

NÍVEL 1

EJERCICIO 1

A partir dels documents adjunts (estructura_dades i dades_introduir), importa les dues taules. Mostra les característiques principals de l'esquema creat i explica les diferents taules i variables que existeixen. Assegura't d'incloure un diagrama que il·lustri la relació entre les diferents taules i variables.

RESPUESTA:

Al importar los archivos a MYSQL Workbench, el esquema me muestra un base de datos llamada “Transacciones”, esta base de datos tiene dos tablas, “Empresa” y “Transacción”.

La tabla **Empresa** consta de 6 columnas, que son:

id | company_name | phone | email | country | website

Esta tabla consta de información de la empresa.

Su primary key es la columna id, la cual consta de datos únicos que no se repiten, cada número de Id corresponde a una empresa.

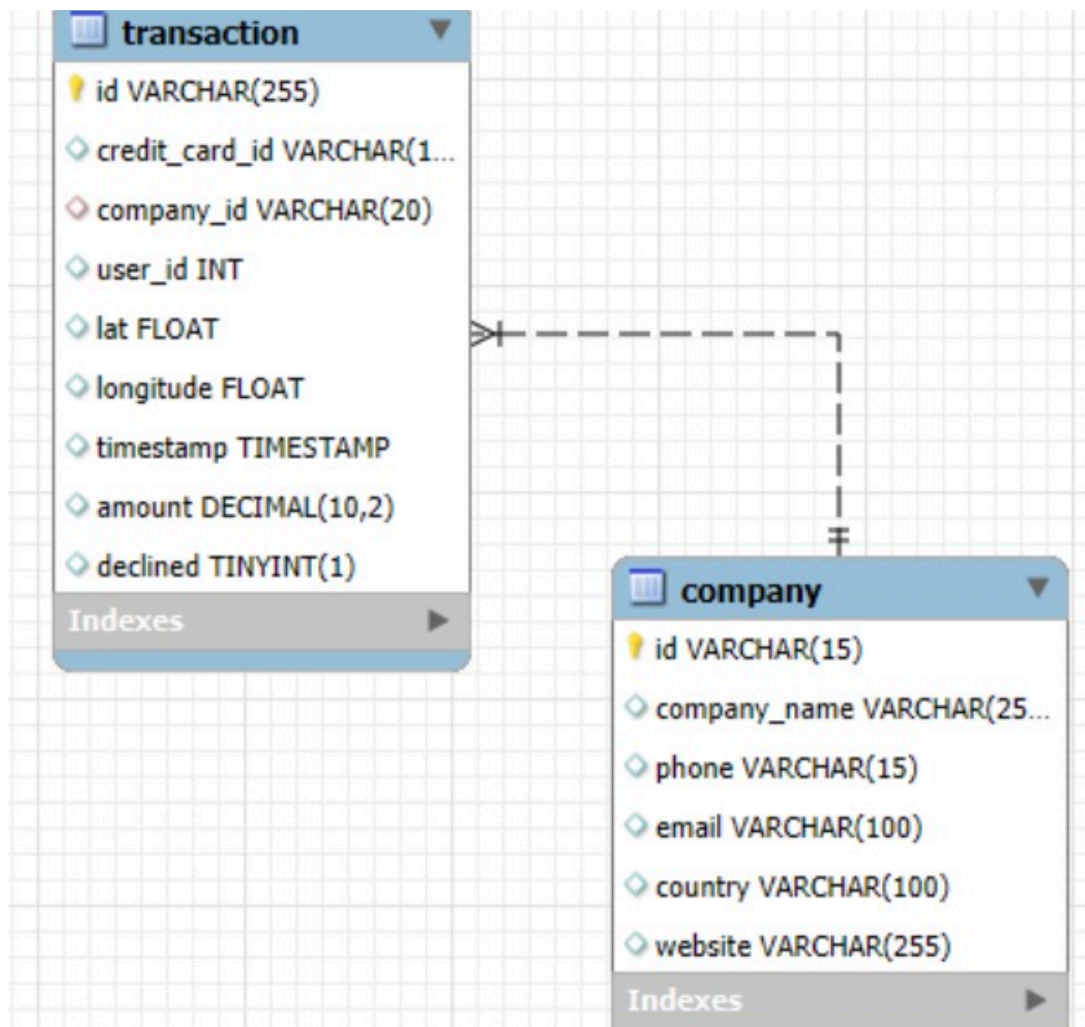
La columna company_name son los nombres de las empresas, phone son los números de teléfono de las empresas, la siguiente columna email es el correo electrónico de las empresas, country son los nombres de los países donde se encuentra cada empresa y, por último, website son las direcciones de los sitios web de cada empresa.

La tabla **Transacción** consta de 9 columnas, que son:

id | credit_card_id | company_id | user_id | lat | longitude | timestamp | amount | declined

Esta tabla consta de información sobre las transacciones realizadas por las empresas.

Su primary key es la columna id, credit_card_id son los datos de la tarjeta de crédito, company_id son los números de identificación de las empresas, user_id son los números que identifican a cada empleado, lat y longitude son las coordenadas sobre la ubicación de cada empresa, timestamp corresponde a la información sobre la fecha y hora en que se realizó cada transacción, amount son los valores de cada transacción y finalmente declined, lo que nos indica si la transacción fue aprobada o no.



Este es el modelo de base de datos de **transactions**.

Fue extraído usando MYSQL Workbench, muestra las 2 tablas: **transaction** y **company**, y las columnas correspondientes ya descritas anteriormente.

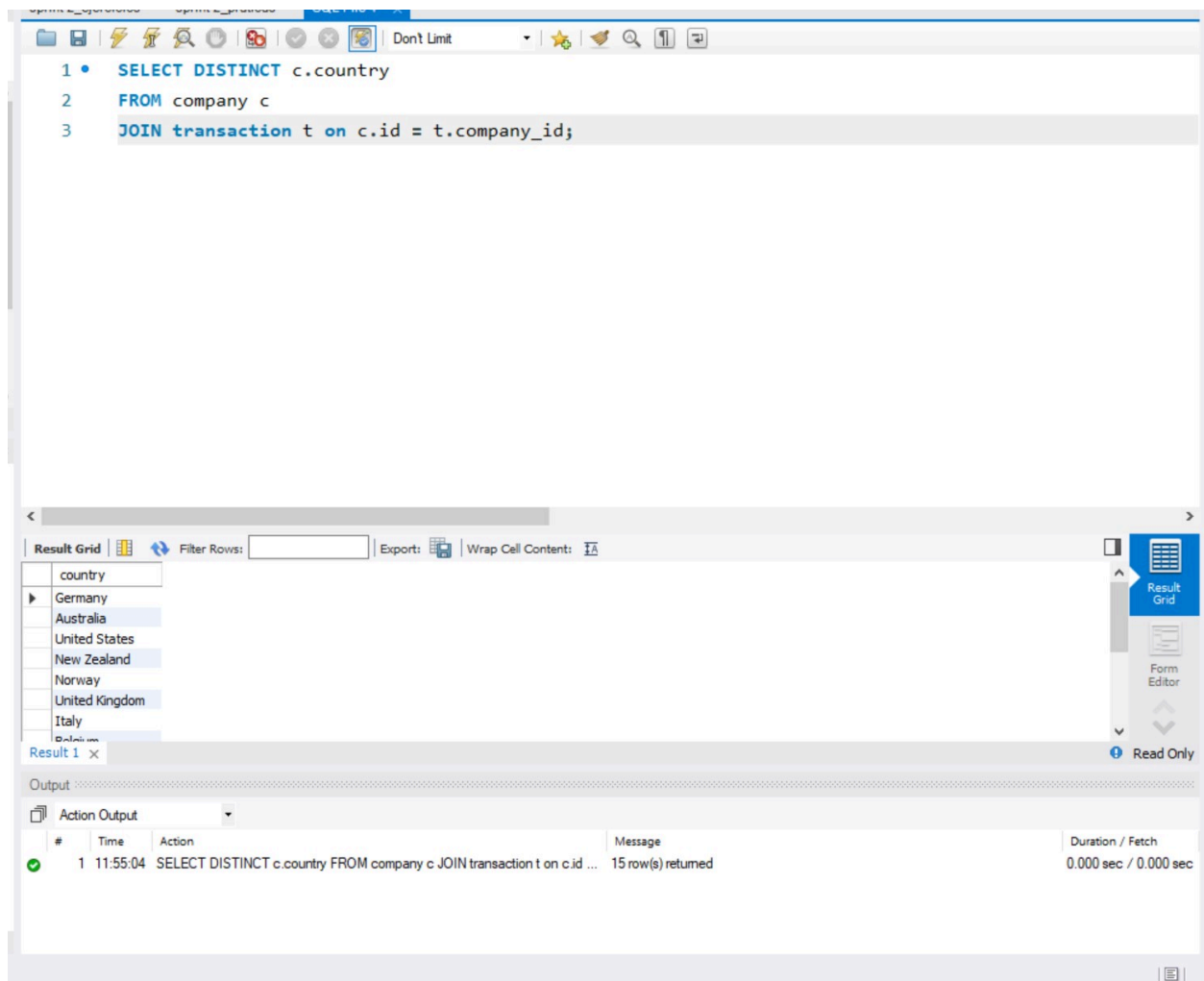
La conexión entre ellos se realiza a través de la columna **id**(primary key) en la tabla **company**, con la columna **company_id**(foreign key) en la tabla de **transaction**.

EJERCICIO 2

Utilitzant JOIN realitzaràs les següents consultes:

- Llistat dels països que estan fent compres.
- Des de quants països es realitzen les compres.
- Identifica la companyia amb la mitjana més gran de vendes.

Llistat dels països que estan fent compra:



The screenshot shows a database query tool interface. The SQL query is as follows:

```
1 • SELECT DISTINCT c.country
2 FROM company c
3 JOIN transaction t on c.id = t.company_id;
```

The results are displayed in a table with the following data:

country
Germany
Australia
United States
New Zealand
Norway
United Kingdom
Italy

The bottom section of the interface shows the 'Action Output' table, which contains the following information:

#	Time	Action	Message	Duration / Fetch
1	11:55:04	SELECT DISTINCT c.country FROM company c JOIN transaction t on c.id ...	15 row(s) returned	0.000 sec / 0.000 sec

Des de quants països es realitzen les compres:

The screenshot shows a SQL query execution interface. The query is as follows:

```
1 • SELECT COUNT(DISTINCT c.country) as Total_Countries
2 FROM company c
3 JOIN transaction t on c.id = t.company_id;
```

The results are displayed in a table with the following structure:

Total_Countries
15

The interface also shows the execution log for the query:

#	Time	Action	Message	Duration / Fetch
✓ 1	12:02:37	SELECT COUNT(DISTINCT c.country) as Total_Countries FROM company ...	1 row(s) returned	0.000 sec / 0.000 sec

Identifica la companyia amb la mitjana més gran de vendes.

The screenshot shows a SQL query editor with a toolbar at the top. The query is as follows:

```
1 • SELECT c.company_name, AVG(t.amount) as Biggest_Sales
2 FROM company c
3 JOIN transaction t ON c.id = t.company_id
4 GROUP BY c.company_name
5 ORDER BY Biggest_Sales DESC
6 LIMIT 1;
```

Below the query editor, the 'Result Grid' is displayed, showing a table with two columns: 'company_name' and 'Biggest_Sales'. The first row contains the data for 'Eget Ipsum Ltd' with a value of 473.075000.

company_name	Biggest_Sales
Eget Ipsum Ltd	473.075000

At the bottom, the 'Output' section shows the execution details for 'Result 2'. It indicates that the query was executed at 12:09:15, returned 1 row(s), and took 0.000 seconds to execute.

#	Time	Action	Message	Duration / Fetch
✓ 1	12:09:15	SELECT c.company_name, AVG(t.amount) as Biggest_Sales FROM compa...	1 row(s) returned	0.000 sec / 0.000 sec

EJERCICIO 3

Utilitzant només subconsultes (sense utilitzar JOIN):

- Mostra totes les transaccions realitzades per empreses d'Alemanya.
- Llista les empreses que han realitzat transaccions per un amount superior a la mitjana de totes les transaccions.
- Eliminaren del sistema les empreses que no tenen transaccions registrades, entrega el llistat d'aquestes empreses.

Mostra totes les transaccions realitzades per empreses d'Alemanya:

The screenshot shows a database query interface with a SQL query editor at the top and a result grid below it. The query is:

```
1 • SELECT *
2 FROM transaction
3 WHERE company_id IN(SELECT id FROM company WHERE country = 'Germany');
```

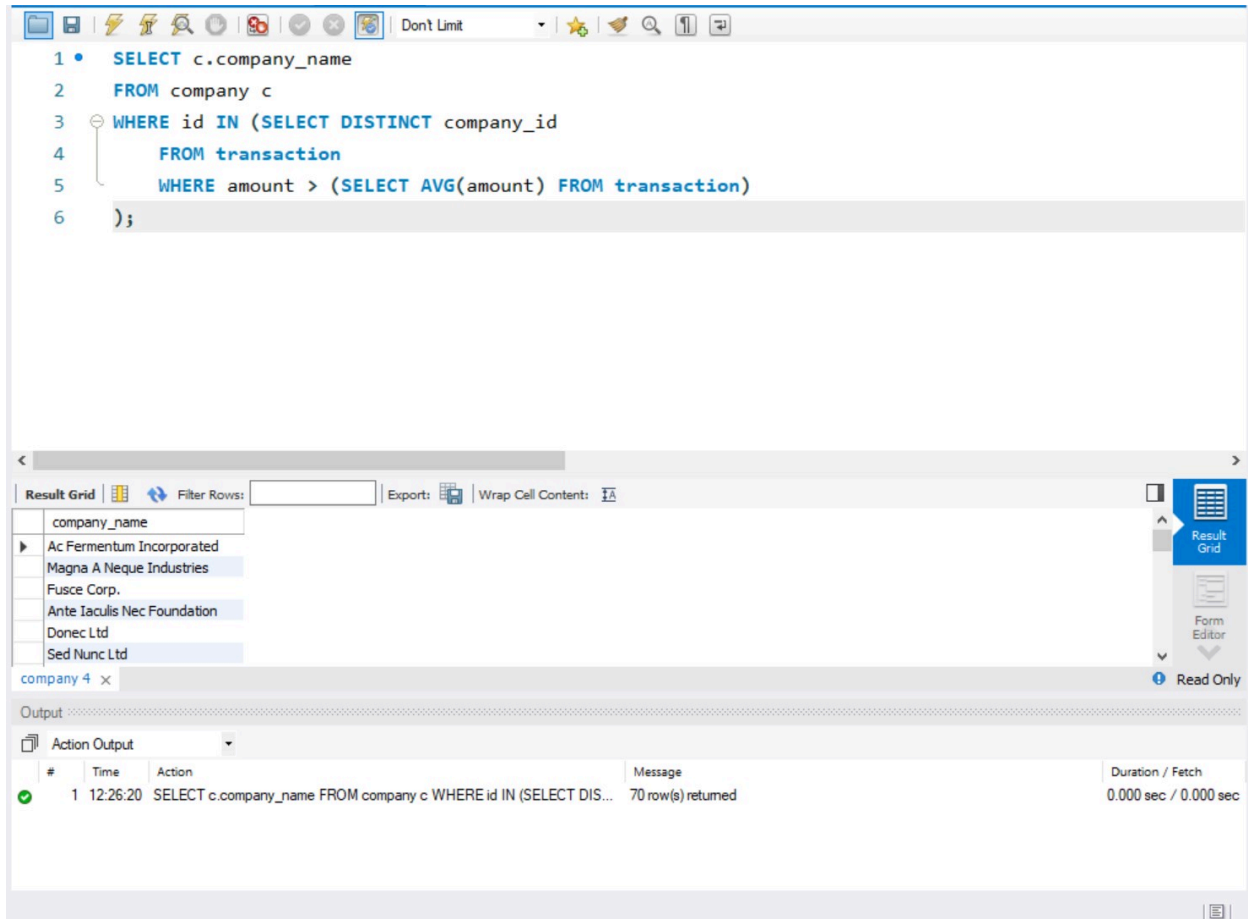
The result grid displays the following data:

id	credit_card_id	company_id	user_id	lat	longitude	timestamp	amount	declined
108B1D1D-5B23-A76C-55EF-C568E49A05DD	CcU-2938	b-2222	275	83.7839	-178.86	2021-07-07 17:43:16	293.57	0
EA2C3281-C9C1-A387-44F8-729FB4B51C76	CcU-2938	b-2222	275	20.2004	-116.84	2021-05-09 10:25:08	119.36	1
0DD2E608-5C9E-D1B3-4999-B99F43AD735A	CcU-2959	b-2234	275	9.68811	130.282	2021-04-17 05:30:17	252.47	1
AB069F53-965E-A2A8-CE06-CA8C4FD92501	CcU-2959	b-2234	275	1.64819	-158.007	2021-04-15 13:37:18	60.99	0
0466A42E-47CF-8D24-FD01-C0B689713128	CcU-4219	b-2302	170	-43.9695	-117.525	2021-07-26 07:29:18	49.53	0
0A476ED9-0C13-1962-F87B-D3563924B539	CcU-4359	b-2302	221	-56.4901	114.801	2022-02-26 20:33:54	430.49	0

Below the result grid, there is an 'Output' section showing the execution details:

#	Time	Action	Message	Duration / Fetch
1	12:21:19	SELECT * FROM transaction WHERE company_id IN(SELECT id FROM co...	118 rows(s) returned	0.016 sec / 0.000 sec

Llista les empreses que han realitzat transaccions per un amount superior a la mitjana de totes les transaccions:



The screenshot shows a database query tool interface. The top section contains a SQL query editor with the following code:

```
1 • SELECT c.company_name
2 FROM company c
3 WHERE id IN (SELECT DISTINCT company_id
4 FROM transaction
5 WHERE amount > (SELECT AVG(amount) FROM transaction)
6 );
```

Below the query editor is a "Result Grid" section. It includes a "Filter Rows" input field, an "Export" button, and a "Wrap Cell Content" checkbox. The grid displays the following data:

company_name
Ac Fermentum Incorporated
Magna A Neque Industries
Fusce Corp.
Ante Taculis Nec Foundation
Donec Ltd
Sed Nunc Ltd

Below the result grid is an "Output" section. It includes a "Action Output" dropdown menu. The output table shows the following data:

#	Time	Action	Message	Duration / Fetch
1	12:26:20	SELECT c.company_name FROM company c WHERE id IN (SELECT DIS...	70 row(s) returned	0.000 sec / 0.000 sec

Eliminarán del sistema las empresas que no tienen transacciones registradas, entrega el llistat d'aquestes empreses:

The screenshot shows a database management interface with the following components:

- SQL Editor:** Contains two queries:

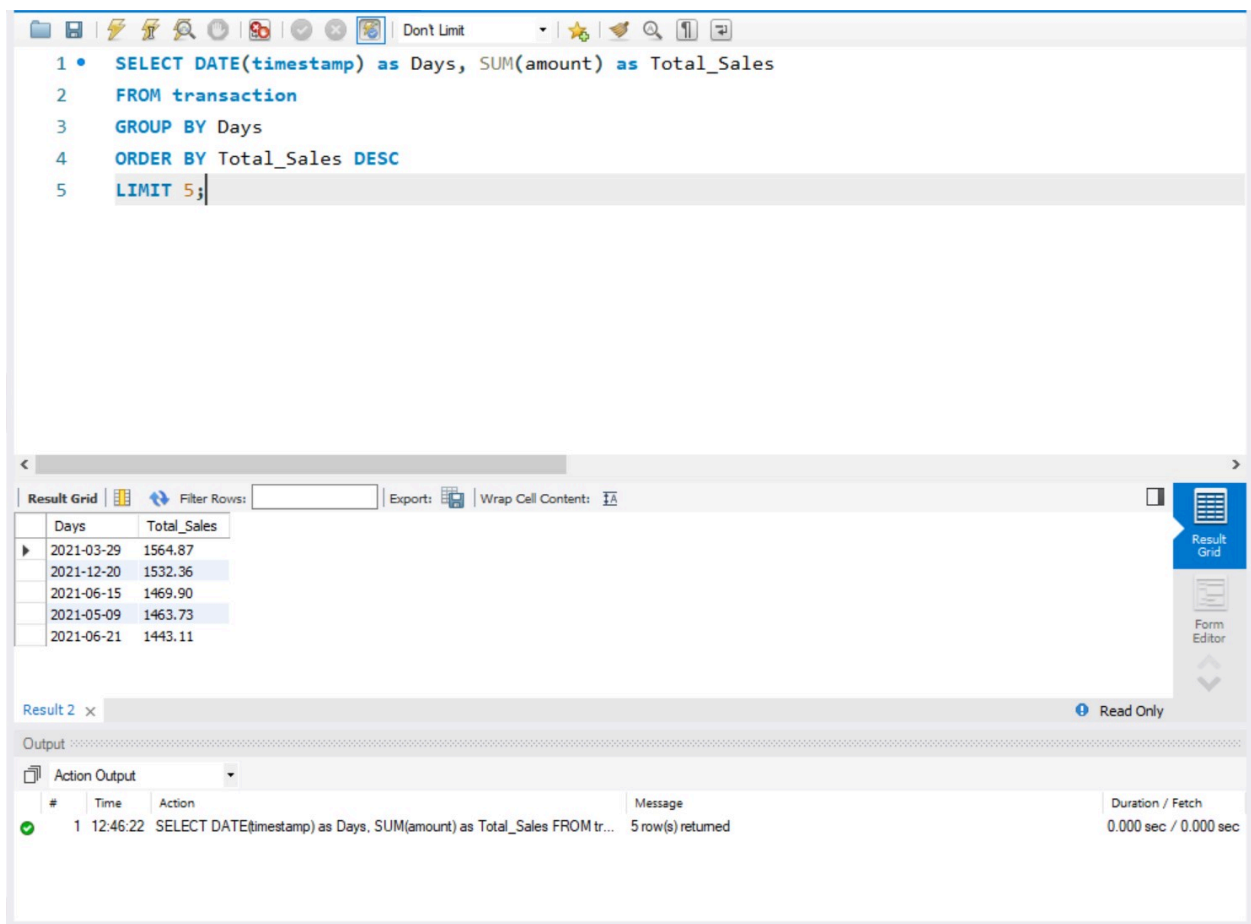
```
1 • SELECT *
2   FROM company c
3   WHERE NOT EXISTS (
4     SELECT 1 FROM transaction t
5     WHERE t.company_id = c.id
6   );
7 • DELETE FROM company c
8   WHERE NOT EXISTS (
9     SELECT 1 FROM transaction t
10    WHERE t.company_id = c.id
11  );
```
- Result Grid:** Displays a table with columns: id, company_name, phone, email, country, website. The first row shows all NULL values.
- Output Panel:** Shows the execution results of the queries:

#	Time	Action	Message	Duration / Fetch
✓ 1	12:41:40	SELECT * FROM company c WHERE NOT EXISTS (SELECT 1 FROM ...	0 row(s) returned	0.000 sec / 0.000 sec
✓ 2	12:41:40	DELETE FROM company c WHERE NOT EXISTS (SELECT 1 FROM tr...	0 row(s) affected	0.000 sec

NIVEL 2

EJERCICIO 1

Identifica els cinc dies que es va generar la quantitat més gran d'ingressos a l'empresa per vendes. Mostra la data de cada transacció juntament amb el total de les vendes:



The screenshot shows a database query interface. The SQL query is as follows:

```
1 • SELECT DATE(timestamp) as Days, SUM(amount) as Total_Sales
2 FROM transaction
3 GROUP BY Days
4 ORDER BY Total_Sales DESC
5 LIMIT 5;
```

The results are displayed in a table with the following data:

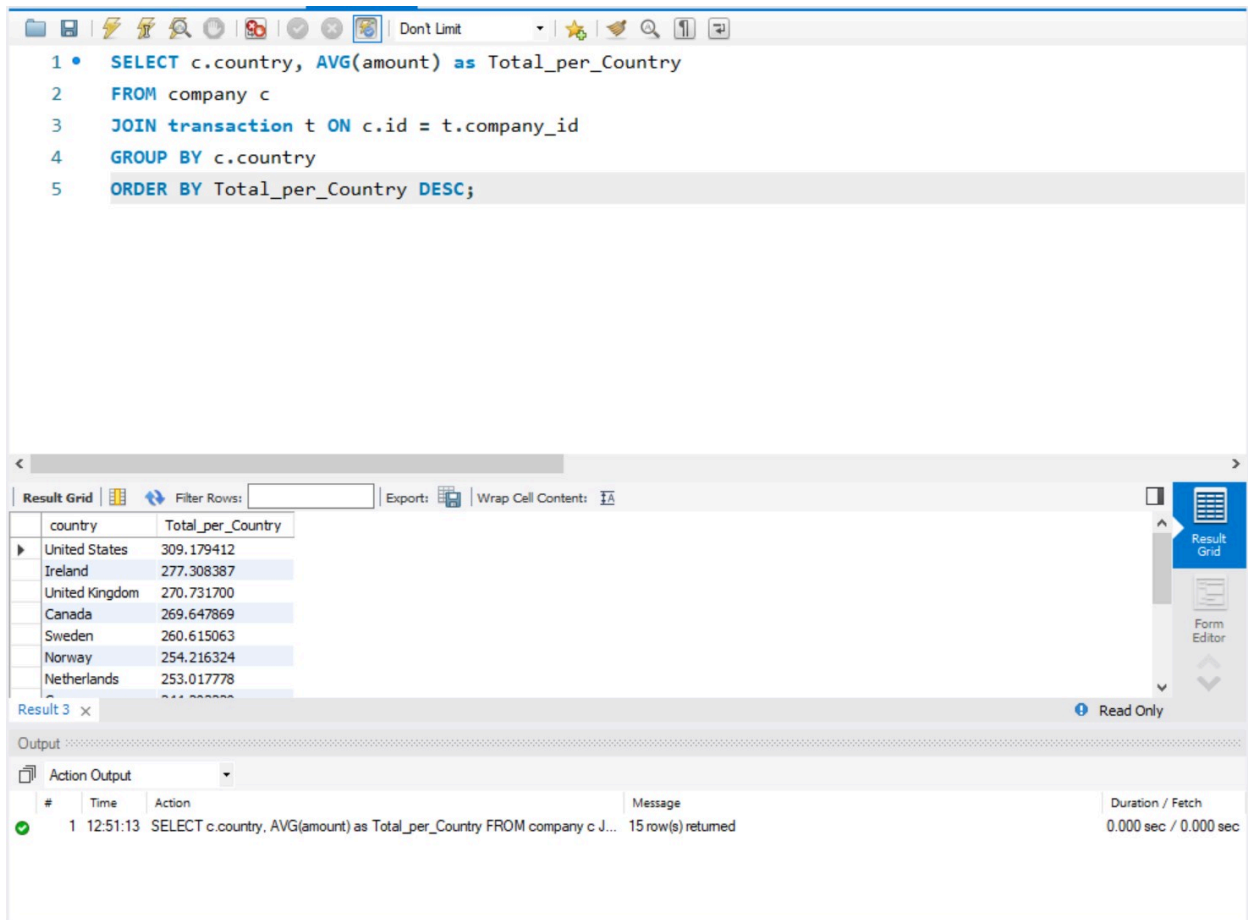
Days	Total_Sales
2021-03-29	1564.87
2021-12-20	1532.36
2021-06-15	1469.90
2021-05-09	1463.73
2021-06-21	1443.11

The interface also shows an "Output" section with the following information:

#	Time	Action	Message	Duration / Fetch
1	12:46:22	SELECT DATE(timestamp) as Days, SUM(amount) as Total_Sales FROM tr...	5 row(s) returned	0.000 sec / 0.000 sec

EJERCICIO 2

Quina és la mitjana de vendes per país? Presenta els resultats ordenats de major a menor mitjà:



The screenshot shows a database query tool interface. The top section displays a SQL query:

```
1 • SELECT c.country, AVG(amount) as Total_per_Country
2 FROM company c
3 JOIN transaction t ON c.id = t.company_id
4 GROUP BY c.country
5 ORDER BY Total_per_Country DESC;
```

Below the query, the results are shown in a table with two columns: 'country' and 'Total_per_Country'. The results are ordered from highest to lowest average amount.

country	Total_per_Country
United States	309.179412
Ireland	277.308387
United Kingdom	270.731700
Canada	269.647869
Sweden	260.615063
Norway	254.216324
Netherlands	253.017778

At the bottom, the 'Output' section shows the execution details:

#	Time	Action	Message	Duration / Fetch
1	12:51:13	SELECT c.country, AVG(amount) as Total_per_Country FROM company c J...	15 row(s) returned	0.000 sec / 0.000 sec

EJERCICIO 3

En la teva empresa, es planteja un nou projecte per a llançar algunes campanyes publicitàries per a fer competència a la companyia "Non Institute". Per a això, et demanen la llista de totes les transaccions realitzades per empreses que estan situades en el mateix país que aquesta companyia.

- Mostra el llistat aplicant JOIN i subconsultes.
- Mostra el llistat aplicant solament subconsultes.

Mostra el llistat aplicant JOIN i subconsultes:

The screenshot shows a database query editor with a SQL query and its results. The query is as follows:

```
1 • SELECT t.id, c.company_name
2 FROM transaction t
3 JOIN company c ON t.company_id = c.id
4 WHERE t.company_id IN (SELECT c.id
5 FROM company c
6 WHERE c.country = 'United Kingdom'
7 );
```

The results are displayed in a table with two columns: id and company_name.

id	company_name
2B928E1C-EC14-A760-0A75-871477649D6A	Sed Nunc Ltd
ACD2011A-A2B1-C365-41E1-2AB00C65147A	Sed Nunc Ltd
4334349E-CEB0-3D68-A4D4-FEB7718A1ACE	Non Magna LLC
BC2B9A38-77B4-28CD-1FE8-14DED863E773	Non Magna LLC
147983D2-87BA-C7B8-4CE3-8D7C2DE85A8B	Enim Condimentum Ltd
152598C2-029D-D684-4B66-91EDF393EBFF	Enim Condimentum Ltd
1B636B58-A2E8-7C69-D9C9-C5453DAFD3B	Enim Condimentum Ltd

The bottom of the screenshot shows the 'Output' section with a message: 'SELECT t.id, c.company_name FROM transaction t JOIN company c ON t.c... 100 row(s) returned'. The duration is 0.000 sec / 0.000 sec.

Mostra el llistat aplicant solament subconsultes:

The screenshot shows a database management tool interface. At the top, a SQL query is displayed in a text editor:

```
1 • SELECT (SELECT c.company_name FROM company c WHERE c.id = t.company_id) as Companies, t.id
2 FROM transaction t
3 WHERE t.company_id IN (SELECT c.id
4 FROM company c
5 WHERE c.country = 'United Kingdom'
6 );
```

Below the query editor, the 'Result Grid' is visible, showing a table with two columns: 'Companies' and 'id'. The table contains several rows of data, including 'Sed Nunc Ltd', 'Non Magna LLC', and 'Enim Condimentum Ltd'. The 'id' column contains long alphanumeric strings.

At the bottom, the 'Output' section shows the execution log. It indicates that the query was executed successfully at 13:04:04, returning 100 row(s).

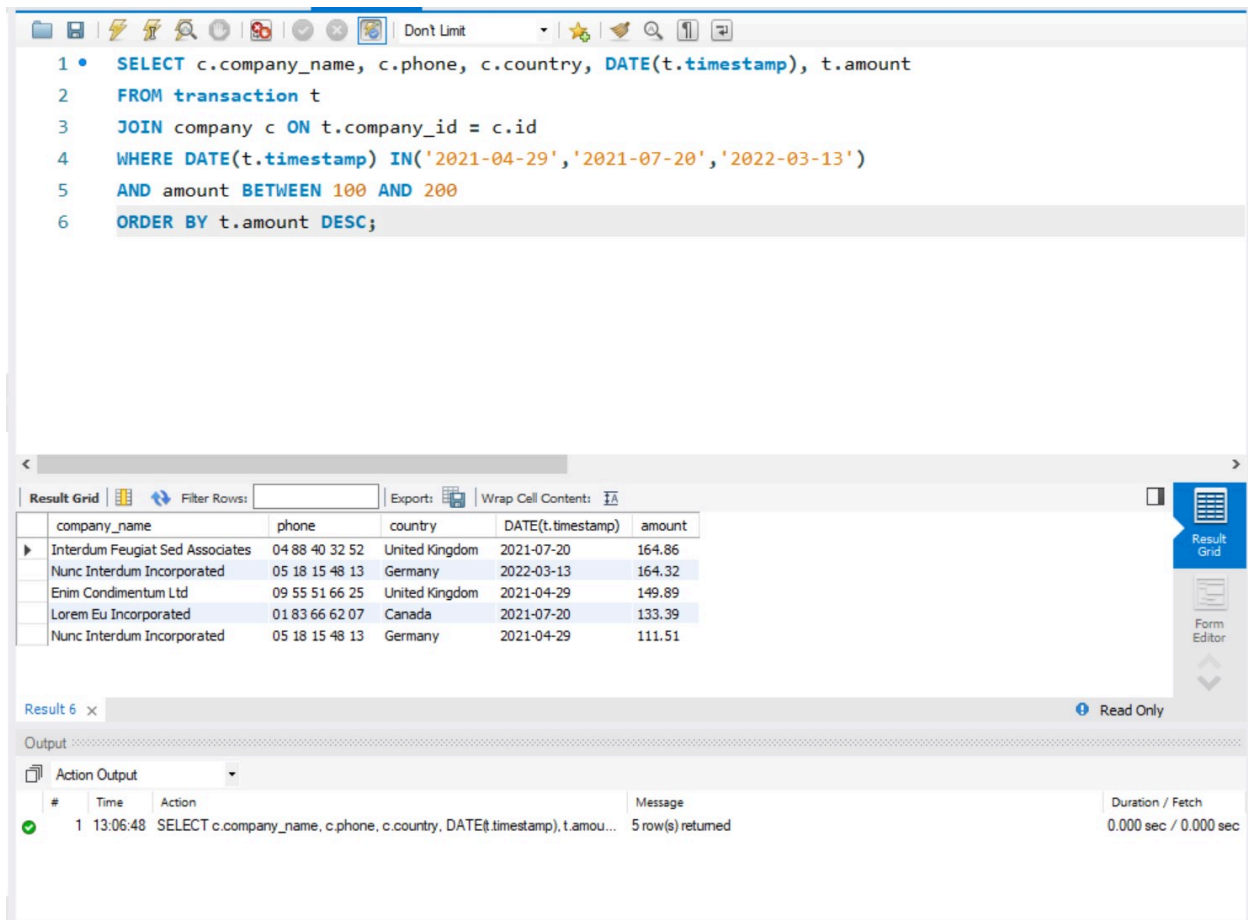
Companies	id
Sed Nunc Ltd	2B928E1C-EC14-A760-0A75-871477649D6A
Sed Nunc Ltd	ACD2011A-A2B1-C365-41E1-2AB00C65147A
Non Magna LLC	4334349E-CEB0-3D68-A4D4-FEB7718A1ACE
Non Magna LLC	BC2B9A38-77B4-28CD-1FE8-14DED863E773
Enim Condimentum Ltd	1479B3D2-87BA-C7B8-4CE3-8D7C2DE85AB8
Enim Condimentum Ltd	152598C2-029D-D684-4B66-91EDF393EBFF
Enim Condimentum Ltd	1B636B58-A2E8-7C69-D9C9-C5453DAFD3B

#	Time	Action	Message	Duration / Fetch
1	13:04:04	SELECT (SELECT c.company_name FROM company c WHERE c.id = t.co...	100 row(s) returned	0.000 sec / 0.000 sec

NIVEL 3

EJERCICIO 1

Presenta el nom, telèfon, país, data i amount, d'aquelles empreses que van realitzar transaccions amb un valor comprès entre 100 i 200 euros i en alguna d'aquestes dates: 29 d'abril del 2021, 20 de juliol del 2021 i 13 de març del 2022. Ordena els resultats de major a menor quantitat:



The screenshot shows a database query tool interface. The top section contains a SQL query:

```
1 • SELECT c.company_name, c.phone, c.country, DATE(t.timestamp), t.amount
2 FROM transaction t
3 JOIN company c ON t.company_id = c.id
4 WHERE DATE(t.timestamp) IN('2021-04-29', '2021-07-20', '2022-03-13')
5 AND amount BETWEEN 100 AND 200
6 ORDER BY t.amount DESC;
```

Below the query, the results are displayed in a table with the following columns: company_name, phone, country, DATE(t.timestamp), and amount. The results are sorted by amount in descending order.

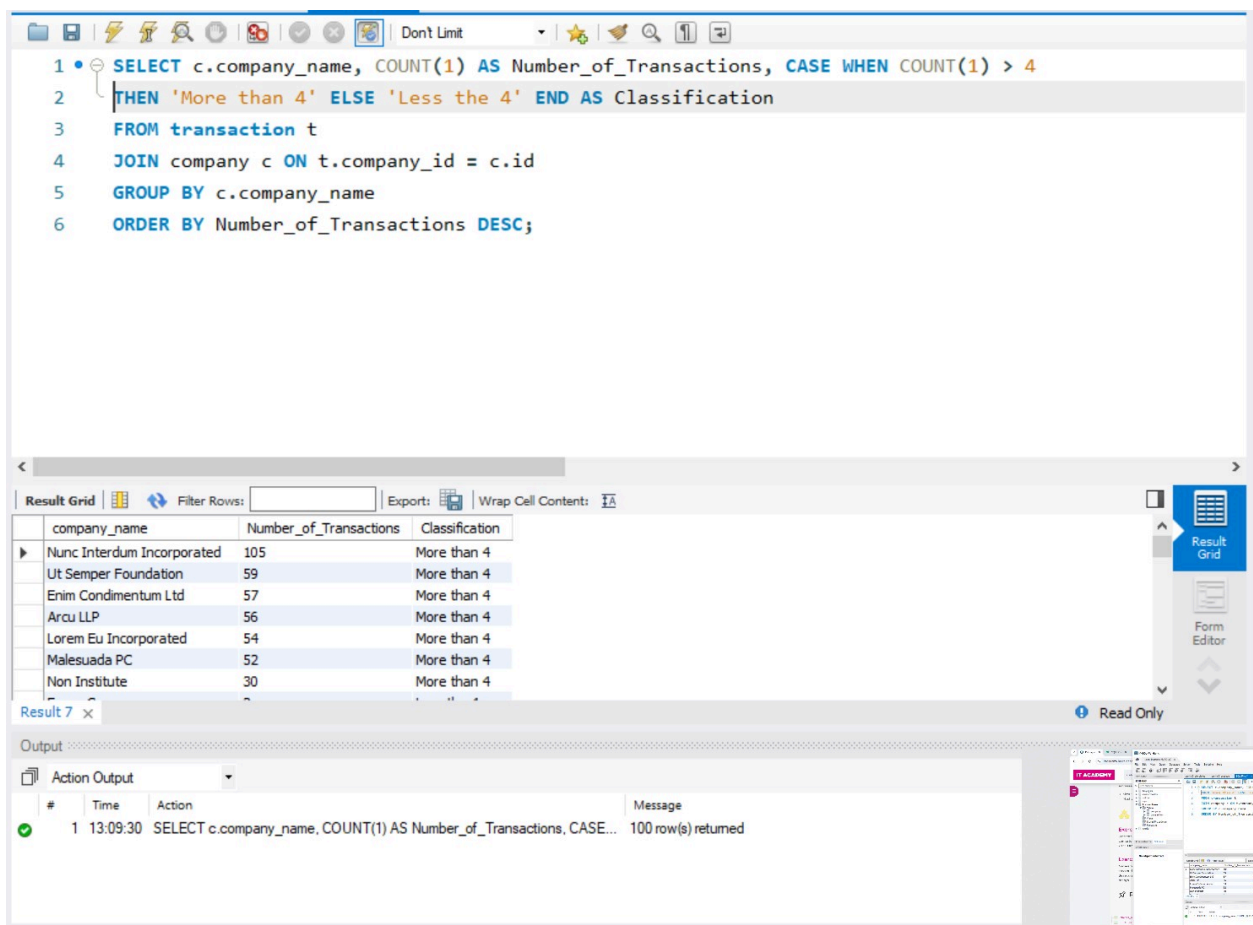
company_name	phone	country	DATE(t.timestamp)	amount
Interdum Feugiat Sed Associates	04 88 40 32 52	United Kingdom	2021-07-20	164.86
Nunc Interdum Incorporated	05 18 15 48 13	Germany	2022-03-13	164.32
Enim Condimentum Ltd	09 55 51 66 25	United Kingdom	2021-04-29	149.89
Lorem Eu Incorporated	01 83 66 62 07	Canada	2021-07-20	133.39
Nunc Interdum Incorporated	05 18 15 48 13	Germany	2021-04-29	111.51

At the bottom, the 'Output' section shows the execution details:

#	Time	Action	Message	Duration / Fetch
1	13:06:48	SELECT c.company_name, c.phone, c.country, DATE(t.timestamp), t.amou...	5 row(s) returned	0.000 sec / 0.000 sec

EJERCICIO 2

Necessitem optimitzar l'assignació dels recursos i dependrà de la capacitat operativa que es requereixi, per la qual cosa et demanen la informació sobre la quantitat de transaccions que realitzen les empreses, però el departament de recursos humans és exigent i vol un llistat de les empreses on especifiquis si tenen més de 4 transaccions o menys:



The screenshot shows a SQL IDE interface with a query editor at the top and a results grid below it. The query is as follows:

```
1 • SELECT c.company_name, COUNT(1) AS Number_of_Transactions, CASE WHEN COUNT(1) > 4
2 THEN 'More than 4' ELSE 'Less the 4' END AS Classification
3 FROM transaction t
4 JOIN company c ON t.company_id = c.id
5 GROUP BY c.company_name
6 ORDER BY Number_of_Transactions DESC;
```

The results grid displays the following data:

company_name	Number_of_Transactions	Classification
Nunc Interdum Incorporated	105	More than 4
Ut Semper Foundation	59	More than 4
Enim Condimentum Ltd	57	More than 4
Arcu LLP	56	More than 4
Lorem Eu Incorporated	54	More than 4
Malesuada PC	52	More than 4
Non Institute	30	More than 4

The bottom of the interface shows the 'Output' pane with a message: '1 13:09:30 SELECT c.company_name, COUNT(1) AS Number_of_Transactions, CASE... 100 row(s) returned'.