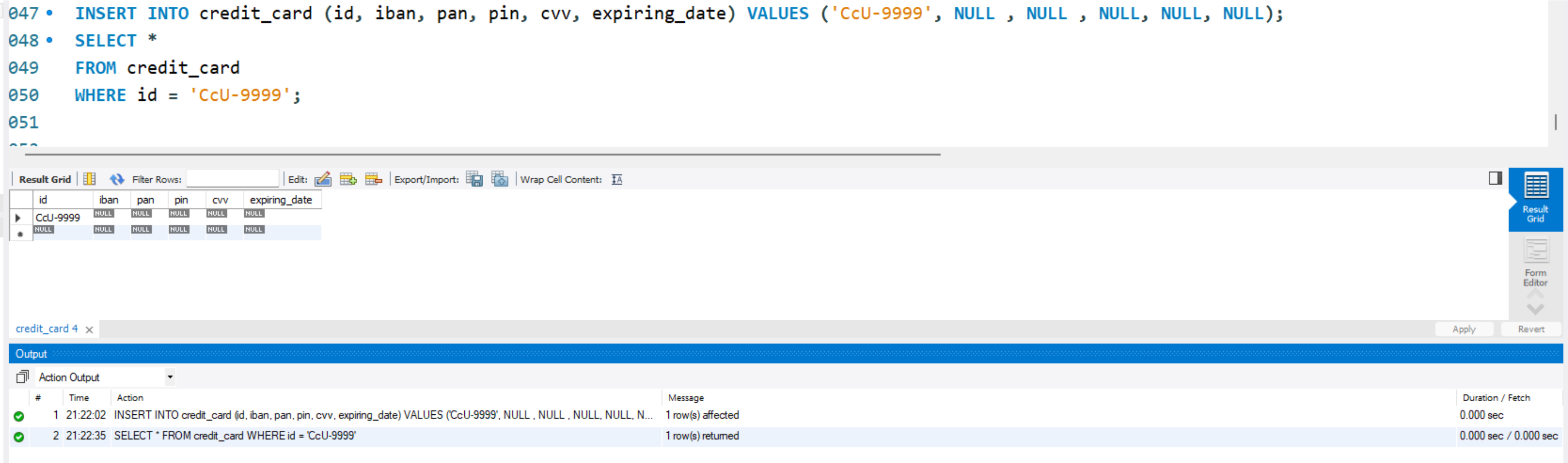
id	iban	pan	pin	cvv	expiring_date
CcU-2938	TR323456312213576817699999	5424465566813633	3257	984	10/30/22
NULL	NULL	NULL	NULL	NULL	NULL

	#	Time	Action	Message	Duration / Fetch
✓	1	21:08:02	UPDATE credit_card SET iban = 'TR323456312213576817699999' WHERE id = 'CcU-2938'	1 row(s) affected Rows matched: 1 Changed: 1 Warnings: 0	0.015 sec
✓	2	21:09:41	SELECT * FROM credit_card WHERE id = 'CcU-2938'	1 row(s) returned	0.000 sec / 0.000 sec

Nivell 1 – Exercici 3

Primer, he de crear el nou registre de targeta de crèdit, ja que no existeix a la taula de “credit_card” i que la FOREIGN KEY de la taula “company” és una FOREIGN KEY a la taula “transaction”. Aquest registre és necessari per fer la modificació sol·licitada a la taula “transaction” i mantenir la coherència de les dades entre les taules.

Vaig introduir un valor NULL per a tots els camps per als quals no tinc dades i també per tal que es puguin identificar aquests valors que falten. Una bona pràctica seria demanar a la persona que sol·licita aquesta modificació de dades que proporcioni tots aquests valors per garantir la integritat de les dades de la base de dades.



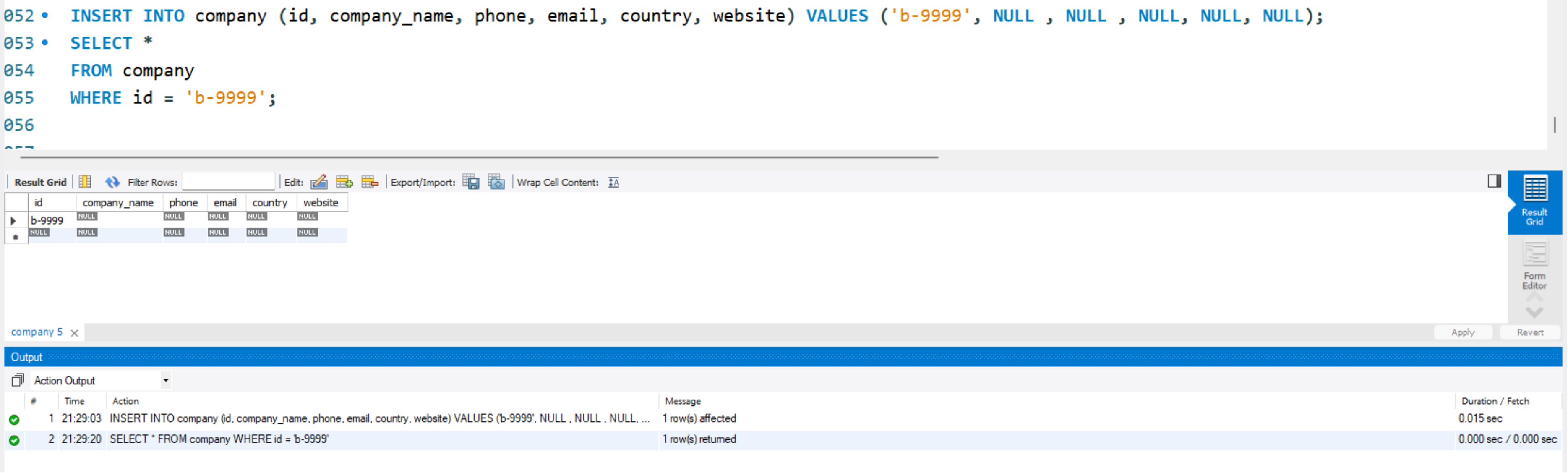
```sql
INSERT INTO credit_card (id, iban, pan, pin, cvv, expiring_date) VALUES ('CcU-9999', NULL , NULL , NULL, NULL, NULL);
SELECT *
FROM credit_card
WHERE id = 'CcU-9999';
```

	id	iban	pan	pin	cvv	expiring_date
▶	CcU-9999	NULL	NULL	NULL	NULL	NULL
*	NULL	NULL	NULL	NULL	NULL	NULL

	#	Time	Action	Message	Duration / Fetch
✓	1	21:22:02	INSERT INTO credit_card (id, iban, pan, pin, cvv, expiring_date) VALUES ('CcU-9999', NULL , NULL , NULL, NULL, N...	1 row(s) affected	0.000 sec
✓	2	21:22:35	SELECT * FROM credit_card WHERE id = 'CcU-9999'	1 row(s) returned	0.000 sec / 0.000 sec

Només s'utilitza la taula "credit_card", de manera que no cal fer referència a la taula a l'instrucció WHERE.

Segon, i pel mateix motiu que per a la taula “credit_card”, he de crear la nova companya a la taula “company”.



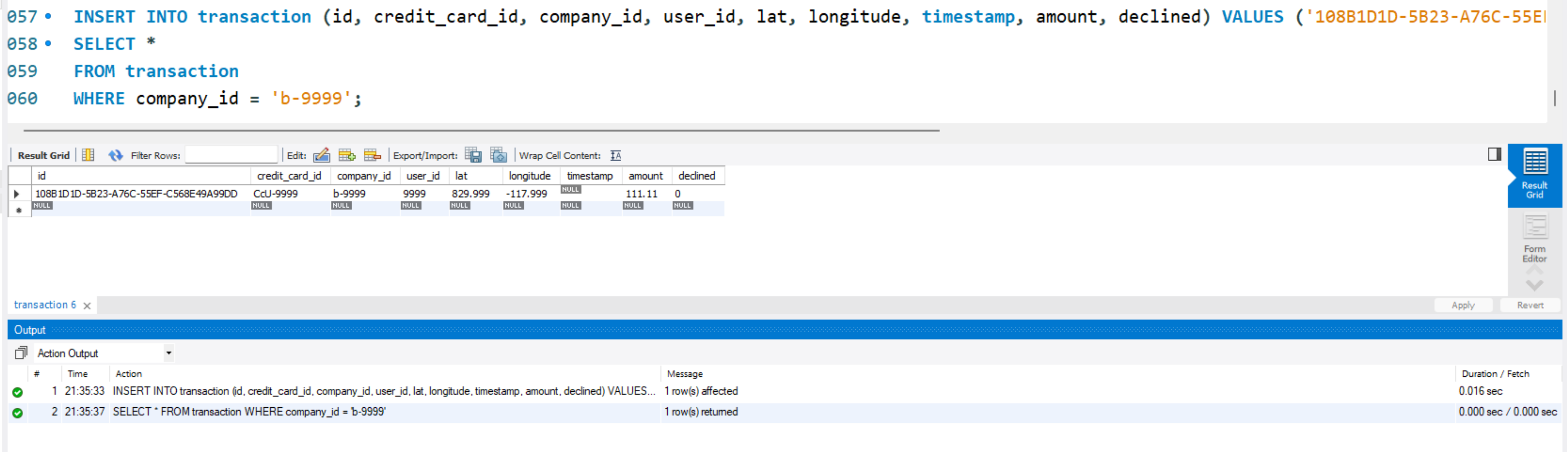
```
INSERT INTO company (id, company_name, phone, email, country, website) VALUES ('b-9999', NULL , NULL , NULL, NULL, NULL);
SELECT *
FROM company
WHERE id = 'b-9999';
```

id	company_name	phone	email	country	website
b-9999	NULL	NULL	NULL	NULL	NULL
NULL	NULL	NULL	NULL	NULL	NULL

#	Time	Action	Message	Duration / Fetch
1	21:29:03	INSERT INTO company (id, company_name, phone, email, country, website) VALUES ('b-9999', NULL , NULL , NULL, ...	1 row(s) affected	0.015 sec
2	21:29:20	SELECT * FROM company WHERE id = 'b-9999'	1 row(s) returned	0.000 sec / 0.000 sec

Només s'utilitza la taula "company", de manera que no cal fer referència a la taula a l'instrucció WHERE.

Ara puc insertar la transaccio sol·licitada. He posat NULL per a l'hora de la transacció pels mateixos motius que els esmentats anteriorment.



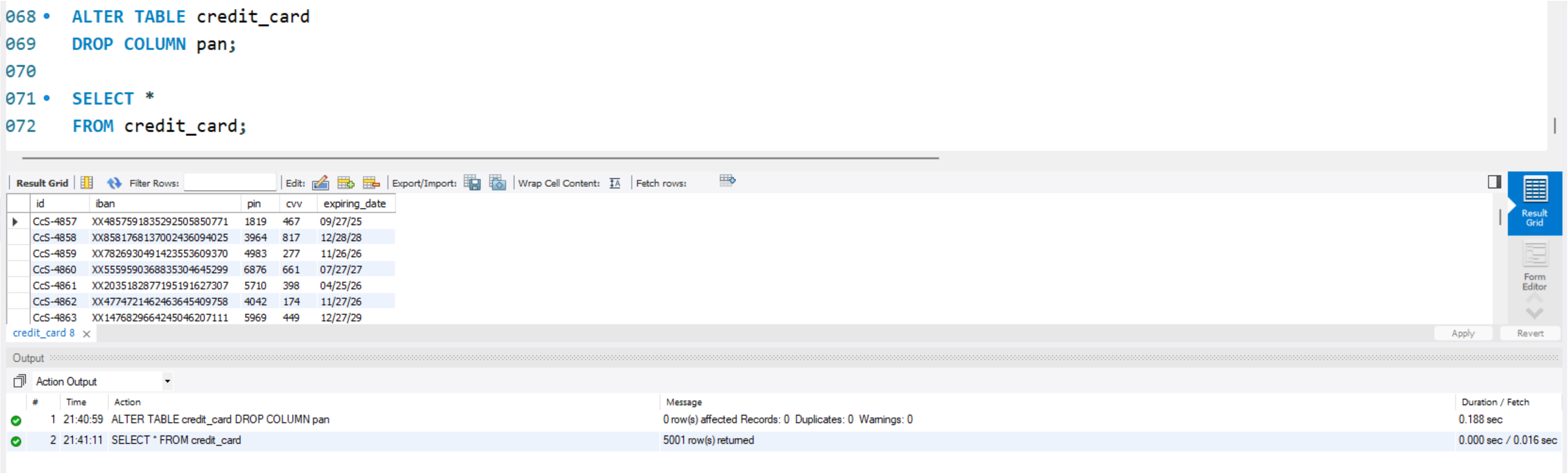
```sql
INSERT INTO transaction (id, credit_card_id, company_id, user_id, lat, longitude, timestamp, amount, declined) VALUES ('108B1D1D-5B23-A76C-55E
SELECT *
FROM transaction
WHERE company_id = 'b-9999';
```

	id	credit_card_id	company_id	user_id	lat	longitude	timestamp	amount	declined
▶	108B1D1D-5B23-A76C-55EF-C568E49A99DD	CcU-9999	b-9999	9999	829.999	-117.999	NULL	111.11	0
*	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

	#	Time	Action	Message	Duration / Fetch
✓	1	21:35:33	INSERT INTO transaction (id, credit_card_id, company_id, user_id, lat, longitude, timestamp, amount, declined) VALUES...	1 row(s) affected	0.016 sec
✓	2	21:35:37	SELECT * FROM transaction WHERE company_id = 'b-9999'	1 row(s) returned	0.000 sec / 0.000 sec

Només s'utilitza la taula "transaction", de manera que no cal fer referència a la taula a l'instrucció WHERE.

Nivell 1 – Exercici 4



```sql
ALTER TABLE credit_card
DROP COLUMN pan;

SELECT *
FROM credit_card;
```

id	iban	pin	cvv	expiring_date
CcS-4857	XX4857591835292505850771	1819	467	09/27/25
CcS-4858	XX8581768137002436094025	3964	817	12/28/28
CcS-4859	XX7826930491423553609370	4983	277	11/26/26
CcS-4860	XX5559590368835304645299	6876	661	07/27/27
CcS-4861	XX2035182877195191627307	5710	398	04/25/26
CcS-4862	XX4774721462463645409758	4042	174	11/27/26
CcS-4863	XX1476829664245046207111	5969	449	12/27/29

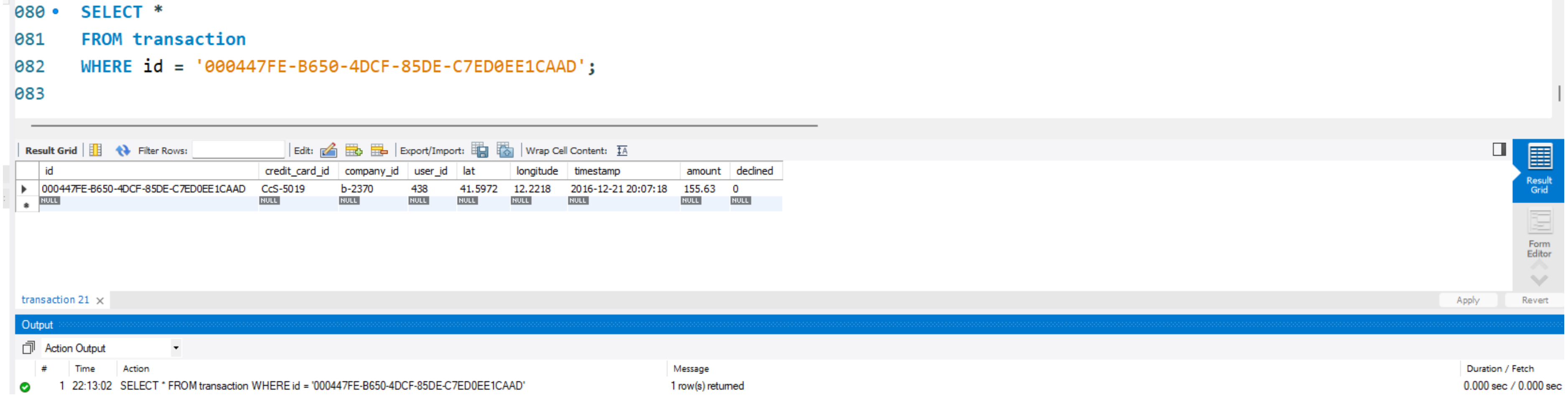
credit_card 8

Action Output

```
#  Time      Action                                   Message                                                  Duration / Fetch
1  21:40:59  ALTER TABLE credit_card DROP COLUMN pan  0 row(s) affected Records: 0  Duplicates: 0  Warnings: 0  0.188 sec
2  21:41:11  SELECT * FROM credit_card                5001 row(s) returned                                     0.000 sec / 0.016 sec
```

Nivell 2 – Exercici 1

Aquí teniu la transacció objectiu .



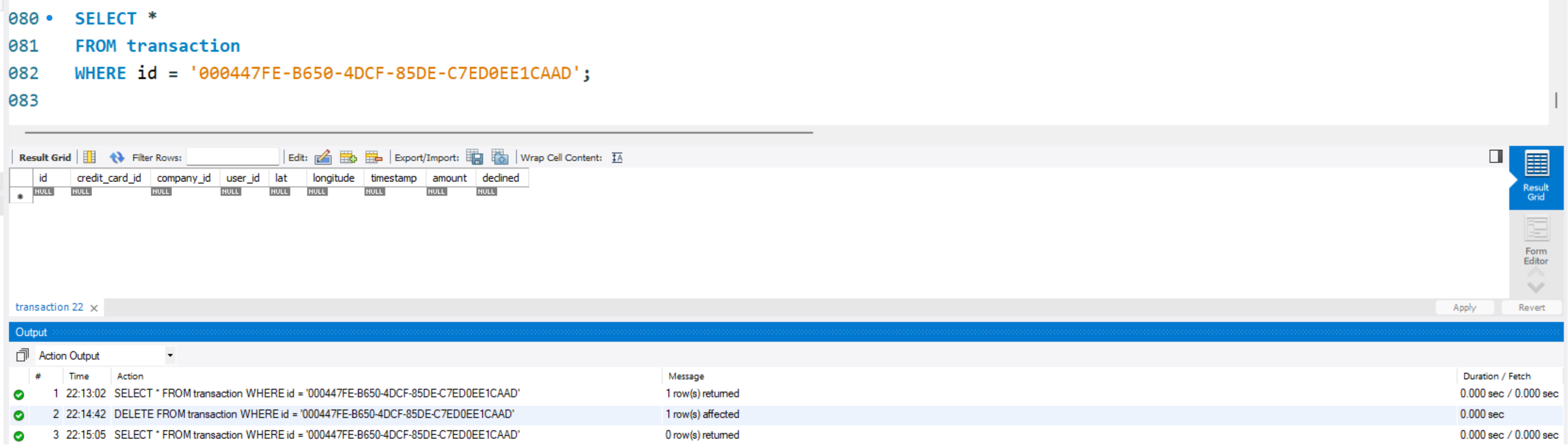
```
SELECT *
FROM transaction
WHERE id = '000447FE-B650-4DCF-85DE-C7ED0EE1CAAD';
```

	id	credit_card_id	company_id	user_id	lat	longitude	timestamp	amount	declined
▶	000447FE-B650-4DCF-85DE-C7ED0EE1CAAD	CcS-5019	b-2370	438	41.5972	12.2218	2016-12-21 20:07:18	155.63	0
*	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

	#	Time	Action	Message	Duration / Fetch
✓	1	22:13:02	SELECT * FROM transaction WHERE id = '000447FE-B650-4DCF-85DE-C7ED0EE1CAAD'	1 row(s) returned	0.000 sec / 0.000 sec

Només s'utilitza la taula "transaction", de manera que no cal fer referència a la taula a l'instrucció WHERE.

Aquí teniu l'estat de la taula amb la transacció suprimida segons la consulta executada a la fila 2 de la sortida:



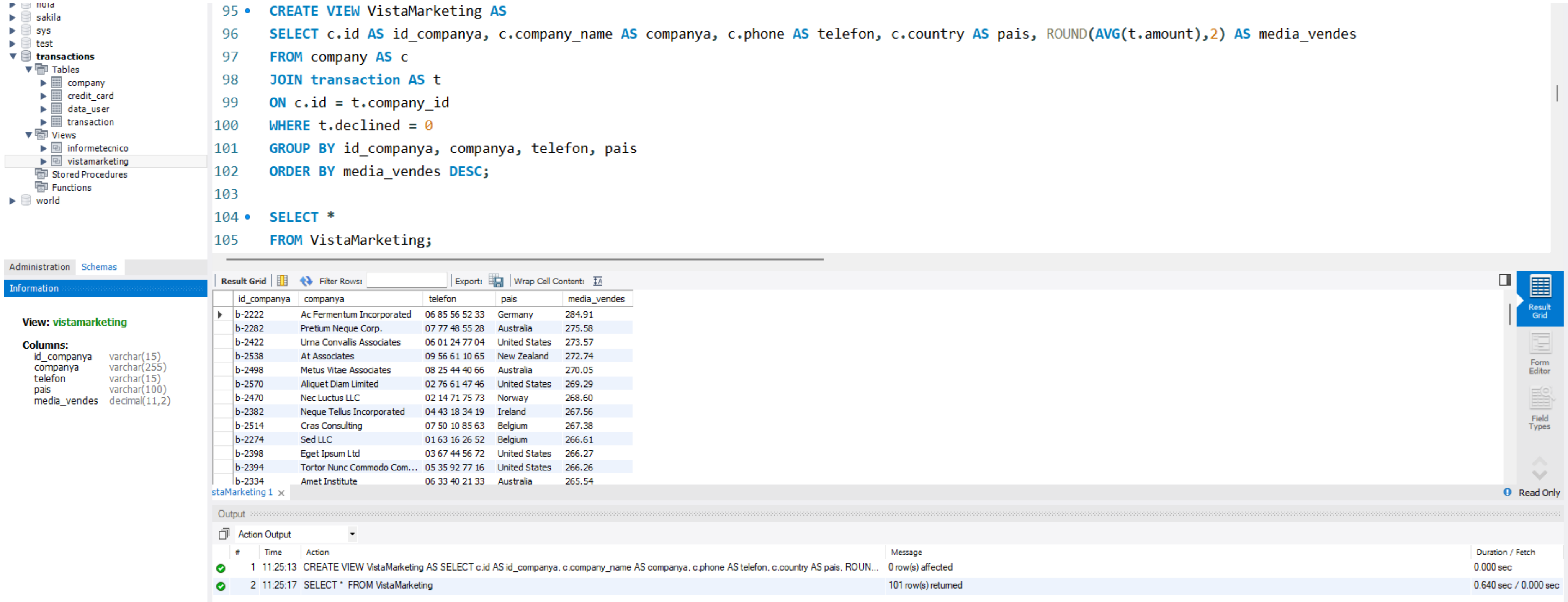
```sql
SELECT *
FROM transaction
WHERE id = '000447FE-B650-4DCF-85DE-C7ED0EE1CAAD';
```

	id	credit_card_id	company_id	user_id	lat	longitude	timestamp	amount	declined
*	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

	#	Time	Action	Message	Duration / Fetch
✓	1	22:13:02	SELECT * FROM transaction WHERE id = '000447FE-B650-4DCF-85DE-C7ED0EE1CAAD'	1 row(s) returned	0.000 sec / 0.000 sec
✓	2	22:14:42	DELETE FROM transaction WHERE id = '000447FE-B650-4DCF-85DE-C7ED0EE1CAAD'	1 row(s) affected	0.000 sec
✓	3	22:15:05	SELECT * FROM transaction WHERE id = '000447FE-B650-4DCF-85DE-C7ED0EE1CAAD'	0 row(s) returned	0.000 sec / 0.000 sec

Nivell 2 – Exercici 2

Amb la primera consulta, creo la vista. Amb la segona consulta, l'anomeno per obtenir l'informe. L'estructura de "VistaMarketing" es pot veure a la part inferior esquerra de la captura de pantalla.



```sql
CREATE VIEW VistaMarketing AS
SELECT c.id AS id_companya, c.company_name AS companya, c.phone AS telefon, c.country AS pais, ROUND(AVG(t.amount),2) AS media_vendes
FROM company AS c
JOIN transaction AS t
ON c.id = t.company_id
WHERE t.declined = 0
GROUP BY id_companya, companya, telefon, pais
ORDER BY media_vendes DESC;

SELECT *
FROM VistaMarketing;
```

View: vistamarketing

Columns:

id_companya	varchar(15)
companya	varchar(255)
telefon	varchar(15)
pais	varchar(100)
media_vendes	decimal(11,2)

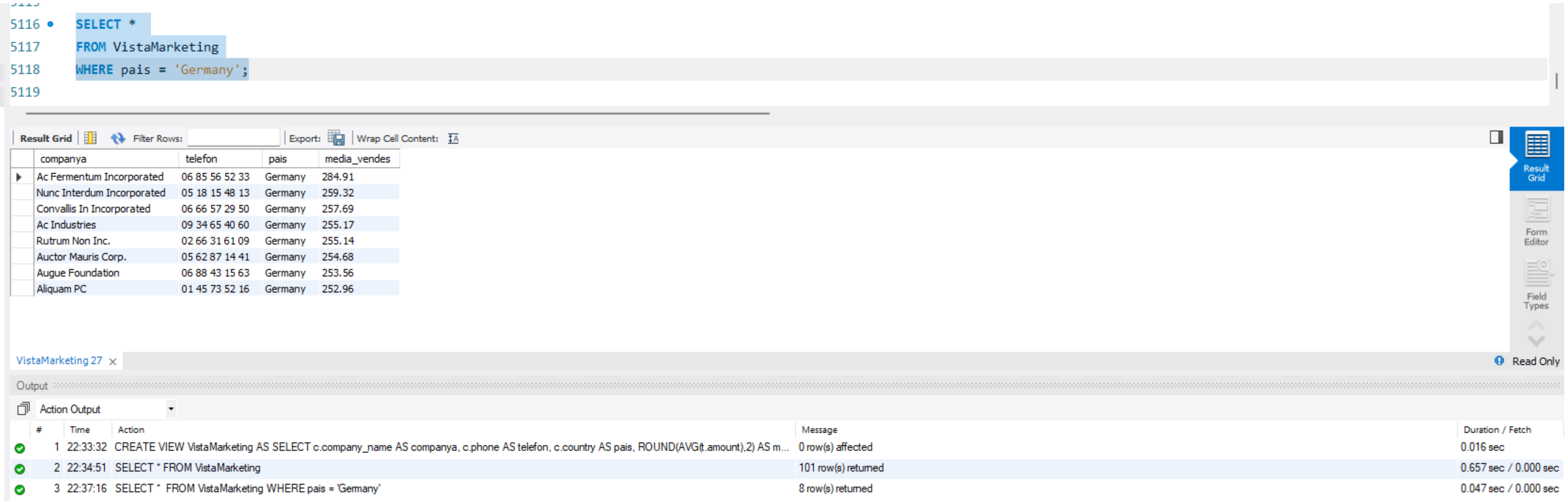
id_companya	companya	telefon	pais	media_vendes
b-2222	Ac Fermentum Incorporated	06 85 56 52 33	Germany	284.91
b-2282	Pretium Neque Corp.	07 77 48 55 28	Australia	275.58
b-2422	Urna Convallis Associates	06 01 24 77 04	United States	273.57
b-2538	At Associates	09 56 61 10 65	New Zealand	272.74
b-2498	Metus Vitae Associates	08 25 44 40 66	Australia	270.05
b-2570	Aliquet Diam Limited	02 76 61 47 46	United States	269.29
b-2470	Nec Luctus LLC	02 14 71 75 73	Norway	268.60
b-2382	Neque Tellus Incorporated	04 43 18 34 19	Ireland	267.56
b-2514	Cras Consulting	07 50 10 85 63	Belgium	267.38
b-2274	Sed LLC	01 63 16 26 52	Belgium	266.61
b-2398	Eget Ipsum Ltd	03 67 44 56 72	United States	266.27
b-2394	Tortor Nunc Commodo Com...	05 35 92 77 16	United States	266.26
b-2334	Amet Institute	06 33 40 21 33	Australia	265.54

#	Time	Action	Message	Duration / Fetch
1	11:25:13	CREATE VIEW VistaMarketing AS SELECT c.id AS id_companya, c.company_name AS companya, c.phone AS telefon, c.country AS pais, ROUN...	0 row(s) affected	0.000 sec
2	11:25:17	SELECT * FROM VistaMarketing	101 row(s) returned	0.640 sec / 0.000 sec

Nivell 2 – Exercici 3

En aquest cas, simplement filtro la vista al país desitjat. Si l'equip de màrqueting necessita aquest informe de manera regular/freqüent, generaria aquest informe en particular com una vista específica o actualitzaria el de VistaMarketing perquè només retorni les empreses alemanyes.

Només s'utilitza la vista "VistaMarketing", de manera que no cal fer referència a la vista a l'instrucció WHERE.



```sql
SELECT *
FROM VistaMarketing
WHERE pais = 'Germany';
```

companya	telefon	pais	media_vendes
Ac Fermentum Incorporated	06 85 56 52 33	Germany	284.91
Nunc Interdum Incorporated	05 18 15 48 13	Germany	259.32
Convallis In Incorporated	06 66 57 29 50	Germany	257.69
Ac Industries	09 34 65 40 60	Germany	255.17
Rutrum Non Inc.	02 66 31 61 09	Germany	255.14
Auctor Mauris Corp.	05 62 87 14 41	Germany	254.68
Augue Foundation	06 88 43 15 63	Germany	253.56
Aliquam PC	01 45 73 52 16	Germany	252.96

#	Time	Action	Message	Duration / Fetch
1	22:33:32	CREATE VIEW VistaMarketing AS SELECT c.company_name AS companya, c.phone AS telefon, c.country AS pais, ROUND(AVG(t.amount),2) AS m...	0 row(s) affected	0.016 sec
2	22:34:51	SELECT * FROM VistaMarketing	101 row(s) returned	0.657 sec / 0.000 sec
3	22:37:16	SELECT * FROM VistaMarketing WHERE pais = 'Germany'	8 row(s) returned	0.047 sec / 0.000 sec

Nivell 3 – Exercici 1

Les taules "credit_card", "company" i "data_user" tenen una relació d'un a molts amb la taula "transaction". Per tant, primer revisaré les taules "credit_card" i "company" i crearé la de "data_user" abans de treballar amb la taula “transaction”.

Primer, el company ha modificat la taula "credit_card" en comparació amb com la vaig configurar a l'Exercici 1, Nivell 1:

- El camp "id" s'ha ampliat de VARCHAR(10) a VARCHAR(20).

- El camp "iban" s'ha ampliat de VARCHAR(34) a VARCHAR(50)

- El tipus de dades del camp "cvv" s'ha modificat de VARCHAR a INT

- La longitud del camp "expiring_date" s'ha modificat de VARCHAR(10) a VARCHAR(20), suposo que ja que la captura de pantalla està truncada i, per tant, no es pot llegir.

- El camp "fecha_actual" s'ha afegit amb un tipus de dades DATE. Suposo que això era per operar la conversió del camp anterior a un que es pogués utilitzar a partir de la comparació des d'una perspectiva de tipus de dades de data. Això podria ser clarament una acció útil. Tanmateix, comentaria que aquest camp utilitza l'idioma espanyol, cosa que no és coherent amb la resta de la base de dades que utilitza l'idioma anglès. Per tant, aquest nom es beneficiaria de ser modificat per un d'anglès com ara "data_real".

Captura de pantalla abans del canvi:

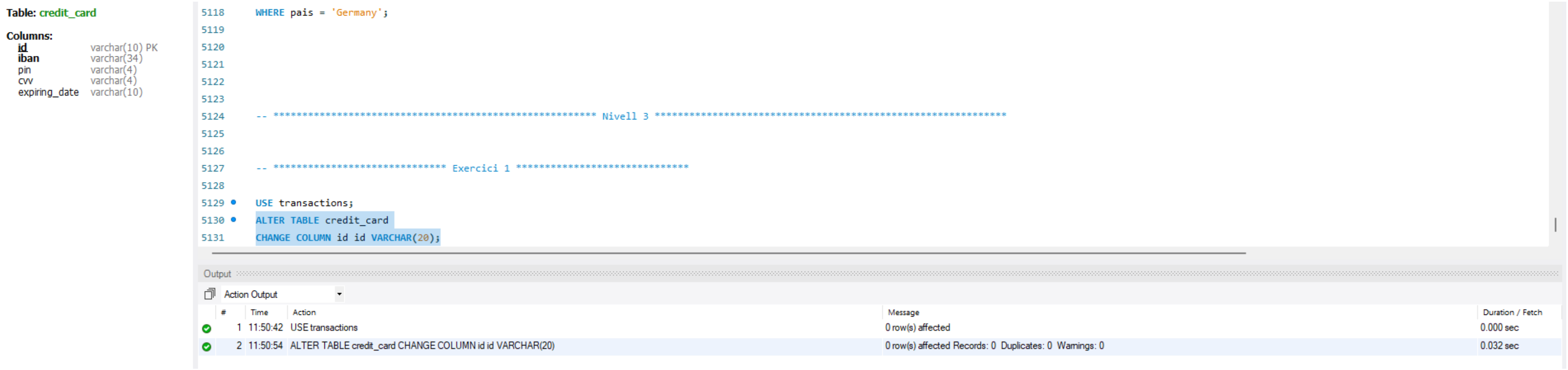


Table: credit_card

Columns:

id	varchar(10) PK
iban	varchar(34)
pin	varchar(4)
cvv	varchar(4)
expiring_date	varchar(10)

```
WHERE pais = 'Germany';





-- ********************************************************* Nivell 3 **************************************************************


-- ****************************** Exercici 1 ******************************

USE transactions;
ALTER TABLE credit_card
CHANGE COLUMN id id VARCHAR(20);
```

```
#  Time      Action                                                 Message                                                          Duration / Fetch
1  11:50:42  USE transactions                                       0 row(s) affected                                                0.000 sec
2  11:50:54  ALTER TABLE credit_card CHANGE COLUMN id id VARCHAR(20) 0 row(s) affected Records: 0  Duplicates: 0  Warnings: 0   0.032 sec
```

Captura de pantalla despres del canvi:

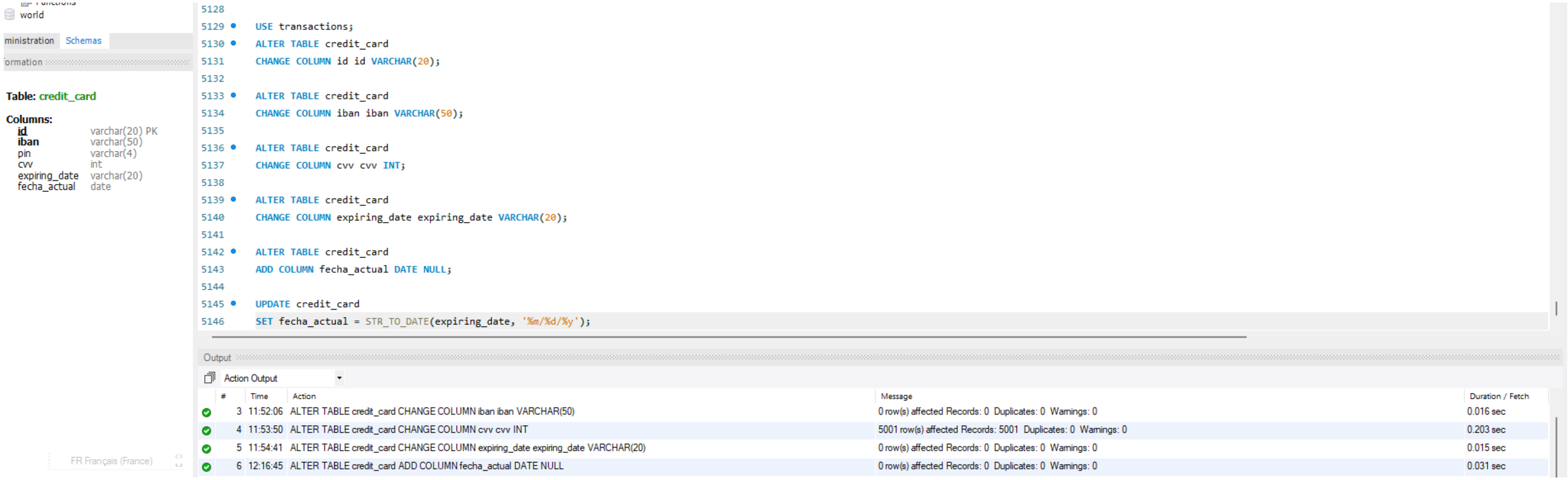


Table: credit_card

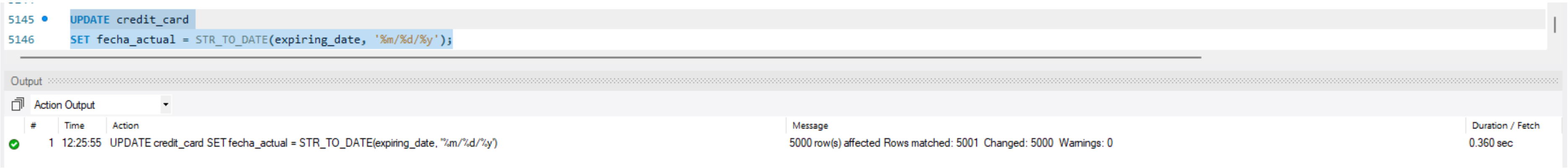
Columns:

id	varchar(20) PK
iban	varchar(50)
pin	varchar(4)
cvv	int
expiring_date	varchar(20)
fecha_actual	date

```sql

USE transactions;
ALTER TABLE credit_card
CHANGE COLUMN id id VARCHAR(20);

ALTER TABLE credit_card
CHANGE COLUMN iban iban VARCHAR(50);

ALTER TABLE credit_card
CHANGE COLUMN cvv cvv INT;

ALTER TABLE credit_card
CHANGE COLUMN expiring_date expiring_date VARCHAR(20);

ALTER TABLE credit_card
ADD COLUMN fecha_actual DATE NULL;

UPDATE credit_card
SET fecha_actual = STR_TO_DATE(expiring_date, '%m/%d/%y');
```

#	Time	Action	Message	Duration / Fetch
3	11:52:06	ALTER TABLE credit_card CHANGE COLUMN iban iban VARCHAR(50)	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	0.016 sec
4	11:53:50	ALTER TABLE credit_card CHANGE COLUMN cvv cvv INT	5001 row(s) affected Records: 5001 Duplicates: 0 Warnings: 0	0.203 sec
5	11:54:41	ALTER TABLE credit_card CHANGE COLUMN expiring_date expiring_date VARCHAR(20)	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	0.015 sec
6	12:16:45	ALTER TABLE credit_card ADD COLUMN fecha_actual DATE NULL	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	0.031 sec

Calia desactivar una seguretat de MySQL relacionada amb l'ús de l'UPDATE sense aplicar cap condició WHERE per dur a terme aquesta transformació de dades a la columna "fecha_actual". Vaig desactivar la seguretat per processar les 5000 files i després la vaig reactivar.



```sql
UPDATE credit_card
SET fecha_actual = STR_TO_DATE(expiring_date, '%m/%d/%y');
```

#	Time	Action	Message	Duration / Fetch
1	12:25:55	UPDATE credit_card SET fecha_actual = STR_TO_DATE(expiring_date, '%m/%d/%y')	5000 row(s) affected Rows matched: 5001 Changed: 5000 Warnings: 0	0.360 sec

En segon lloc, el company va modificar la taula "company" en comparació amb com estava configurada a l'Sprint 2. El camp " website" es va eliminar.

Captura de pantalla abans del canvi:

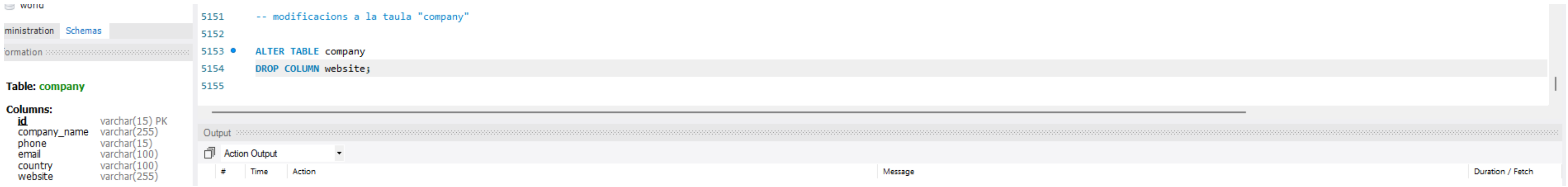


Table: company

Columns:

id	varchar(15) PK
company_name	varchar(255)
phone	varchar(15)
email	varchar(100)
country	varchar(100)
website	varchar(255)

```
-- modificacions a la taula "company"

ALTER TABLE company
DROP COLUMN website;

```

#	Time	Action	Message	Duration / Fetch

Captura de pantalla despres del canvi:

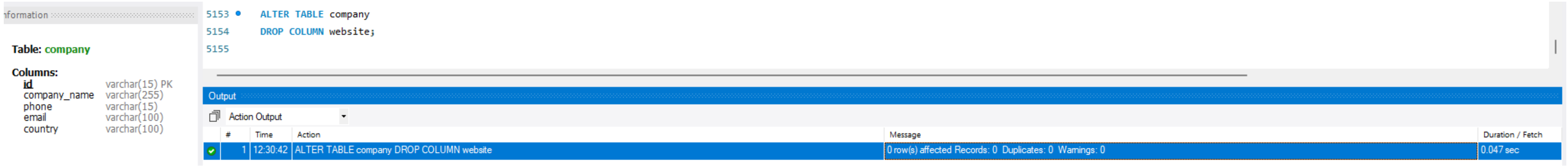


Table: company

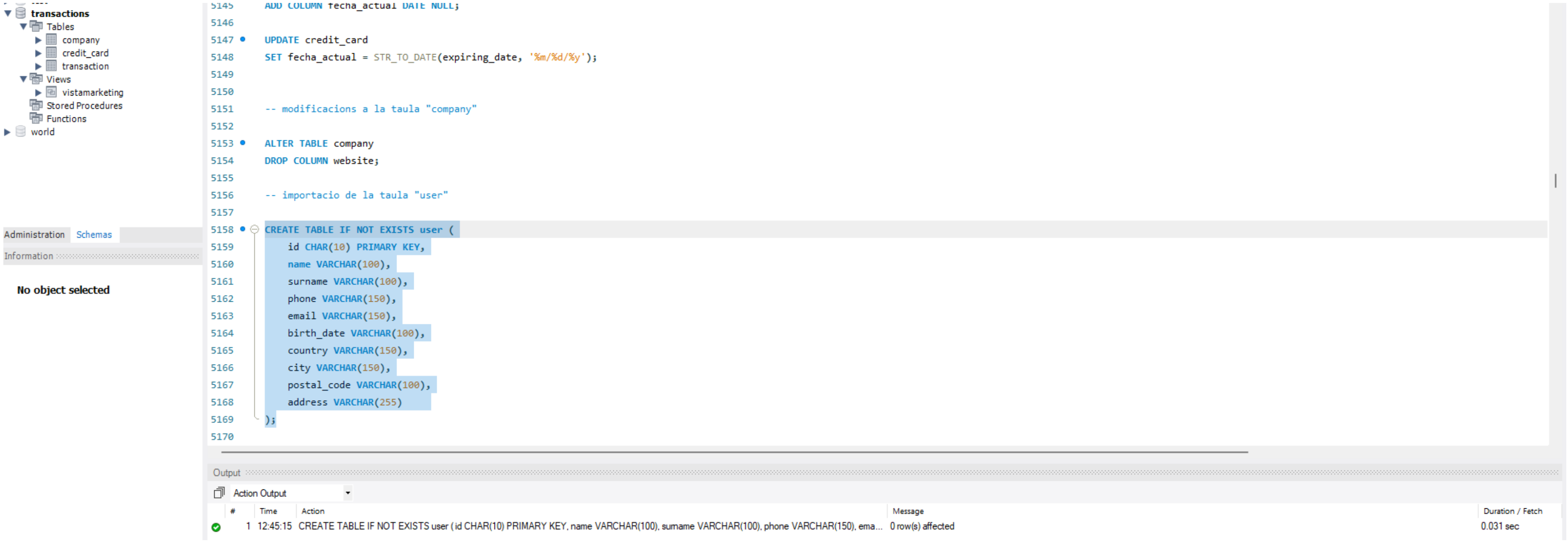
Columns:

id	varchar(15) PK
company_name	varchar(255)
phone	varchar(15)
email	varchar(100)
country	varchar(100)

```
ALTER TABLE company
DROP COLUMN website;

```

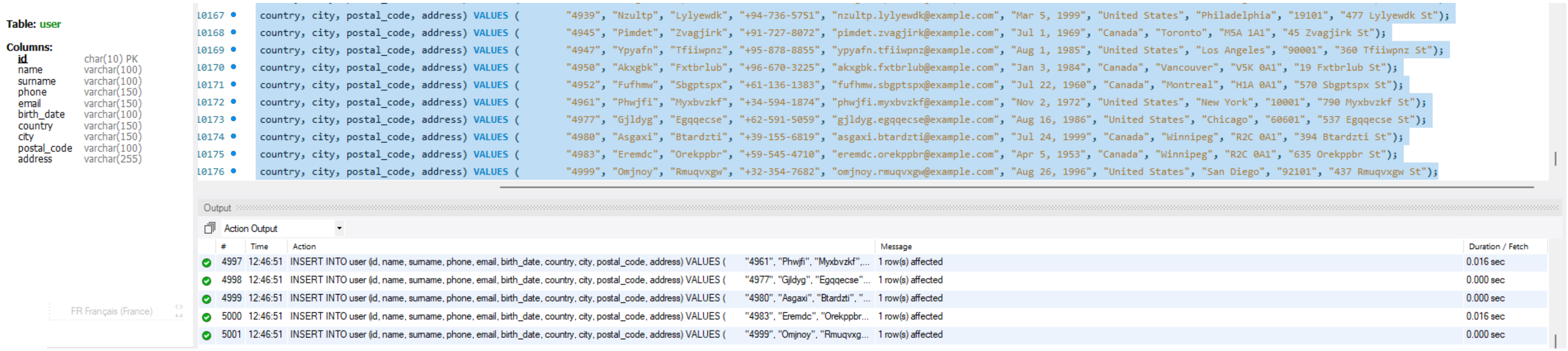
#	Time	Action	Message	Duration / Fetch
✓ 1	12:30:42	ALTER TABLE company DROP COLUMN website	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	0.047 sec

En tercer lloc, cal crear la taula “data_user” i importar les dades relacionades. Primer l'importo com a "usuari" segons l'estructura de taula i les dades de la taula proporcionades per evitar més complicacions.



```
ADD COLUMN fecha_actual DATE NULL;

UPDATE credit_card
SET fecha_actual = STR_TO_DATE(expiring_date, '%m/%d/%y');


-- modificacions a la taula "company"

ALTER TABLE company
DROP COLUMN website;

-- importacio de la taula "user"

CREATE TABLE IF NOT EXISTS user (
    id CHAR(10) PRIMARY KEY,
    name VARCHAR(100),
    surname VARCHAR(100),
    phone VARCHAR(150),
    email VARCHAR(150),
    birth_date VARCHAR(100),
    country VARCHAR(150),
    city VARCHAR(150),
    postal_code VARCHAR(100),
    address VARCHAR(255)
);
```

```
#   Time      Action                                                                                                              Message            Duration / Fetch
1   12:45:15  CREATE TABLE IF NOT EXISTS user ( id CHAR(10) PRIMARY KEY, name VARCHAR(100), surname VARCHAR(100), phone VARCHAR(150), ema...  0 row(s) affected  0.031 sec
```



```
Table: user

Columns:
id             char(10) PK
name           varchar(100)
surname        varchar(100)
phone          varchar(150)
email          varchar(150)
birth_date     varchar(100)
country        varchar(150)
city           varchar(150)
postal_code    varchar(100)
address        varchar(255)
```

```
country, city, postal_code, address) VALUES (      "4939", "Nzultp", "Lylyewdk", "+94-736-5751", "nzultp.lylyewdk@example.com", "Mar 5, 1999", "United States", "Philadelphia", "19101", "477 Lylyewdk St");
country, city, postal_code, address) VALUES (      "4945", "Pimdet", "Zvagjirk", "+91-727-8072", "pimdet.zvagjirk@example.com", "Jul 1, 1969", "Canada", "Toronto", "M5A 1A1", "45 Zvagjirk St");
country, city, postal_code, address) VALUES (      "4947", "Ypyafn", "Tfiiwpnz", "+95-878-8855", "ypyafn.tfiiwpnz@example.com", "Aug 1, 1985", "United States", "Los Angeles", "90001", "360 Tfiiwpnz St");
country, city, postal_code, address) VALUES (      "4950", "Akxgbk", "Fxtbrlub", "+96-670-3225", "akxgbk.fxtbrlub@example.com", "Jan 3, 1984", "Canada", "Vancouver", "V5K 0A1", "19 Fxtbrlub St");
country, city, postal_code, address) VALUES (      "4952", "Fufhmw", "Sbgptspx", "+61-136-1383", "fufhmw.sbgptspx@example.com", "Jul 22, 1960", "Canada", "Montreal", "H1A 0A1", "570 Sbgptspx St");
country, city, postal_code, address) VALUES (      "4961", "Phwjfi", "Myxbvzkf", "+34-594-1874", "phwjfi.myxbvzkf@example.com", "Nov 2, 1972", "United States", "New York", "10001", "790 Myxbvzkf St");
country, city, postal_code, address) VALUES (      "4977", "Gjldyg", "Egqqecse", "+62-591-5059", "gjldyg.egqqecse@example.com", "Aug 16, 1986", "United States", "Chicago", "60601", "537 Egqqecse St");
country, city, postal_code, address) VALUES (      "4980", "Asgaxi", "Btardzti", "+39-155-6819", "asgaxi.btardzti@example.com", "Jul 24, 1999", "Canada", "Winnipeg", "R2C 0A1", "394 Btardzti St");
country, city, postal_code, address) VALUES (      "4983", "Eremdc", "Orekppbr", "+59-545-4710", "eremdc.orekppbr@example.com", "Apr 5, 1953", "Canada", "Winnipeg", "R2C 0A1", "635 Orekppbr St");
country, city, postal_code, address) VALUES (      "4999", "Omjnoy", "Rmuqvxgw", "+32-354-7682", "omjnoy.rmuqvxgw@example.com", "Aug 26, 1996", "United States", "San Diego", "92101", "437 Rmuqvxgw St");
```

```
#     Time      Action                                                                                                                       Message            Duration / Fetch
4997  12:46:51  INSERT INTO user (id, name, surname, phone, email, birth_date, country, city, postal_code, address) VALUES (   "4961", "Phwjfi", "Myxbvzkf",...  1 row(s) affected  0.016 sec
4998  12:46:51  INSERT INTO user (id, name, surname, phone, email, birth_date, country, city, postal_code, address) VALUES (   "4977", "Gjldyg", "Egqqecse"...   1 row(s) affected  0.000 sec
4999  12:46:51  INSERT INTO user (id, name, surname, phone, email, birth_date, country, city, postal_code, address) VALUES (   "4980", "Asgaxi", "Btardzti", "...  1 row(s) affected  0.000 sec
5000  12:46:51  INSERT INTO user (id, name, surname, phone, email, birth_date, country, city, postal_code, address) VALUES (   "4983", "Eremdc", "Orekppbr...    1 row(s) affected  0.016 sec
5001  12:46:51  INSERT INTO user (id, name, surname, phone, email, birth_date, country, city, postal_code, address) VALUES (   "4999", "Omjnoy", "Rmuqvxg...     1 row(s) affected  0.000 sec
```

A continuació, cal fer les modificacions següents:

- El camp "id" s'ha modificat de CHAR(10) inclòs al fitxer d'estructura de la taula a un tipus de dades INT

- El camp "email" s'ha rebatejat com a "personal_email"

- La taula s'ha rebatejat com a "data_user" en comptes del nom "user" inclòs a l'estructura de la taula. Això s'ha d'haver fet després d'importar els valors de la taula; altrament, s'hauria hagut de modificar tota la importació de la consulta de dades fent referència al nom correcte de la taula.

Captura de pantalla abans del canvi:

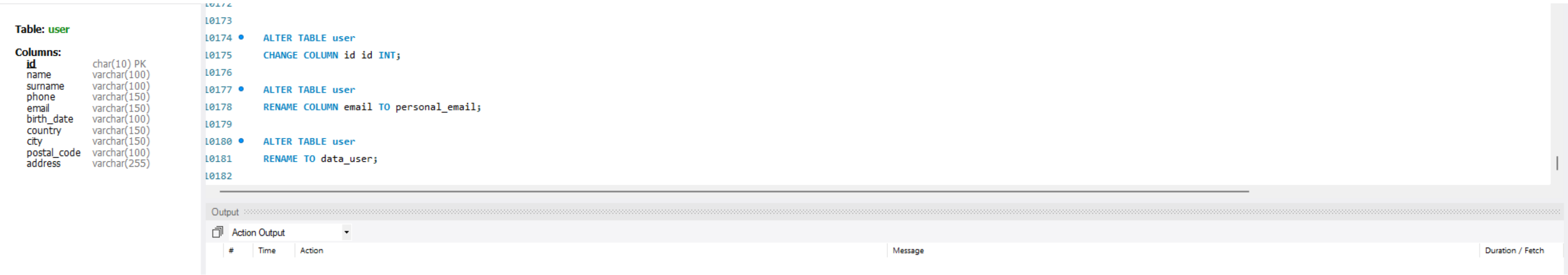


Table: user

Columns:

id	char(10) PK
name	varchar(100)
surname	varchar(100)
phone	varchar(150)
email	varchar(150)
birth_date	varchar(100)
country	varchar(150)
city	varchar(150)
postal_code	varchar(100)
address	varchar(255)

```
ALTER TABLE user
CHANGE COLUMN id id INT;

ALTER TABLE user
RENAME COLUMN email TO personal_email;

ALTER TABLE user
RENAME TO data_user;
```

#	Time	Action	Message	Duration / Fetch

Captura de pantalla despres del canvi:

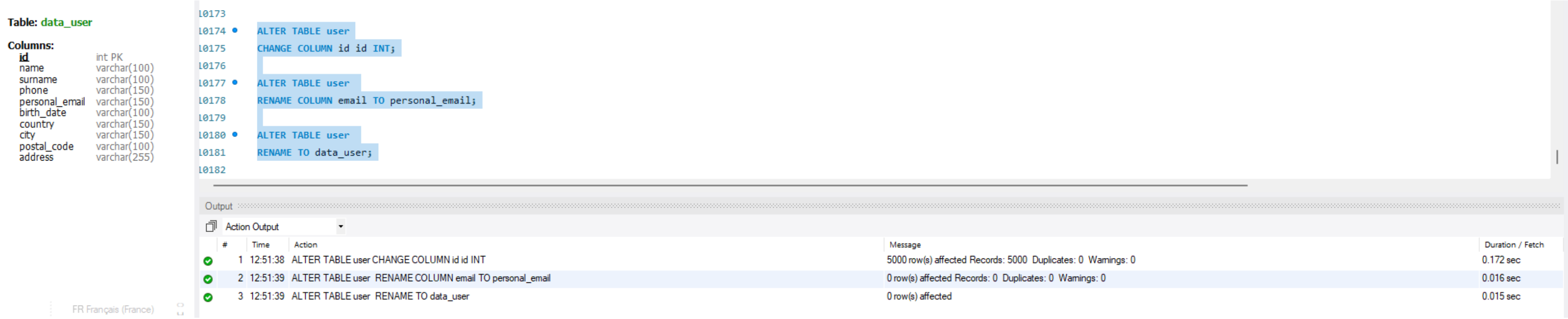


Table: data_user

Columns:

id	int PK
name	varchar(100)
surname	varchar(100)
phone	varchar(150)
personal_email	varchar(150)
birth_date	varchar(100)
country	varchar(150)
city	varchar(150)
postal_code	varchar(100)
address	varchar(255)

```
ALTER TABLE user
CHANGE COLUMN id id INT;

ALTER TABLE user
RENAME COLUMN email TO personal_email;

ALTER TABLE user
RENAME TO data_user;
```

#	Time	Action	Message	Duration / Fetch
1	12:51:38	ALTER TABLE user CHANGE COLUMN id id INT	5000 row(s) affected Records: 5000 Duplicates: 0 Warnings: 0	0.172 sec
2	12:51:39	ALTER TABLE user RENAME COLUMN email TO personal_email	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	0.016 sec
3	12:51:39	ALTER TABLE user RENAME TO data_user	0 row(s) affected	0.015 sec

Finalment, cal fer les modificacions següents a la taula "transaction":

- El "credit_card_id" s'ha modificat de VARCHAR(15) a VARCHAR(20), suposo que ja que la captura de pantalla està truncada i, per tant, no es pot llegir. Això és per tal que coincideixi amb la longitud del camp "id" a la taula "credit_card", ja que "credit_card_id" és una FOREIGN KEY a la taula "transaction".

- Cal crear una FOREIGN KEY en aquesta taula al camp “user_id” enllaçant-la amb la taula "data_user" al seu camp "id". Prèviament, i per tal de permetre la creació de la FOREIGN KEY, he d'inserir el registre de l'usuari "9999" de l'exercici 3, Nivell 1 per tal que tots els registres coincideixin tant a la taula "transaction" com a la taula "data_user".

- Una bona pràctica hauria estat ajustar el camp "company_id" a VARCHAR(15) en comptes de (20) per replicar el tipus de dades del camp "id" a la taula "company", ja que "company_id" és una FOREIGN KEY a la taula "transaction".

Captura de pantalla abans del canvi:

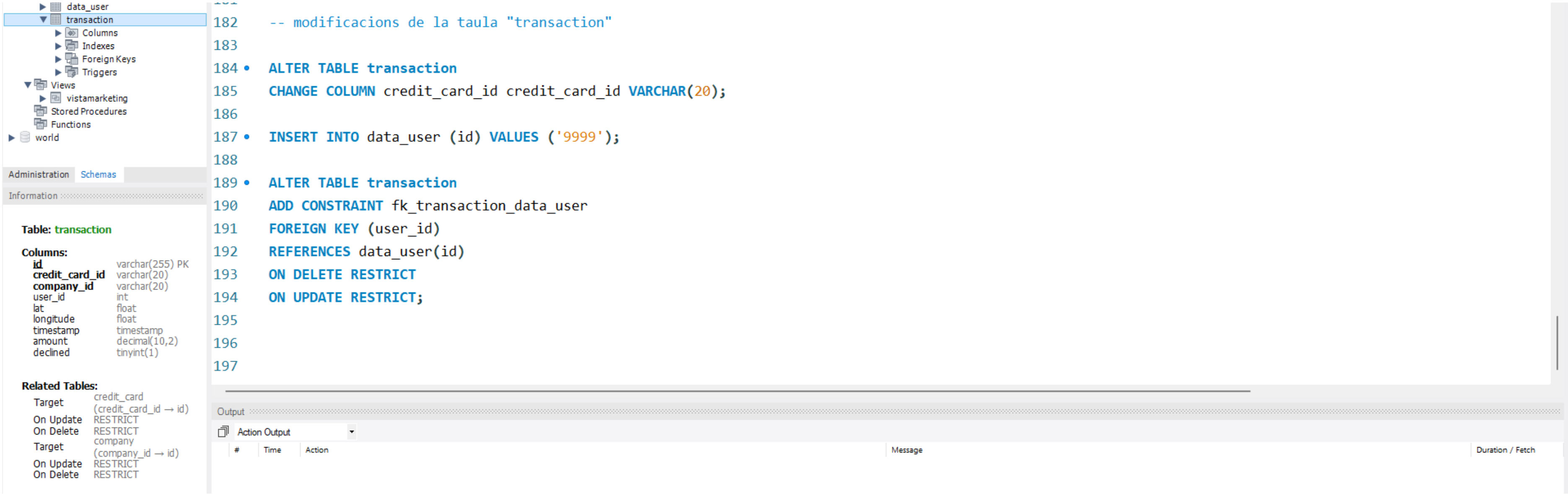


Table: transaction

Columns:

id	varchar(255) PK
credit_card_id	varchar(20)
company_id	varchar(20)
user_id	int
lat	float
longitude	float
timestamp	timestamp
amount	decimal(10,2)
declined	tinyint(1)

Related Tables:

Target	credit_card (credit_card_id → id)
On Update	RESTRICT
On Delete	RESTRICT
Target	company (company_id → id)
On Update	RESTRICT
On Delete	RESTRICT

```
-- modificacions de la taula "transaction"

ALTER TABLE transaction
CHANGE COLUMN credit_card_id credit_card_id VARCHAR(20);

INSERT INTO data_user (id) VALUES ('9999');

ALTER TABLE transaction
ADD CONSTRAINT fk_transaction_data_user
FOREIGN KEY (user_id)
REFERENCES data_user(id)
ON DELETE RESTRICT
ON UPDATE RESTRICT;
```

Captura de pantalla despres del canvi:

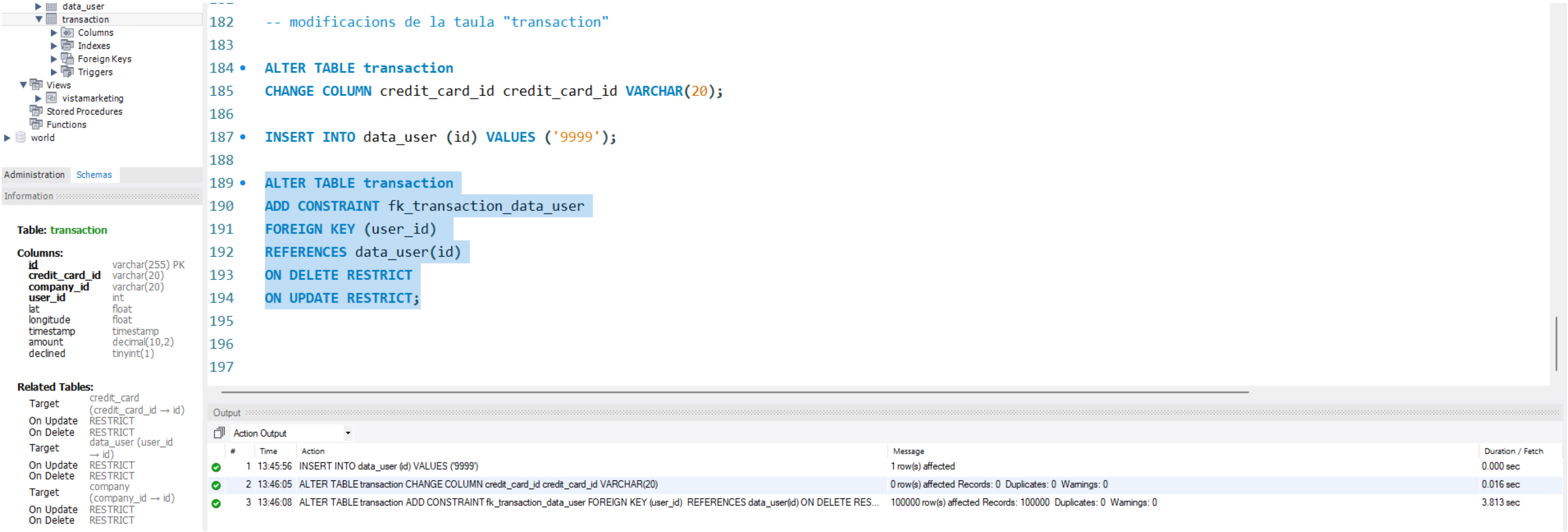


Table: transaction

Columns:

id	varchar(255) PK
credit_card_id	varchar(20)
company_id	varchar(20)
user_id	int
lat	float
longitude	float
timestamp	timestamp
amount	decimal(10,2)
declined	tinyint(1)

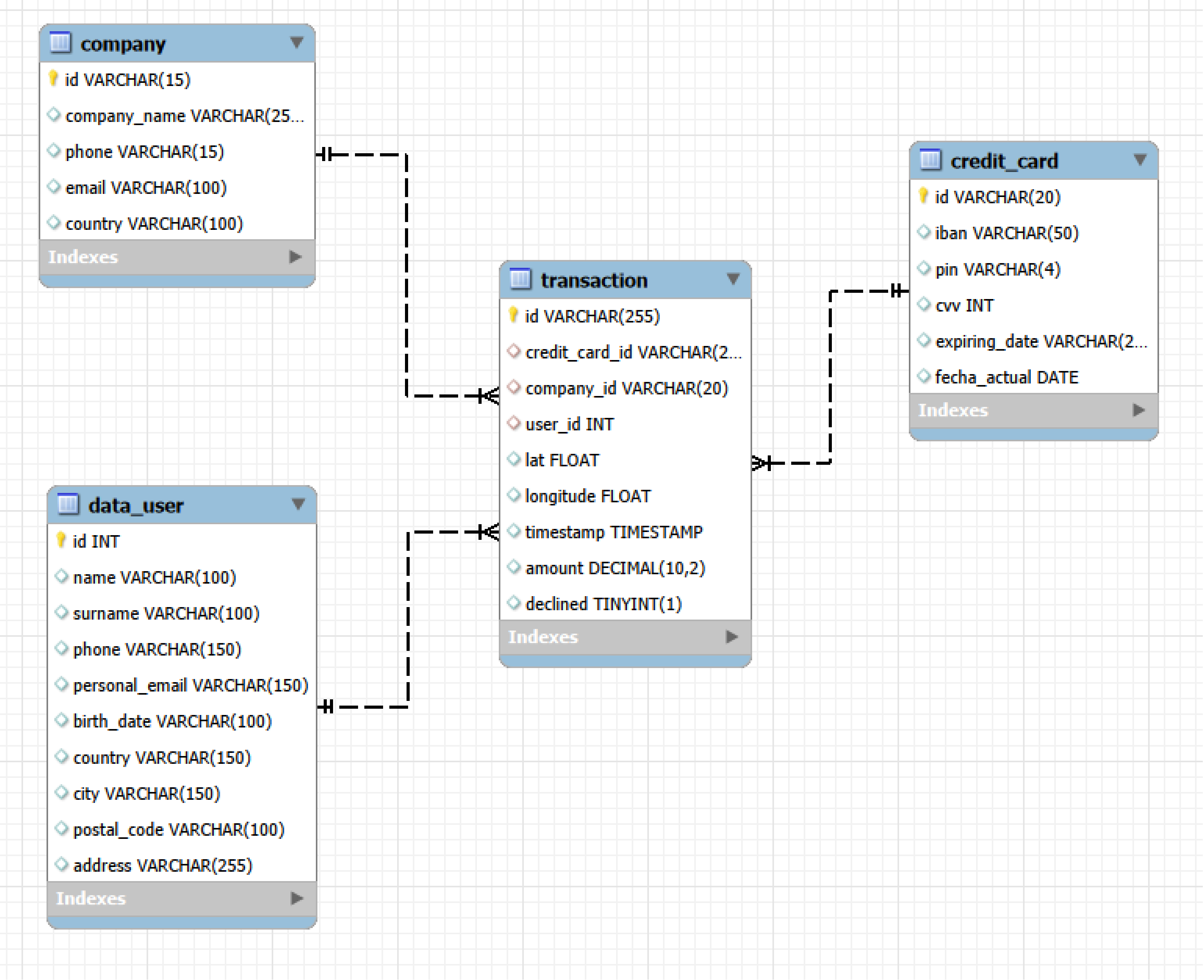
Related Tables:

Target	credit_card (credit_card_id → id)
On Update	RESTRICT
On Delete	RESTRICT
Target	data_user (user_id → id)
On Update	RESTRICT
On Delete	RESTRICT
Target	company (company_id → id)
On Update	RESTRICT
On Delete	RESTRICT

```sql
-- modificacions de la taula "transaction"

ALTER TABLE transaction
CHANGE COLUMN credit_card_id credit_card_id VARCHAR(20);

INSERT INTO data_user (id) VALUES ('9999');

ALTER TABLE transaction
ADD CONSTRAINT fk_transaction_data_user
FOREIGN KEY (user_id)
REFERENCES data_user(id)
ON DELETE RESTRICT
ON UPDATE RESTRICT;
```

#	Time	Action	Message	Duration / Fetch
1	13:45:56	INSERT INTO data_user (id) VALUES ('9999')	1 row(s) affected	0.000 sec
2	13:46:05	ALTER TABLE transaction CHANGE COLUMN credit_card_id credit_card_id VARCHAR(20)	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	0.016 sec
3	13:46:08	ALTER TABLE transaction ADD CONSTRAINT fk_transaction_data_user FOREIGN KEY (user_id) REFERENCES data_user(id) ON DELETE RES...	100000 row(s) affected Records: 100000 Duplicates: 0 Warnings: 0	3.813 sec

Estat final que es ho mateix que el diagrama del company de feina:



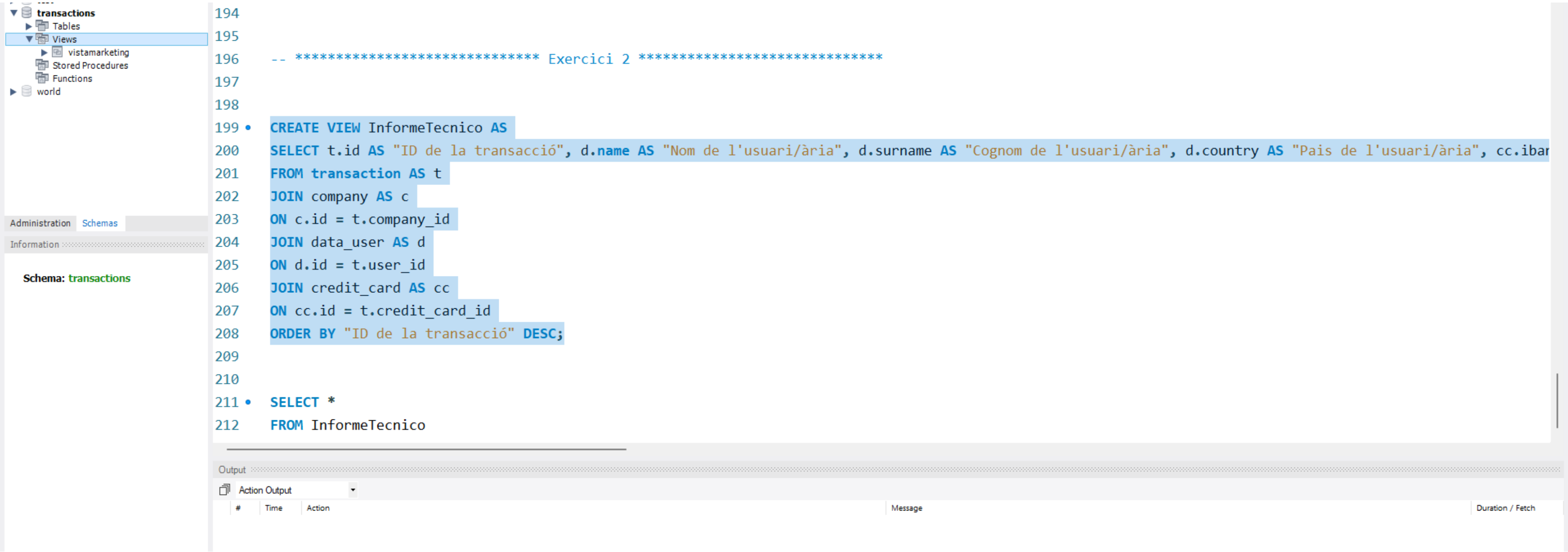
Nivell 3 – Exercici 2

Creo la vista amb les columnes sol·licitades. Afegeixo la rebutjades, ja que la menció "transacció realitzada" no especifica si s'ha completat o no. A més, tal com indica el nom de la vista, l’informe podria utilitzar-se per investigar problemes dels sistemes i el motiu pel qual certes transaccions s'haurien rebutjat. En qualsevol cas, caldria precisar aquest objectiu de la vista/informe amb la persona que ho demana per definir millor la informació que s'hi afegirà.

Seguint la mateixa lògica i per proporcionar dades tècniques exhaustives, he afegit punts de dades que podrien proporcionar informació sobre problemes del sistema, com ara el temps de la transacció i els respectius països del client i l'empresa, per fer possible la identificació de qualsevol discrepància.

Finalment, he afegit tots els ID de CLAU PRIMÀRIA per facilitar la identificació de cada element de la base de dades i la investigació posterior de qualsevol problema que es pogués identificar.

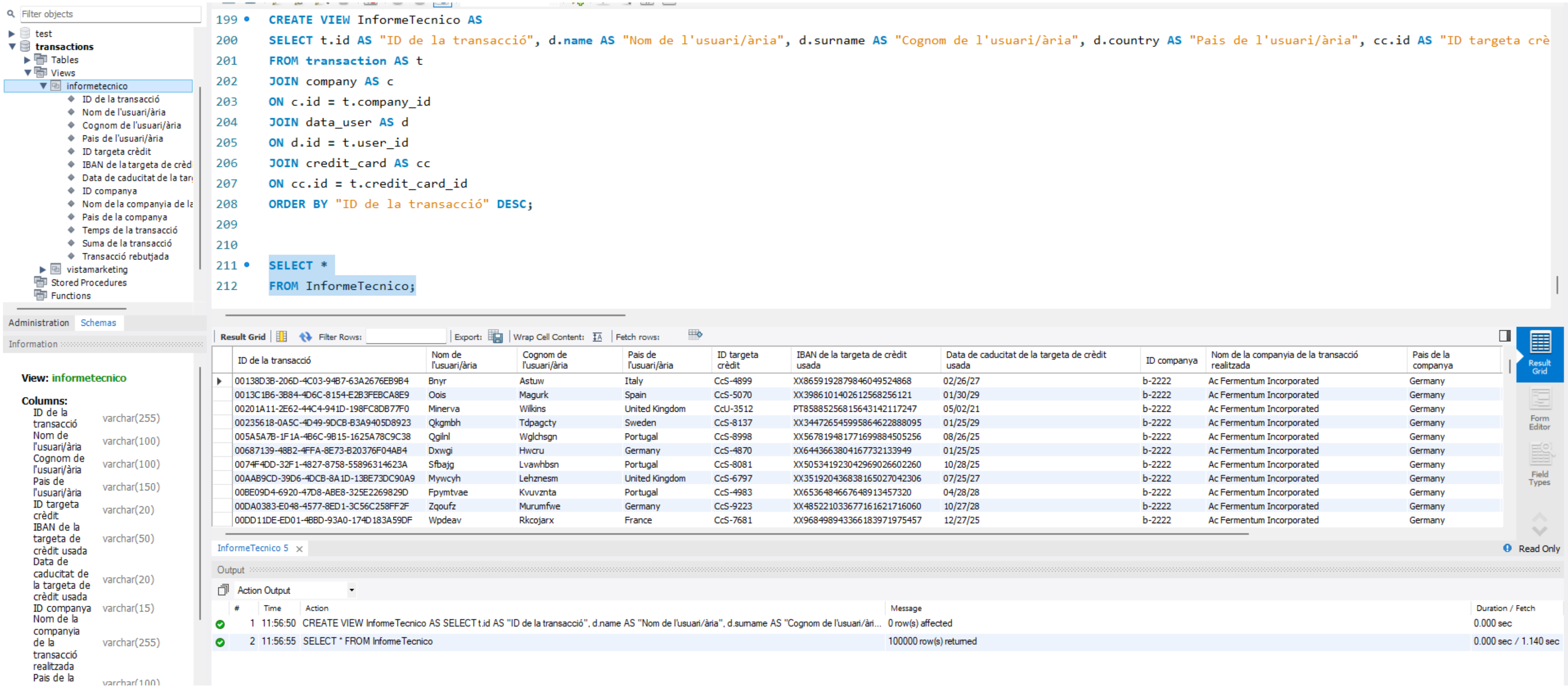
Abans de la creació:



Schema: transactions

```sql
-- ****************************** Exercici 2 ******************************


CREATE VIEW InformeTecnico AS
SELECT t.id AS "ID de la transacció", d.name AS "Nom de l'usuari/ària", d.surname AS "Cognom de l'usuari/ària", d.country AS "Pais de l'usuari/ària", cc.ibar
FROM transaction AS t
JOIN company AS c
ON c.id = t.company_id
JOIN data_user AS d
ON d.id = t.user_id
JOIN credit_card AS cc
ON cc.id = t.credit_card_id
ORDER BY "ID de la transacció" DESC;


SELECT *
FROM InformeTecnico
```

Creació i consulta de la vista:



View: informetecnico

Columns:

ID de la transacció	varchar(255)
Nom de l'usuari/ària	varchar(100)
Cognom de l'usuari/ària	varchar(100)
Pais de l'usuari/ària	varchar(150)
ID targeta crèdit	varchar(20)
IBAN de la targeta de crèdit usada	varchar(50)
Data de caducitat de la targeta de crèdit usada	varchar(20)
ID companya	varchar(15)
Nom de la companyia de la transacció realitzada	varchar(255)
Pais de la	varchar(100)

```sql
CREATE VIEW InformeTecnico AS
SELECT t.id AS "ID de la transacció", d.name AS "Nom de l'usuari/ària", d.surname AS "Cognom de l'usuari/ària", d.country AS "Pais de l'usuari/ària", cc.id AS "ID targeta crè
FROM transaction AS t
JOIN company AS c
ON c.id = t.company_id
JOIN data_user AS d
ON d.id = t.user_id
JOIN credit_card AS cc
ON cc.id = t.credit_card_id
ORDER BY "ID de la transacció" DESC;


SELECT *
FROM InformeTecnico;
```

ID de la transacció	Nom de l'usuari/ària	Cognom de l'usuari/ària	Pais de l'usuari/ària	ID targeta crèdit	IBAN de la targeta de crèdit usada	Data de caducitat de la targeta de crèdit usada	ID companya	Nom de la companyia de la transacció realitzada	Pais de la companya
00138D3B-206D-4C03-94B7-63A2676EB9B4	Bnyr	Astuw	Italy	CcS-4899	XX8659192879846049524868	02/26/27	b-2222	Ac Fermentum Incorporated	Germany
0013C1B6-3B84-4D6C-8154-E2B3FEBCA8E9	Oois	Magurk	Spain	CcS-5070	XX3986101402612568256121	01/30/29	b-2222	Ac Fermentum Incorporated	Germany
00201A11-2E62-44C4-941D-198FC8DB77F0	Minerva	Wilkins	United Kingdom	CcU-3512	PT8588525681564314211 7247	05/02/21	b-2222	Ac Fermentum Incorporated	Germany
00235618-0A5C-4D49-9DCB-B3A9405D8923	Qkgmbh	Tdpagcty	Sweden	CcS-8137	XX3447265459958646228 88095	01/25/29	b-2222	Ac Fermentum Incorporated	Germany
005A5A7B-1F1A-4B6C-9B15-1625A78C9C38	Qgilnl	Wglchsgn	Portugal	CcS-8998	XX5678194817716998845 05256	08/26/25	b-2222	Ac Fermentum Incorporated	Germany
00687139-48B2-4FFA-8E73-B20376F04AB4	Dxwgi	Hwcru	Germany	CcS-4870	XX6443663804167732133949	01/25/25	b-2222	Ac Fermentum Incorporated	Germany
0074F4DD-32F1-4827-8758-55896314623A	Sfbajg	Lvawhbsn	Portugal	CcS-8081	XX5053419230429690266 02260	10/28/25	b-2222	Ac Fermentum Incorporated	Germany
00AAB9CD-39D6-4DCB-8A1D-13BE73DC90A9	Mywcyh	Lehznesm	United Kingdom	CcS-6797	XX3519204368381650270 42306	07/25/27	b-2222	Ac Fermentum Incorporated	Germany
00BE09D4-6920-47D8-ABE8-325E2269829D	Fpymtvae	Kvuvznta	Portugal	CcS-4983	XX6536484667648913457320	04/28/28	b-2222	Ac Fermentum Incorporated	Germany
00DA0383-E048-4577-8ED1-3C56C258FF2F	Zqoufz	Murumfwe	Germany	CcS-9223	XX4852210336771616217 16060	10/27/28	b-2222	Ac Fermentum Incorporated	Germany
00DD11DE-ED01-4BBD-93A0-174D183A59DF	Wpdeav	Rkcojarx	France	CcS-7681	XX9684989433661839719 75457	12/27/25	b-2222	Ac Fermentum Incorporated	Germany

```
#  Time      Action                                                                                                              Message                  Duration / Fetch
1  11:56:50  CREATE VIEW InformeTecnico AS SELECT t.id AS "ID de la transacció", d.name AS "Nom de l'usuari/ària", d.surname AS "Cognom de l'usuari/àri...  0 row(s) affected        0.000 sec
2  11:56:55  SELECT * FROM InformeTecnico                                                                                        100000 row(s) returned   0.000 sec / 1.140 sec
```