

Nivel I

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.

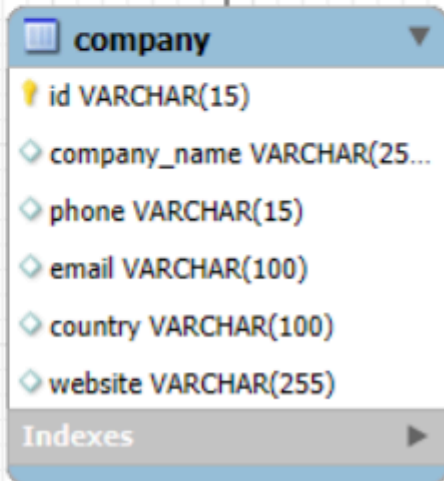
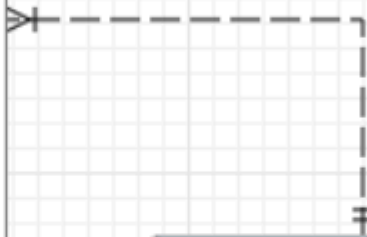
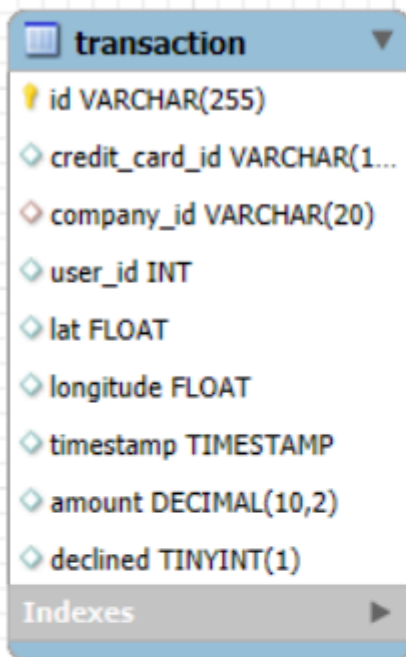
Entendemos que la tabla transactions es la tabla de hechos, donde se registran todos los movimientos que pueden tener las diferentes empresas. Es por eso que la relación es de 1 a N (Company -> Transaction).

La PK de company es la columna *id*, que se convierte en la FK de la tabla transaction siendo la columna *company_id*.

Table	Column	Type	Default Value	Nullable	Character Set	Collation	Privileges
company	company_name	varchar(255)		YES	utf8mb4	utf8mb4_0900_...	select,insert,update,references
company	country	varchar(100)		YES	utf8mb4	utf8mb4_0900_...	select,insert,update,references
company	email	varchar(100)		YES	utf8mb4	utf8mb4_0900_...	select,insert,update,references
company	id	varchar(15)		NO	utf8mb4	utf8mb4_0900_...	select,insert,update,references
company	phone	varchar(15)		YES	utf8mb4	utf8mb4_0900_...	select,insert,update,references
company	website	varchar(255)		YES	utf8mb4	utf8mb4_0900_...	select,insert,update,references
transaction	amount	decimal(10,2)		YES			select,insert,update,references
transaction	company_id	varchar(20)		YES	utf8mb4	utf8mb4_0900_...	select,insert,update,references
transaction	credit_card_id	varchar(15)		YES	utf8mb4	utf8mb4_0900_...	select,insert,update,references
transaction	declined	tinyint(1)		YES			select,insert,update,references
transaction	id	varchar(255)		NO	utf8mb4	utf8mb4_0900_...	select,insert,update,references
transaction	lat	float		YES			select,insert,update,references
transaction	longitude	float		YES			select,insert,update,references
transaction	timestamp	timestamp		YES			select,insert,update,references
transaction	user_id	int		YES			select,insert,update,references

Name	Engine	Version	Row Format	Rows	Avg Row Length	Data Length	Max Data Length	Index Length	Data Free	Auto Incre...	Create Time	Update Time
company	InnoDB	10	Dynamic	100	163	16.0 KB	0.0 bytes	0.0 bytes	0.0 bytes	0	2025-01-21 16:37:09	2025-01-21 16:39:17
transaction	InnoDB	10	Dynamic	587	139	80.0 KB	0.0 bytes	64.0 KB	0.0 bytes	0	2025-01-21 16:37:09	2025-01-21 16:39:18

características de las tablas y columnas



Ejercicio 2

Utilitzant JOIN realitzaràs les següents consultes:

- Llistat dels països que estan fent compres.

Para este ejercicio realizo un select distinct para que solo cuente una vez cada país y no me de duplicados.

`SELECT DISTINCT country from company;`

The screenshot shows a database query interface. At the top, a SQL query is entered in a text area: `SELECT DISTINCT country from company;`. Below the query area, there is a toolbar with options like 'Result Grid', 'Filter Rows', 'Export', and 'Wrap Cell Content'. The main area displays a list of countries: Germany, Australia, United States, New Zealand, Norway, United Kingdom, Italy, Belgium, Sweden, Ireland, China, Canada, France, Netherlands, and Spain. Below this, there is a section for 'company 27' with a tab for 'Output'. The 'Output' tab is selected, showing a table with columns '#', 'Time', 'Action', and 'Message'. The table contains one row: '# 1', 'Time 12:55:16', 'Action SELECT DISTINCT country from company LIMIT 0, 1000', and 'Message 15 row(s) returned'.

#	Time	Action	Message
1	12:55:16	SELECT DISTINCT country from company LIMIT 0, 1000	15 row(s) returned

- Des de quants països es realitzen les compres.

Mostrar el contejo distintivo de los países, llamando a la columna resultante “cantidad_paises”.

```
SELECT COUNT(DISTINCT country) AS cantidad_paises from company;
```

7 • `SELECT COUNT(DISTINCT country) AS cantidad_paises from company;`

8

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

	cantidad_paises
▶	15

Result 29 x

Output

Action Output

#	Time	Action	Message
▶ 1	12:56:28	SELECT COUNT(DISTINCT country) AS cantidad_paises from company LIMIT 0, 1000	1 row(s) returned

- Identifica la compañía con la media más grande de ventas.

Selección de los campos : nombre de la compañía, la media de las ventas, redondeado a dos decimales y renombrado como “media”.

Uní las dos tablas mediante el campo company_id e id.

Filtro para omitir las operaciones no realizadas, por lo que no las contamos como ventas.

Agrupé por el nombre de la compañía, ordené por la media descendente y limité a 1 el resultado.

```
SELECT company_name, ROUND(AVG(amount),2) AS media FROM transactions.transaction
```

```
JOIN company ON transaction.company_id = company.id
```

```
WHERE declined = 0
```

```
GROUP BY company_name
```

```
ORDER BY media desc
```

```
LIMIT 1;
```

```
9 • SELECT company_name, ROUND(AVG(amount),2) AS media FROM transactions.transaction
10     JOIN company ON transaction.company_id = company.id
11     WHERE declined = 0
12     GROUP BY company_name
13     ORDER BY media desc
14     LIMIT 1;
15
```

Result Grid		Filter Rows:	Export:	Wrap Cell Content:	Fetch rows:
company_name	media				
Eget Ipsum Ltd	481.86				

- Exercici 3

Utilitzant només subconsultes (sense utilitzar JOIN):

- Mostra totes les transaccions realitzades per empreses d'Alemanya.

Muestro todos los datos de la tabla de transacciones.

Filtro para que me devuelva las empresas que tienen el mismo país que en la subquery ejecuta como "Germany".

Select * from transaction

WHERE company_id IN (

SELECT id

from company

WHERE country = 'Germany'

);

```
20 • Select * from transaction
21 WHERE company_id IN (
22     SELECT id
23     from company
24     WHERE country = 'Germany'
25 );
```

Result Grid										Filter Rows:		Edit:		Export/Import:		Wrap Cell Content: ⌂	
	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								
	122DC333-E19F-D629-DCD8-9C54CF1EB89A	CcU-4366	b-2302	221	29.6372	-166.173	2021-06-09 06:04:14	172.01	0								
	135267BA-2E7D-957C-C42C-6450A2B3ED54	CcU-4520	b-2302	210	20.6724	14.9732	2021-12-29 20:38:23	17.97	0								
	14CAE5B5-8FB1-3E4A-4C85-0EA4167534F4	CcU-4849	b-2302	189	-53.6202	93.0533	2021-12-31 00:29:42	388.04	0								
	158A3ACB-541C-DBCC-65BD-6373CC67BF1C	CcU-4849	b-2302	183	42.5424	-170.347	2022-03-08 05:02:19	240.29	0								
	162C7E78-2B6B-7971-A1E4-D2124E732451	CcU-4527	b-2302	210	-69.1381	58.0017	2021-04-11 05:59:18	231.26	0								
	1717FD6B-ADAD-7082-A748-9112BE892CCC	CcU-4219	b-2302	172	69.4892	-138.411	2021-12-29 16:18:54	249.91	0								
	17E3A788-8EF1-5766-5C30-A1F8078003A	CcU-4345	b-2302	222	57.8477	-114.778	2021-08-17 05:37:08	407.84	0								
transaction 31 ✕																	
Output																	
Action Output																	
#	Time	Action						Message									
✓ 1	13:02:07	Select * from transaction WHERE company_id IN (SELECT id						from company WHERE country = 'Germany') LIMIT 0, 1000			118 row(s) returned						

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

Selección distintiva del nombre de la compañía. En from selecciono las dos tablas ya que realizaré la unión de las mismas con el filtro where.

Además filtro para que la el total de la venta sea mayor que la media de las ventas, calculado en la subconsulta.

`SELECT distinct company_name`

`FROM company, transaction`

`WHERE transaction.company_id = company.id AND amount >(`

`SELECT AVG(amount)`

`FROM transaction`

`);`

```

27 • SELECT distinct company_name
28 FROM company, transaction
29 WHERE transaction.company_id = company.id AND amount >(
30     SELECT AVG(amount)
31     FROM transaction
32 );
33
34

```

Result Grid

company_name
▶ Lorem Eu Incorporated
Non Institute
Ut Semper Foundation
Lacus Quisque Associates
Elit Etiam Laoreet Associates
Nunc Interdum Incorporated
Magna Incorporated
Sapien Nunc Pulvinar LLP
Ac Fermentum Incorporated
Nunc Sit Incorporated
Enim Condimentum Ltd
Lorem Ipsum Dolor Corp.
Tempor Nunc Commodo Com

Result 33 x

Output

Action Output

#	Time	Action	Message
▶ 1	13:06:30	SELECT distinct company_name FROM company, transaction WHERE transaction.company_id = company.id AND amount >(SELECT AVG(amount) F...	70 row(s) returned
▶ 2	13:09:50	SELECT distinct company_name FROM company, transaction WHERE transaction.company_id = company.id AND amount >(SELECT AVG(amount) F...	70 row(s) returned

- Eliminarian del sistema les empreses que no tenen transaccions registrades, entrega el llistat d'aquestes empreses.

Selección del id de la compañía, donde ese mismo id no esté en la tabla de transacciones de la subconsulta, que nos devuelve cada id una sola vez.

SELECT id

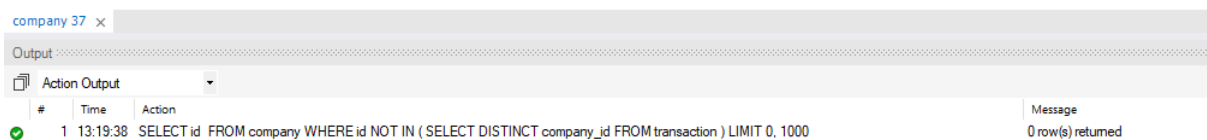
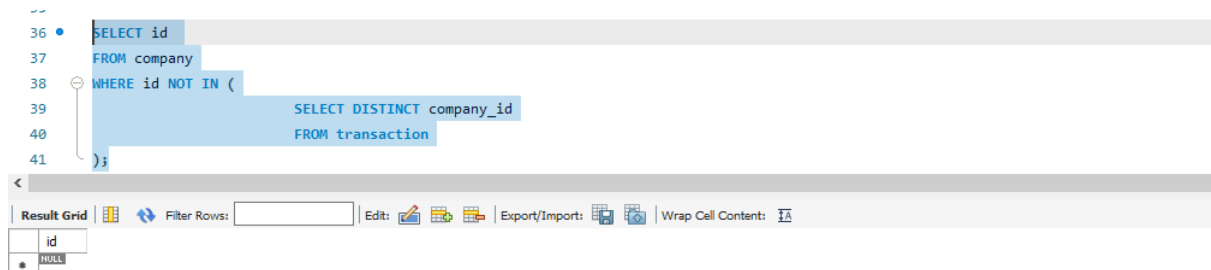
FROM company

WHERE id NOT IN (

SELECT DISTINCT company_id

FROM transaction

);



Nivell 2

Exercici 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.

Convertir la fecha solamente al día sin las horas, sumatorio de las ventas y renombrado como "total_ventas". Misma join anterior para unir las tablas. Filtro para excluir las transacciones no declinadas. Agrupado por la fecha, ordenado por el total de ventas en orden descendente y limitado a 5 resultados.

```
SELECT date (timestamp) AS fecha, SUM(amount) AS total_ventas
FROM transaction
      JOIN company ON transaction.company_id = company.id
WHERE declined = 0
group by 1
ORDER BY 2 desc
LIMIT 5;
```

```
44 • SELECT date (timestamp) AS fecha, SUM(amount) AS total_ventas
45 FROM transaction
46      JOIN company ON transaction.company_id = company.id
47 WHERE declined = 0
48 group by 1
49 ORDER BY 2 desc
50 LIMIT 5;
51
52
53
```

	fecha	total_ventas
▶	2021-12-20	1532.36
	2021-04-22	1397.96
	2021-05-09	1344.37
	2022-02-26	1337.62
	2021-03-29	1325.12

Result 39 x

Output

Action Output

#	Time	Action	Message
✓ 1	13:29:58	SELECT date (timestamp) AS fecha, SUM(amount) AS total_ventas FROM transaction JOIN company ON transaction.company_id = company.id WHER...	5 row(s) returned
✓ 2	13:30:23	SELECT date (timestamp) AS fecha, SUM(amount) AS total_ventas FROM transaction JOIN company ON transaction.company_id = company.id WHER...	5 row(s) returned

Exercici 2

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

Selección del campo país, redondeo de la media de las ventas y renombrado como “mediaXpais”. Misma join anterior. Filtro para excluir transacciones no realizadas, agrupado por país y ordenado por la “mediaXpais” descendente.

```
SELECT country, ROUND(AVG(amount),2) AS mediaXpais #añadir round
```

```
from transaction
```

```
JOIN company ON transaction.company_id = company.id
```

```
WHERE declined = 0
```

```
GROUP BY country
```

```
ORDER by mediaXpais desc;
```

```
56 • SELECT country, ROUND(AVG(amount),2) AS mediaXpais #añadir round
57   from transaction
58   JOIN company ON transaction.company_id = company.id
59   WHERE declined = 0
60   GROUP BY country
61   ORDER by mediaXpais desc;
62
```

Result Grid

country	mediaXpais
United States	287.53
Ireland	285.83
Sweden	276.67
United Kingdom	271.77
Canada	261.94
Poland	255.77

Result 40

Output

Action Output

#	Time	Action	Message
1	13:33:43	SELECT country, ROUND(AVG(amount),2) AS mediaXpais #añadir round from transaction JOIN company ON transaction.company_id = company.id WHE...	15 row(s) returned

Exercici 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.

Mostrar todo los datos de la tabla company, uniendo tablas con join anterior. Filtro aplicado: resultados que el nombre de la compañía no sea "Non Institute" y aplicado con subconsulta, que el país sea el mismo que la compañía citada anteriormente.

```
SELECT *
```

```
from company
```

```
JOIN transaction ON company.id = transaction.company_id
```

```
WHERE company_name != 'Non Institute' AND country = (
```

```
    Select country from company
```

```
WHERE company_name = 'Non Institute');
```

```
67 • SELECT *
68 from company
69 JOIN transaction ON company.id = transaction.company_id
70 WHERE company_name != 'Non Institute' AND country = (
71     Select country from company
72     WHERE company_name = 'Non Institute'); #corregir
73
74 #SIN JOIN
```

Result Grid

	id	company_name	phone	email	country	website	id	
▶	b-2246	Sed Nunc Ltd	02 62 64 73 48	nibh@yahoo.org	United Kingdom	https://cnn.com/one	2B928E1C-EC14-A760-0A75-871477649D6A	C
	b-2246	Sed Nunc Ltd	02 62 64 73 48	nibh@yahoo.org	United Kingdom	https://cnn.com/one	ACD2011A-A2B1-C365-41E1-2AB00C65147A	C
	b-2310	Non Magna LLC	06 71 73 13 17	nisl.quisque.fringilla@hotmail.ca	United Kingdom	https://whatsapp.com/site	4334349E-CEB0-3D68-A4D4-FEB7718A1ACE	C
	b-2310	Non Magna LLC	06 71 73 13 17	nisl.quisque.fringilla@hotmail.ca	United Kingdom	https://whatsapp.com/site	BC2B9A38-77B4-28CD-1FE8-140ED863E773	C
	b-2326	Enim Condimentum Ltd	09 55 51 66 25	imperdiet.non.vestibulum@yahoo.net	United Kingdom	https://cnn.com/group/9	1479B3D2-B7BA-C7BB-4CE3-8D7C2DE85A8B	C
	b-2326	Enim Condimentum Ltd	09 55 51 66 25	imperdiet.non.vestibulum@yahoo.net	United Kingdom	https://cnn.com/group/9	1E3E98C2-070D-D684-4B66-01E9E202EEB5	C

Result 41 x

Output

Action Output

#	Time	Action	Message
1	13:35:29	SELECT * from company JOIN transaction ON company.id = transaction.company_id WHERE company_name != 'Non Institute' AND country = (Select ...	70 row(s) returned

- **Mostra el llistat aplicant subconsultes**

Uno las dos tablas mediante el filtro, y como en el ejercicio anterior filtro para que me muestre las compañías que tienen un nombre diferente a “Non Institute” pero el país sea el mismo.

```
SELECT transaction.*
FROM company, transaction
WHERE transaction.company_id = company.id
AND company_name != 'Non Institute'
AND country = (
    Select country from company
    WHERE company_name = 'Non Institute'
);
```

```
76 • SELECT transaction.*
77 FROM company, transaction
78 WHERE transaction.company_id = company.id
79 AND company_name != 'Non Institute'
80 AND country = (
81     Select country from company
82     WHERE company_name = 'Non Institute' #exclur empresa igual que en paso anterior con otra subquery
83 );
84
85 #NIVEL 3 EJ 1
86
```

Result Grid									
Filter Rows: <input type="text"/>									
Export: <input type="text"/> Wrap Cell Content: <input type="text"/>									
	id	credit_card_id	company_id	user_id	lat	longitude	timestamp	amount	declined
	2B928E1C-EC14-A760-0A75-871477649D6A	CcU-2980	b-2246	275	-41.0496	161.685	2021-08-10 08:14:49	383.73	0
	ACD2011A-A2B1-C365-41E1-2AB00C65147A	CcU-2980	b-2246	275	-54.4792	-82.7974	2022-03-05 20:41:20	60.07	1
	4334349E-CEB0-3D68-A4D4-FEB7718A1ACE	CcU-3092	b-2310	275	-20.4859	150.87	2021-05-03 22:37:23	458.74	0
	BC2B9A38-77B4-28CD-1FE8-14DED863E773	CcU-3092	b-2310	275	-78.0295	18.5295	2021-10-18 07:27:35	477.95	1
	1479B3D2-B7BA-C7BB-4CE3-8D7C2DE85ABB	CcU-2994	b-2326	133	66.2672	172.399	2021-08-09 00:58:07	309.45	0
	4E7E9C7D-02D0-B694-4B66-01E9E307EBEE	CcU-2994	b-2326	133	67.0180	141.573	2021-07-05 03:10:00	305.43	0

Result 42 X

Output:

Action Output

#	Time	Action	Message
1	13:38:18	SELECT transaction.* FROM company, transaction WHERE transaction.company_id = company.id AND company_name != 'Non Institute' AND country = ...	70 row(s) returned

Nivell 3

Exercici 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.

Muestra de las columnas solicitadas en la pregunta, con la exclusión de la hora en la fecha. Misma join anterior. Filtro por resultados donde la cantidad esté entre 100 y 200 y las fechas sean las indicadas en enunciado.

Agrupo por la cantidad descendente.

```
SELECT company_name, phone, country, date (timestamp), amount
FROM transaction
JOIN company ON transaction.company_id = company.id
WHERE amount BETWEEN 100 and 200
AND DATE(timestamp) IN ('2021-04-29', '2021-07-20', '2022-03-13')
ORDER BY amount desc;
```

```
87 • SELECT company_name, phone, country, date (timestamp), amount FROM transaction
88     JOIN company ON transaction.company_id = company.id
89 WHERE amount BETWEEN 100 and 200
90 AND DATE(timestamp) IN ('2021-04-29', '2021-07-20', '2022-03-13')
91 ORDER BY amount desc;
92
93 #NIVEL 3 EJ 2
94
```

Result Grid

	company_name	phone	country	date (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	Germanv	2021-04-29	111.51

Result 48 x

Output

Action Output

#	Time	Action	Message
1	13:46:38	SELECT company_name, phone, country, date (timestamp), amount FROM transaction JOIN company ON transaction.company_id = company.id WHERE...	5 row(s) returned

Exercici 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.

Muestra el nombre de la compañía, el conteo de las transacciones, renombrado como "total_transacciones".

Con la clausula CASE WHEN creo una nueva columna, donde si el conteo de las transacciones es igual o mayor de 4, muestra el mensaje "mayor o igual que 4". En caso contrario mostrará "menor que 4". Misma join anterior, agrupado por el nombre de la empresa y ordenado por el total de transacciones descendente para mejor visualización.

```
SELECT company_name, COUNT(transaction.id) AS total_transacciones,  
       CASE  
           WHEN COUNT(transaction.id) >= 4 THEN 'mayor o igual a 4'  
           ELSE 'menos de 4'  
       END AS más_4_transacciones  
from transaction  
       JOIN company  
ON transaction.company_id = company.id  
GROUP BY 1  
ORDER BY total_transacciones desc;
```

```

95 • SELECT company_name, COUNT(transaction.id) AS total_transacciones,
96     CASE
97         WHEN COUNT(transaction.id) >= 4 THEN 'mayor o igual a 4'
98         ELSE 'menos de 4'
99     END AS más_4_transacciones
100 from transaction
101 JOIN company
102 ON transaction.company_id = company.id
103 GROUP BY 1
104 ORDER BY total_transacciones desc;
105
106
107
108

```

Result Grid			
Filter Rows: <input type="text"/>			
Export: Wrap Cell Content:			
company_name	total_transacciones	más_4_transacciones	
Nunc Interdum Incorporated	105	mayor o igual a 4	
Ut Semper Foundation	59	mayor o igual a 4	
Enim Condimentum Ltd	57	mayor o igual a 4	
Arcu LLP	56	mayor o igual a 4	
Lorem Eu Incorporated	54	mayor o igual a 4	
Malesuada DC	53	mayor o igual a 4	

Result 50 x

Output			
Action Output			
#	Time	Action	Message
1	13:57:01	SELECT company_name, COUNT(transaction.id) AS total_transacciones, CASE WHEN COUNT(transaction.id) >= 4 THEN 'mayor o igual a 4' ELSE 'me...	100 row(s) returned