

# Sprint 2

## Tasca S2.01. Nocions bàsiques SQL

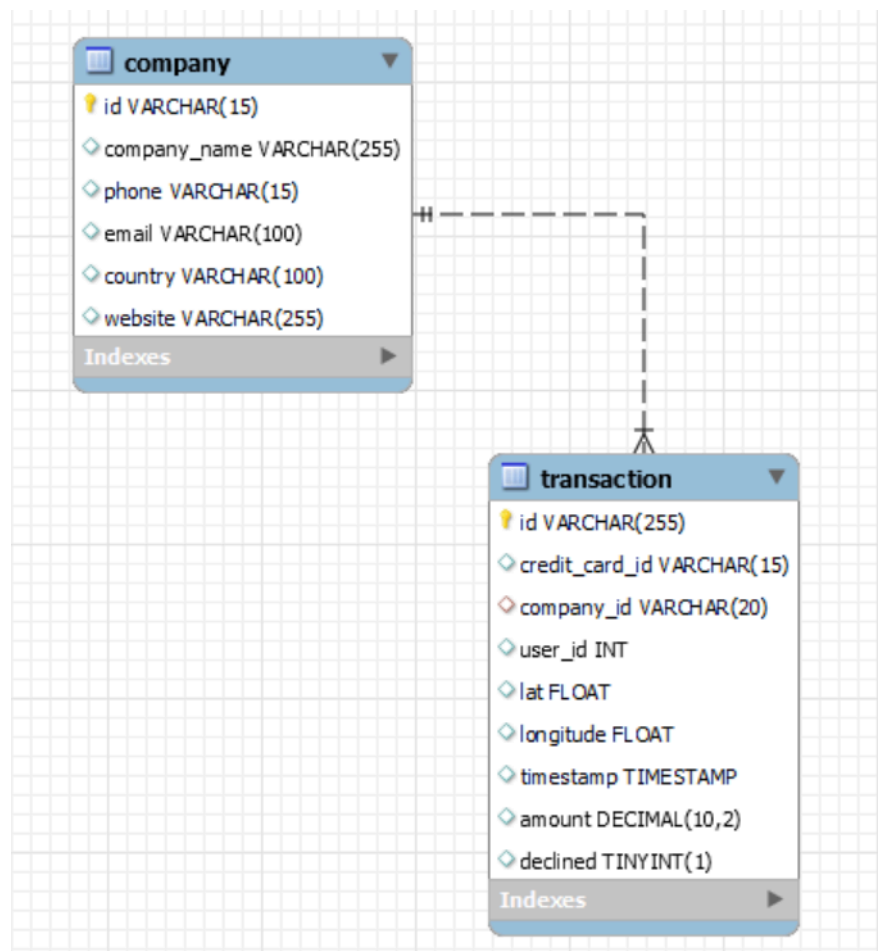
### Nivell 1

#### Exercici 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.

Se trata de una tabla que contiene transacciones de compra-venta y una tabla relacionada que contiene los datos de las empresas donde se realizaron las compras.

La tabla *transactions* es la tabla de hechos, de las ventas realizadas, su primary key es el campo *id* que identifica cada transacción con un valor alfanumérico. El campo *company\_id* es una foreign key que se relaciona con la primary key de la tabla *company* con una cardinalidad de muchos a uno. Pueden verse en el siguiente esquema los campos de cada tabla y cómo se relacionan.



## Exercici 2

Utilitzant JOIN realitzaràs les següents consultes:

Llistat dels països que estan fent compres.

The screenshot shows a database management tool interface. The top pane displays a SQL query in a text editor. The query is as follows:

```
1 # NIVELL 1 -----
2 # EXERCICI 2 --- Utilitzant JOIN
3
4 # Llistat dels països que estan fent compres.
5 • SELECT DISTINCT country
6 FROM transaction
7 INNER JOIN company
8 ON transaction.company_id = company.id
9
10
```

The bottom pane shows the 'Result Grid' with the following data:

country
Germany
Australia
United States
New Zealand
Norway
United Kingdom
Italy
Belgium

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

#	Time	Action	Message	Duration / Fetch
35	10:42:11	SELECT DISTINCT country FROM transaction IN...	15 row(s) returned	0.000 sec / 0.000 sec

Des de quants països es realitzen les compres.

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

```
10
11 # Des de quants països es realitzen les compres.
12 • SELECT COUNT(DISTINCT country) AS countries
13 FROM transaction
14 INNER JOIN company
15 ON transaction.company_id = company.id
16
17
```

Below the query editor is a 'Result Grid' section. It displays a table with one column labeled 'countries' and one row with the value '15'.

On the right side of the interface, there are several icons for 'Result Grid', 'Form Editor', and 'Field Types'. Below these is a 'Read Only' indicator.

At the bottom, there is an 'Output' section with a table showing the execution details of the query:

#	Time	Action	Message	Duration / Fetch
36	10:43:04	SELECT DISTINCT country FROM transaction IN...	15 row(s) returned	0.000 sec / 0.000 sec

Identifica la companyia amb la mitjana més gran de vendes.

The screenshot shows a SQL IDE window titled "Sprint2". The query editor contains the following SQL code:

```
16 ;
17
18 # Identifica la companyia amb la mitjana més gran de vendes.
19 • SELECT company_name
20 FROM company
21 JOIN transaction
22 ON company.id = transaction.company_id
23 GROUP BY company.id
24 ORDER BY AVG(amount) DESC
25 LIMIT 1
26 ;
27
```

Below the query editor, the "Result Grid" is displayed, showing the results of the query:

company_name
Eget Ipsum Ltd

At the bottom, the "Output" pane shows the execution details:

#	Time	Action	Message	Duration / Fetch
38	10:48:21	SELECT company_name FROM company JOIN tr...	1 row(s) returned	0.000 sec / 0.000 sec

### Exercici 3

Utilitzant només subconsultes (sense utilitzar JOIN):

Mostra totes les transaccions realitzades per empreses d'Alemanya.

The screenshot shows a database management tool interface. At the top, there's a toolbar with various icons and a 'Don't Limit' dropdown. Below the toolbar is a text editor with a SQL query. The query is as follows:

```
27
28 # EXERCICI 3 --- Utilitzant només subconsultes (sense utilitzar JOIN)
29 # Mostra totes les transaccions realitzades per empreses d'Alemanya.
30 • SELECT *
31 FROM transaction
32 WHERE company_id IN
33     (SELECT id
34      FROM company
35      WHERE country = 'Germany')
36 ;
37
```

Below the query editor is a 'Result Grid' section. It contains a table with the following data:

id	credit_card_id	company_id	user_id	lat	longitude	timestamp
108B1D1D-5B23-A76C-55EF-C568E49A05DD	CcU-2938	b-2222	275	83.7839	-178.86	2021-07-07 17:
EA2C3281-C9C1-A387-44F8-729FB4B51C76	CcU-2938	b-2222	275	20.2004	-116.84	2021-05-09 10:
0DD2E608-5C9E-D1B3-4999-899F43AD735A	CcU-2959	b-2234	275	9.68811	130.282	2021-04-17 05:
AB069F53-965E-A2A8-CE06-CA8C4FD92501	CcU-2959	b-2234	275	1.64819	-158.007	2021-04-15 13:
0466A42E-47CF-8D24-FD01-C0B689713128	CcU-4219	b-2302	170	-43.9695	-117.525	2021-07-26 07:

Below the result grid is an 'Output' section. It shows the execution of the query:

#	Time	Action	Message	Duration / Fetch
40	10:49:40	SELECT * FROM transaction WHERE company_id IN (SELECT id FROM company WHERE country = 'Germany')	118 row(s) returned	0.000 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 management tool interface. At the top, a tab labeled 'Sprint2' is active. Below the tab is a toolbar with various icons. The main area displays a SQL query in a text editor. The query is as follows:

```
38 # Llista les empreses que han realitzat transaccions per un amount superior a la mitjana de
39   SELECT company.company_name, AVG(amount)
40   FROM transaction, company
41   WHERE transaction.company_id = company.id
42   GROUP BY company_id
43   HAVING AVG(amount) > (SELECT AVG(amount) FROM transaction) #general average
44   ;
45
```

Below the query editor, there is a 'Result Grid' section. It includes a 'Filter Rows' input field, an 'Export' button, and a 'Wrap Cell Content' checkbox. The grid itself displays the results of the query, with two columns: 'company\_name' and 'AVG(amount)'. The results are as follows:

company_name	AVG(amount)
Magna A Neque Industries	396.315000
Fusce Corp.	350.125000
Vestibulum Lorem PC	434.060000
Gravida Sagittis LLP	309.445000
Elit Etiam Laoreet Associates	351.840000
Non Magna LLC	468.345000
Magna Incorporated	258.125000
Fringilla Porttitor Incorporated	289.960000
Ut Semper Foundation	273.732881

On the right side of the interface, there is a vertical toolbar with icons for 'Result Grid', 'Form Editor', and 'Field Types'. Below the result grid, there is an 'Output' section with a dropdown menu set to 'Action Output'. The output table shows the execution details of the query:

#	Time	Action	Message	Duration / Fetch
42	10:50:31	SELECT company.company_name, AVG(amount)...	42 row(s) returned	0.000 sec / 0.000 sec

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

The screenshot shows a database management interface with a SQL editor and a results panel.

**SQL Editor:**

```
46 # Eliminarian del sistema les empreses que no tenen transaccions registrades, entrega el
47 llistat d'aquestes empreses.
48 # No n'hi ha empreses sense transaccions registrades:
49 • SELECT *
50 FROM transaction
51 WHERE company_id NOT IN (SELECT id
52 FROM company)
53
```

**Result Grid:**

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

**Output Panel:**

transaction 40 x Apply

Output

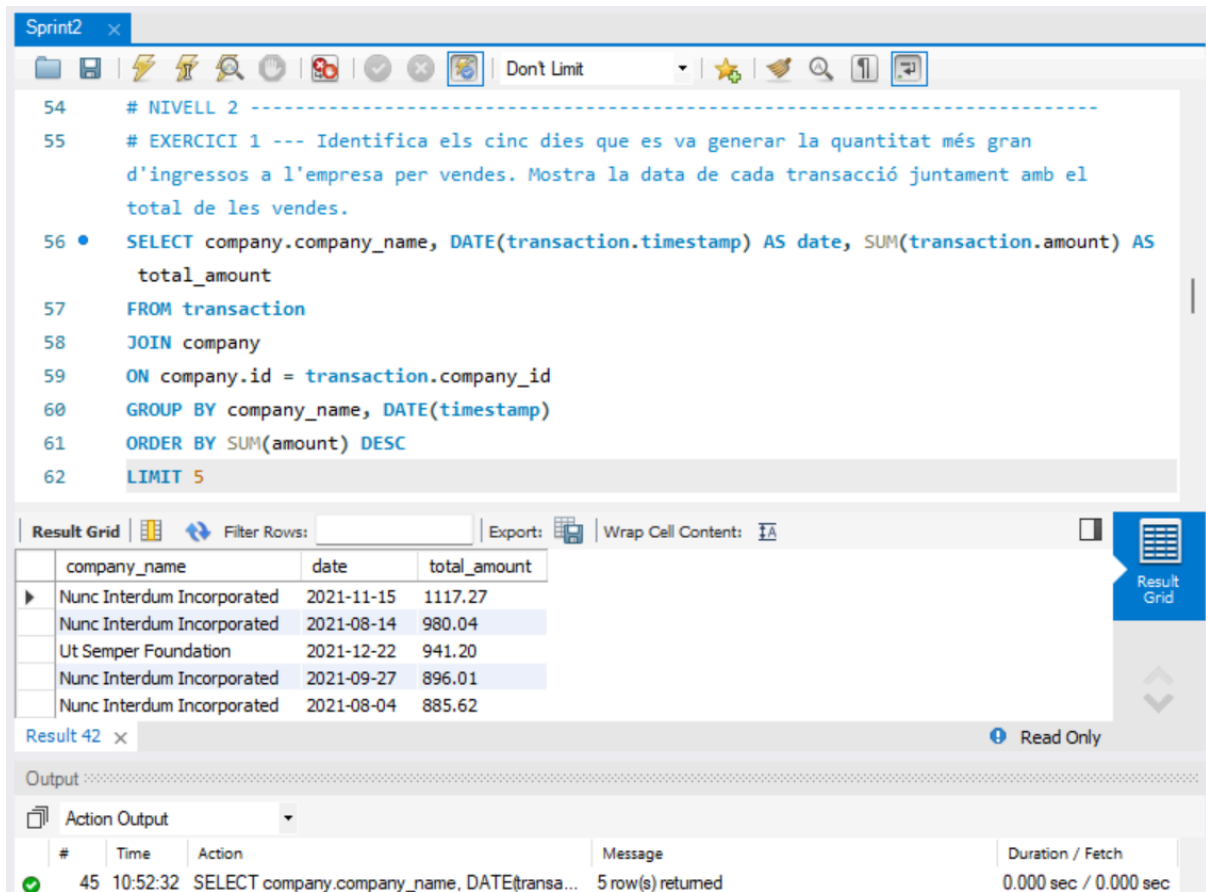
Action Output

#	Time	Action	Message	Duration / Fetch
✓ 43	10:50:44	SELECT company.company_name, AVG(amount)...	42 row(s) returned	0.015 sec / 0.000 sec

## 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.



The screenshot shows a SQL IDE window titled "Sprint2". The query editor contains the following SQL code:

```
54 # NIVELL 2 -----
55 # 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.
56 • SELECT company.company_name, DATE(transaction.timestamp) AS date, SUM(transaction.amount) AS
    total_amount
57 FROM transaction
58 JOIN company
59 ON company.id = transaction.company_id
60 GROUP BY company_name, DATE(timestamp)
61 ORDER BY SUM(amount) DESC
62 LIMIT 5
```

Below the query editor, the "Result Grid" is displayed, showing the results of the query. The grid has three columns: company\_name, date, and total\_amount. The results are as follows:

company_name	date	total_amount
Nunc Interdum Incorporated	2021-11-15	1117.27
Nunc Interdum Incorporated	2021-08-14	980.04
Ut Semper Foundation	2021-12-22	941.20
Nunc Interdum Incorporated	2021-09-27	896.01
Nunc Interdum Incorporated	2021-08-04	885.62

Below the result grid, the "Output" section is visible, showing the execution details of the query. The output is as follows:

#	Time	Action	Message	Duration / Fetch
45	10:52:32	SELECT company.company_name, DATE(transa...	5 row(s) returned	0.000 sec / 0.000 sec



## Exercici 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 in a text editor. The query is as follows:

```
63 ;
64
65 # EXERCICI 2 --- Quina és la mitjana de vendes per país? Presenta els resultats ordenats de
66   major a menor mitjà.
67 • SELECT company.country, AVG(amount)
68   FROM company
69   JOIN transaction
70   ON company.id = transaction.company_id
71   GROUP BY country
72   ORDER BY AVG(amount) DESC
73 ;
```

Below the query editor, the 'Result Grid' is visible, showing the results of the query. The grid has two columns: 'country' and 'AVG(amount)'. The results are ordered from highest to lowest average amount.

country	AVG(amount)
United States	309.179412
Ireland	277.308387
United Kingdom	270.731700
Canada	269.647869
Sweden	260.615063
Norway	254.216324

At the bottom of the interface, the 'Output' section shows the execution details of the query. It includes a table with columns: '#', 'Time', 'Action', 'Message', and 'Duration / Fetch'.

#	Time	Action	Message	Duration / Fetch
47	10:53:44	SELECT company.country, AVG(amount) FROM ...	15 row(s) returned	0.000 sec / 0.000 sec

### 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.

The screenshot shows a database IDE window titled "Sprint2". The SQL editor contains the following query:

```
74 # EXERCICI 3 --- Llista de totes les transaccions realitzades per empreses que estan
75 situades en el mateix país que "Non Institute"
76 # Amb JOIN i subconsultes:
77 SELECT *
78 FROM transaction
79 JOIN company
80 ON company.id = transaction.company_id
81 WHERE country = (SELECT country
82 FROM company
83 WHERE company_name = "Non Institute")
```

Below the editor, the "Result Grid" displays the query results. The table has 8 columns: id, credit\_card\_id, company\_id, user\_id, lat, longitude, and timestamp. The results are as follows:

id	credit_card_id	company_id	user_id	lat	longitude	timestamp
2B928E1C-EC14-A760-0A75-871477649D6A	CcU-2980	b-2246	275	-41.0496	161.685	2021-08-10 08:
ACD2011A-A2B1-C365-41E1-2AB00C65147A	CcU-2980	b-2246	275	-54.4792	-82.7974	2022-03-05 20:
4334349E-CEB0-3D68-A4D4-FEB7718A1ACE	CcU-3092	b-2310	275	-20.4859	150.87	2021-05-03 22:
BC2B9A38-77B4-28CD-1FE8-14DED863E773	CcU-3092	b-2310	275	-78.0295	18.5295	2021-10-18 07:
1479B3D2-B7BA-C7BB-4CE3-8D7C2DE85ABB	CcU-2994	b-2326	133	66.2672	172.399	2021-08-09 00:

At the bottom, the "Output" pane shows the "Action Output" for the query. It indicates that the query "SELECT company.country, AVG(amount) FROM ..." returned 15 rows in 0.000 seconds.

Mostra el llistat aplicant solament subconsultes.

Sprint2 x

Don't Limit

```
83 ;
84 # Solament subconsultes:
85 • SELECT *
86 FROM transaction, company
87 WHERE company.id = transaction.company_id
88 AND country = (SELECT country
89                 FROM company
90                 WHERE company_name = "Non Institute")
91 ;
92
```

Result Grid

	id	credit_card_id	company_id	user_id	lat	longitude	timestamp
▶	2B928E1C-EC14-A760-0A75-871477649D6A	CcU-2980	b-2246	275	-41.0496	161.685	2021-08-10 08:
	ACD2011A-A2B1-C365-41E1-2AB00C65147A	CcU-2980	b-2246	275	-54.4792	-82.7974	2022-03-05 20:
	4334349E-CEB0-3D68-A4D4-FEB7718A1ACE	CcU-3092	b-2310	275	-20.4859	150.87	2021-05-03 22:
	BC2B9A38-77B4-28CD-1FE8-14DED863E773	CcU-3092	b-2310	275	-78.0295	18.5295	2021-10-18 07:
	1479B3D2-B7BA-C7BB-4CE3-8D7C2DE85ABB	CcU-2994	b-2326	133	66.2672	172.399	2021-08-09 00:
	152598C2-029D-D684-4B66-91EDF393EBFF	CcU-2994	b-2326	126	-67.0189	-141.672	2021-07-05 03:
	1B636B58-A2E8-7C69-D9C9-C54535DAFD3B	CcU-2994	b-2326	131	70.2543	-13.1336	2021-07-06 08:

Result 47 x

Read Only

Output

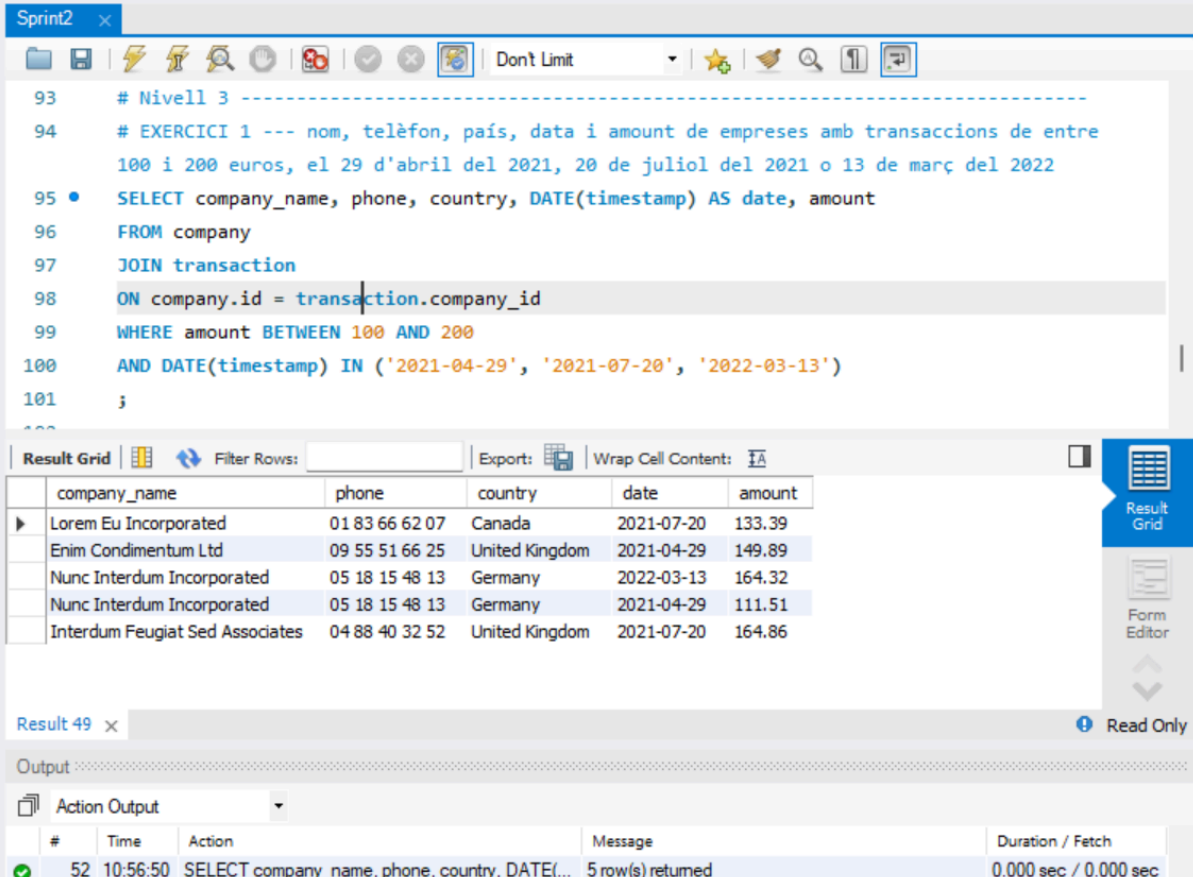
Action Output

#	Time	Action	Message	Duration / Fetch
✓ 50	10:55:55	SELECT * FROM transaction, company WHERE ...	100 row(s) returned	0.000 sec / 0.000 sec

## 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.



The screenshot shows a database query editor window titled "Sprint2". The query is as follows:

```
93 # Nivell 3 -----
94 # EXERCICI 1 --- nom, telèfon, país, data i amount de empreses amb transaccions de entre
95   100 i 200 euros, el 29 d'abril del 2021, 20 de juliol del 2021 o 13 de març del 2022
96 • SELECT company_name, phone, country, DATE(timestamp) AS date, amount
97 FROM company
98 JOIN transaction
99 ON company.id = transaction.company_id
100 WHERE amount BETWEEN 100 AND 200
101 AND DATE(timestamp) IN ('2021-04-29', '2021-07-20', '2022-03-13')
102 ;
```

Below the query, the "Result Grid" is displayed, showing 5 rows of data:

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

At the bottom, the "Output" section shows the execution log:

#	Time	Action	Message	Duration / Fetch
✓ 52	10:56:50	SELECT company_name, phone, country, DATE(...	5 row(s) returned	0.000 sec / 0.000 sec

## 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 especifiqui si tenen més de 4 transaccions o menys.

The screenshot shows a SQL IDE window titled "Sprint2". The query editor contains the following SQL code:

```
103 # EXERCICI 2 --- quantitat de transaccions que realitzen les empreses on s'especifiqui si
104   SELECT company_name,
105          CASE
106            WHEN COUNT(*) >= 4 THEN 'Més de 4'
107            ELSE 'Menys de 4'
108          END AS transaction_count
109   FROM company
110  JOIN transaction
111     ON company.id = transaction.company_id
112  GROUP BY company_name
113  ;
```

Below the query editor is the "Result Grid" section, which displays the following data:

company_name	transaction_count
Ac Fermentum Incorporated	Menys de 4
Magna A Neque Industries	Menys de 4
Fusce Corp.	Menys de 4
Convallis In Incorporated	Menys de 4
Ante Iaculis Nec Foundation	Menys de 4

At the bottom of the IDE, the "Output" section shows the execution details:

#	Time	Action	Message	Duration / Fetch
54	10:58:18	SELECT company_name, CASE WHEN COU...	100 row(s) returned	0.000 sec / 0.000 sec