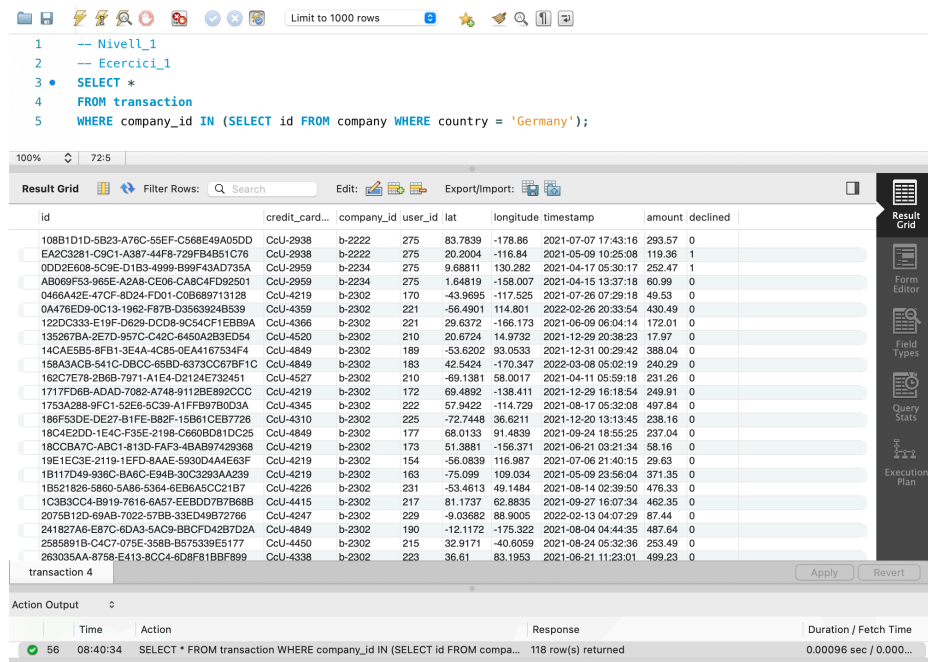


Nivell 1

- Exercici 1

Mostra totes les transaccions realitzades per empreses d'Alemanya.



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

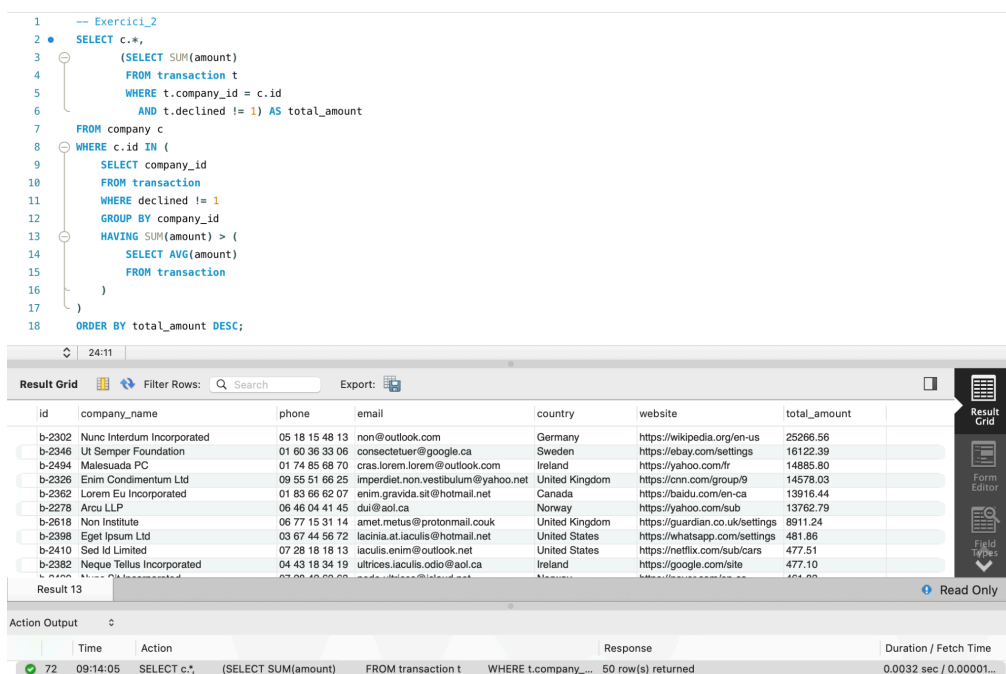
```
1 -- Nivell_1
2 -- Exercici_1
3 • SELECT *
4 FROM transaction
5 WHERE company_id IN (SELECT id FROM company WHERE country = 'Germany');
```

The results are displayed in a table with the following columns: id, credit_card..., company_id, user_id, lat, longitude, timestamp, amount, declined. The table contains 118 rows of data.

id	credit_card...	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-A387-44F8-729F84B51C76	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
0A470ED9-9C13-1962-F87B-D3563924B539	CcU-4359	b-2302	221	-56.4901	114.801	2022-02-26 20:33:54	430.49	0
122DC333-E19F-D629-DDC8-9C54C1EB99A	CcU-4366	b-2302	221	29.6372	-166.173	2021-06-09 06:04:14	172.01	0
135267BA-2ETD-957C-C42C-6450A2B3ED54	CcU-4520	b-2302	210	20.6724	14.9732	2021-12-29 20:38:23	17.97	0
14CAE5B5-8FB1-3E4A-C8E5-0EA167534F4	CcU-4849	b-2302	189	-53.6202	93.0533	2021-12-31 00:29:42	388.04	0
158A3ACB-541C-DBCC-65BD-6373C67BF1C	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
1753A288-9FC1-52E8-5C39-A1FFB97B0D3A	CcU-4345	b-2302	222	57.9422	-114.729	2021-08-17 05:32:08	497.84	0
186F53DE-DE27-B1FE-B82F-15B61CEB7726	CcU-4310	b-2302	225	-72.7448	36.6211	2021-12-20 13:13:45	238.16	0
18CAE2DD-1EAC-F35E-219B-C660BD81DC25	CcU-4849	b-2302	177	68.0133	91.4839	2021-09-24 18:55:25	237.04	0
18CDBA7C-ABC1-813D-FAF3-4B8A97429368	CcU-4219	b-2302	173	51.3881	-156.371	2021-06-21 03:21:34	58.16	0
19E1EC3E-2119-1EFD-8AAE-5930D4A4E63F	CcU-4219	b-2302	154	-56.0839	116.987	2021-07-06 21:40:15	29.63	0
1B117D49-936C-BA6E-E04B-30C3293AA239	CcU-4219	b-2302	163	-75.099	109.034	2021-05-09 23:56:04	371.35	0
1B521826-5860-5A86-5364-6E96A5CC21B7	CcU-4226	b-2302	231	-53.4613	49.1484	2021-08-14 02:39:50	476.33	0
1C3B3CCA-B919-7616-6A57-EEBDD7B7B6B8	CcU-4415	b-2302	217	81.1737	62.8835	2021-09-27 16:07:34	462.35	0
2075B12D-69AB-7022-57B9-33ED4B972796	CcU-4247	b-2302	229	-9.03682	88.9005	2022-02-13 04:07:29	87.44	0
241827A6-E87C-6DA3-5AC8-BB0CFD42B7D2A	CcU-4849	b-2302	190	-12.1172	-175.322	2021-08-04 04:44:35	487.64	0
2585891B-C4C7-075E-35B8-B575339E5177	CcU-4450	b-2302	215	32.9171	-40.6059	2021-08-24 05:32:36	253.49	0
263035AA-8758-E413-8CC4-BD8F81BBF899	CcU-4338	b-2302	223	36.61	83.1953	2021-06-21 11:23:01	499.23	0

- Exercici 2

Màrqueting està preparant alguns informes de tancaments de gestió, et demanen que els passis un llistat de les empreses que han realitzat transaccions per una suma superior a la mitjana de totes les transaccions.



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

```
1 -- Exercici_2
2 • SELECT c.*,
3 (SELECT SUM(amount)
4 FROM transaction t
5 WHERE t.company_id = c.id
6 AND t.declined != 1) AS total_amount
7 FROM company c
8 WHERE c.id IN (
9 SELECT company_id
10 FROM transaction
11 WHERE declined != 1
12 GROUP BY company_id
13 HAVING SUM(amount) > (
14 SELECT AVG(amount)
15 FROM transaction
16 )
17 )
18 ORDER BY total_amount DESC;
```

The results are displayed in a table with the following columns: id, company_name, phone, email, country, website, total_amount. The table contains 13 rows of data.

id	company_name	phone	email	country	website	total_amount
b-2302	Nunc Interdum Incorporated	05 18 15 48 13	non@outlook.com	Germany	https://wikipedia.org/en-us	25266.56
b-2346	Ut Semper Foundation	01 60 36 33 06	consectetur@google.ca	Sweden	https://ibay.com/settings	16122.39
b-2494	Malessuada PC	01 74 85 68 70	cras.lorem@outlook.com	Ireland	https://yahoo.com/fr	14885.80
b-2326	Enim Conditimentum Ltd	09 55 51 66 25	imperdiet.non.vestibulum@yahoo.net	United Kingdom	https://icnn.com/group/9	14578.03
b-2362	Lorem Eui Incorporated	01 83 66 62 07	enim.gravida.sit@hotmail.net	Canada	https://baidu.com/en-ca	13916.44
b-2278	Arcu LLP	06 46 04 41 45	dui@aol.ca	Norway	https://yahoo.com/sub	13762.79
b-2618	Non Institute	06 77 15 31 14	amet.metus@protonmail.couk	United Kingdom	https://guardian.co.uk/settings	8911.24
b-2398	Eget Ipsum Ltd	03 67 44 56 72	iacinia.at.iaculis@hotmail.net	United States	https://whatsapp.com/settings	481.86
b-2410	Sed Id Limited	07 28 18 18 13	iaculis.enim@outlook.net	United States	https://netflix.com/sub/cars	477.51
b-2382	Neque Tellus Incorporated	04 43 18 34 19	ultrices.iaculis.odio@aol.ca	Ireland	https://google.com/site	477.10

- Exercici 3

El departament de comptabilitat va perdre la informació de les transaccions realitzades per una empresa, però no recorden el seu nom, només recorden que el seu nom iniciava amb la lletra c. Com els pots ajudar? Comenta-ho acompanyant-ho de la informació de les transaccions.

Només existeixen tres empreses que comencin amb la lletra 'C'.

b-2234	Convallis In Incorporated
b-2514	Cras Consulting
b-2554	Cras Vehicula Aliquet Industries

Quan cerquem informació de les transaccions que han realitzat aquestes tres empreses ens retorna sis files on podem observar que totes tres empreses tenen una transacció efectuada i una declinada.

```
1  -- Exercici_3
2  • SELECT
3      t.*,
4      (
5          SELECT company_name
6          FROM company
7          WHERE id = t.company_id
8      ) AS company_name
9  FROM
10     transaction t
11  WHERE
12     t.company_id IN (
13         SELECT id
14         FROM company
15         WHERE company_name LIKE 'C%'
16     );
```

id	credit_card...	company_id	user_id	lat	longitude	timestamp	amount	declined	company_name
0DD2E608-5C9E-D1B3-4999-B99F43AD735A	CcU-2959	b-2234	275	9.68811	130.282	2021-04-17 05:30:17	252.47	1	Convallis In Incorporated
AB069F53-965E-A2A8-CE06-CA8C4FD92501	CcU-2959	b-2234	275	1.64819	-158.007	2021-04-15 13:37:18	60.99	0	Convallis In Incorporated
439F4F6A-57C7-3A59-6038-AD7133887522	CcU-3449	b-2514	268	-13.9867	-104.268	2021-03-18 05:42:48	60.93	0	Cras Consulting
ED1CFB7D-E626-CE54-57A1-A036778B5E1F	CcU-3449	b-2514	268	9.75306	-134.718	2021-11-28 23:27:04	230.41	1	Cras Consulting
5C3A8A3D-8974-40A6-A8AF-C1F7AA6B7C94	CcU-3519	b-2554	267	15.1828	165.662	2021-07-23 15:35:14	158.05	1	Cras Vehicula Aliquet Industries
8D895ADD-5501-2A9C-24DD-2EAE7AEF1C5	CcU-3519	b-2554	267	8.58711	-34.6616	2021-10-27 19:43:57	181.87	0	Cras Vehicula Aliquet Industries

Result 16

Action Output

	Time	Action	Response	Duration / Fetch Time
79	09:29:34	SELECT t.*, (SELECT company_name FROM company WHERE id = t.co...	6 row(s) returned	0.0025 sec / 0.00001...

- Exercici 4

Van eliminar del sistema les empreses que no tenen transaccions registrades, lliura el llistat d'aquestes empreses.

He realitzat dues consultes per trobar les empreses que no tenen transaccions registrades i en ambdós casos no apareix cap resultat:

```
1  -- Exercici_4
2  * SELECT *
3  FROM company
4  WHERE id NOT IN (
5      SELECT DISTINCT company_id
6      FROM transaction
7  );
```

The screenshot shows the SQL Developer interface. The top pane contains the SQL query for 'Exercici_4'. The bottom pane shows the 'Result Grid' with columns: id, company_name, phone, email, country, website. The grid is empty. Below the grid, the 'Action Output' tab shows the execution details for step 83, indicating that 0 rows were returned.

id	company_name	phone	email	country	website
----	--------------	-------	-------	---------	---------

company 20

Action Output

Time	Action	Response	Duration / Fetch Time
09:38:17	SELECT * FROM company WHERE id NOT IN (SELECT DISTINCT company_id FROM tr...	0 row(s) returned	0.00092 sec / 0.0000...

```
9  * SELECT *
10 FROM company c
11 WHERE NOT EXISTS (
12     SELECT 1
13     FROM transaction t
14     WHERE t.company_id = c.id);
15
```

The screenshot shows the SQL Developer interface with the second query. The bottom pane shows the 'Result Grid' with the same columns as the first query, and it is also empty. The 'Action Output' tab shows the execution details for step 84, indicating that 0 rows were returned.

id	company_name	phone	email	country	website
----	--------------	-------	-------	---------	---------

company 21

Action Output

Time	Action	Response	Duration / Fetch Time
09:39:37	SELECT * FROM company c WHERE NOT EXISTS (SELECT 1 FROM transaction t W...	0 row(s) returned	0.00084 sec / 0.000...

Això demostra que no existeix cap empresa que no tingui com a mínim una transacció. Aquest resultat té sentit, ja que no poden aparèixer empreses sense transaccions en la consulta degut a la clau primària de la taula "company". El camp "id" no pot ser NULL, pel que totes les empreses han de tenir almenys una transacció registrada a la taula "transaction" amb el seu "company_id" corresponent.

El que sí que podem oferir és un llistat de les empreses amb transaccions que han estat declinades.

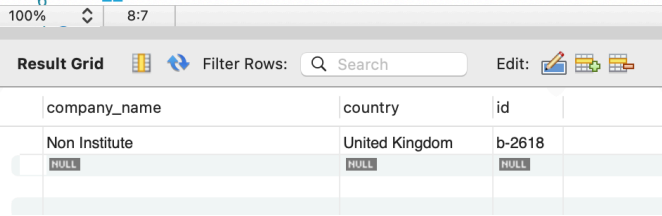
Nivell 2

- Exercici 1

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.

En primer lloc cerquem a quin país està situada aquesta companyia, el seu id i a quin país està. Veiem que és Regne Unit.

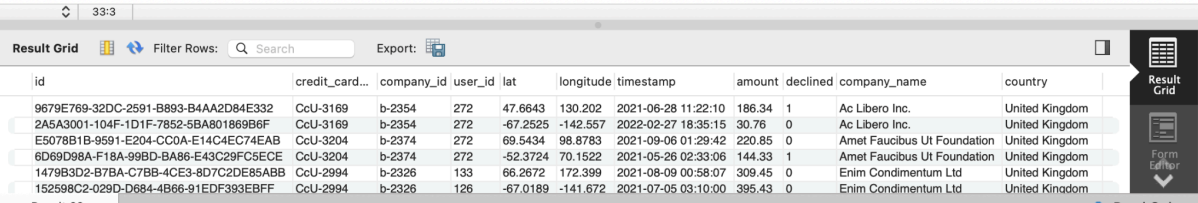
```
1  -- Nivell_2
2  -- Exercici_1
3  • SELECT company_name, country, id
4  FROM company c
5  WHERE company_name= 'Non Institute';
6
```



company_name	country	id
Non Institute	United Kingdom	b-2618

A continuació, executem una segona consulta que selecciona les transaccions de totes les empreses ubicades a Regne Unit que no siguin l'empresa Non Institute amb id b-2618. Apareixen un total de 70 transaccions.

```
7  • SELECT
8  t.*,
9  (
10     SELECT company_name
11     FROM company
12     WHERE id = t.company_id
13  ) AS company_name,
14  (
15     SELECT country
16     FROM company
17     WHERE id = t.company_id
18  ) AS country
19  FROM
20  transaction t
21  WHERE
22  t.company_id IN (
23     SELECT id
24     FROM company
25     WHERE country = 'United Kingdom' AND id != 'b-2618'
26  )
27  ORDER BY
28  company_name;
```



id	credit_card...	company_id	user_id	lat	longitude	timestamp	amount	declined	company_name	country
9679E769-32DC-2591-B893-B4AA2D84E332	CcU-3169	b-2354	272	47.6643	130.202	2021-06-28 11:22:10	186.34	1	Ac Libero Inc.	United Kingdom
2A5A3001-104F-1D1F-7852-5BA801869B6F	CcU-3169	b-2354	272	-67.2525	-142.557	2022-02-27 18:35:15	30.76	0	Ac Libero Inc.	United Kingdom
E5078B1B-9591-E204-CC0A-E14C4EC74EAB	CcU-3204	b-2374	272	69.5434	98.8783	2021-09-06 01:29:42	220.85	0	Amet Faucibus Ut Foundation	United Kingdom
8D69D98A-F18A-99BD-BA86-E43C29FC5ECE	CcU-3204	b-2374	272	-52.3724	70.1522	2021-05-26 02:33:06	144.33	1	Amet Faucibus Ut Foundation	United Kingdom
1479B3D2-B7BA-C7BB-4CE3-8D7C2DE85ABB	CcU-2994	b-2326	133	66.2672	172.399	2021-08-09 00:58:07	309.45	0	Enim Condimentum Ltd	United Kingdom
152598C2-029D-D684-4B66-91EDF393EBFF	CcU-2994	b-2326	126	-67.0189	-141.672	2021-07-05 03:10:00	395.43	0	Enim Condimentum Ltd	United Kingdom

Result 29

Time	Action	Response	Duration / Fetch Time
95 10:10:35	SELECT t*, (SELECT company_name FROM company WHERE id = t.company_id...	70 row(s) returned	0.0013 sec / 0.00004...

- Exercici 2

El departament de comptabilitat necessita que trobis l'empresa que ha realitzat la transacció de major suma en la base de dades.

```
1  -- Exercici_2
2  • SELECT
3    company_name,
4    (
5      SELECT
6        MAX(amount)
7      FROM
8        transaction
9      WHERE
10       declined != 1
11    ) AS amount
12  FROM
13    company
14  WHERE
15    id = (
16      SELECT
17        company_id
18      FROM
19        transaction
20      WHERE
21        amount = (
22          SELECT
23            MAX(amount)
24          FROM
25            transaction
26        )
27    );
```

75% 26:10

Result Grid Filter Rows: Search Export:

company_name	amount
Nunc Interdum Incorporated	499.23

Result 5 Read Only

Action Output

	Time	Action	Response	Duration / Fetch Time
100	10:24:23	SELECT company_name, (SELECT MAX(amount) FROM transaction...	1 row(s) returned	0.0010 sec / 0.00000...

Nivell 3

- Exercici 1

S'estan establint els objectius de l'empresa per al següent trimestre, per la qual cosa necessiten una base sòlida per a avaluar el rendiment i mesurar l'èxit en els diferents mercats. Per a això, necessiten el llistat dels països la mitjana de transaccions dels quals sigui superior a la mitjana general.

The screenshot shows a SQL IDE interface. At the top, a query titled "Exercici_1" is displayed. The query is a complex SQL statement that calculates the average transaction amount for each country, filtered by a condition that excludes transactions where the 'declined' flag is 1. The query is as follows:

```
3 SELECT
4   c.country,
5   (
6     SELECT AVG(t.amount)
7     FROM transaction t
8     WHERE t.company_id IN (
9       SELECT id
10      FROM company
11      WHERE country = c.country
12    ) AND t.declined != 1
13   ) AS average_transactions
14 FROM
15   company c
16 GROUP BY
17   c.country
18 HAVING
19   (
20     SELECT AVG(t.amount)
21     FROM transaction t
22     WHERE t.company_id IN (
23       SELECT id
24       FROM company
25       WHERE country = c.country
26     ) AND t.declined != 1
27   ) > (
28     SELECT AVG(amount)
29     FROM transaction
30     WHERE declined != 1
31   );
```

Below the query, the "Result Grid" is shown, displaying the results of the query. The grid has two columns: "country" and "average_transactio...". The results are as follows:

country	average_transactio...
United States	287.531111
United Kingdom	271.767527
Sweden	276.668382
Ireland	285.825357
Canada	261.941930

At the bottom, the "Action Output" section shows the execution details of the query. It indicates that the query was executed at 10:48:16, returned 5 rows, and took 0.028 seconds to execute.

- 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.

```
1 -- Exercici_2
2 SELECT
3   c.company_name,
4   (
5     SELECT
6       CASE
7         WHEN COUNT(*) > 4 THEN 'More than 4 transactions'
8         ELSE 'Less than 4 transactions'
9       END
10    FROM
11      transaction t
12    WHERE
13      t.company_id = c.id
14   ) AS transaction_count_status,
15   (
16     SELECT
17       COUNT(*)
18    FROM
19      transaction t
20    WHERE
21      t.company_id = c.id
22   ) AS total_transactions
23 FROM
24   company c
25 ORDER BY
26   total_transactions DESC;
```

75% 29:26

Result Grid Filter Rows: Search Export:

company_name	transaction_count_status	total_transactions
Nunc Interdum Incorporated	More than 4 transactions	105
Ut Semper Foundation	More than 4 transactions	59
Enim Condimentum Ltd	More than 4 transactions	57
Arcu LLP	More than 4 transactions	56
Lorem Eu Incorporated	More than 4 transactions	54
Malesuada PC	More than 4 transactions	52
Non Institute	More than 4 transactions	30
Amet Nulla Donec Corporation	Less than 4 transactions	2
Nascetur Ridiculus Mus Inc.	Less than 4 transactions	2
Maestibulum Lorem PC	Less than 4 transactions	2

Result 3 Read Only

Action Output

	Time	Action	Response	Duration / Fetch Time
119	11:02:57	SELECT c.company_name, (SELECT CASE WHEN COUNT(*) > 4 THEN 'More than 4 transactions'...	100 row(s) returned	0.0028 sec / 0.00003...