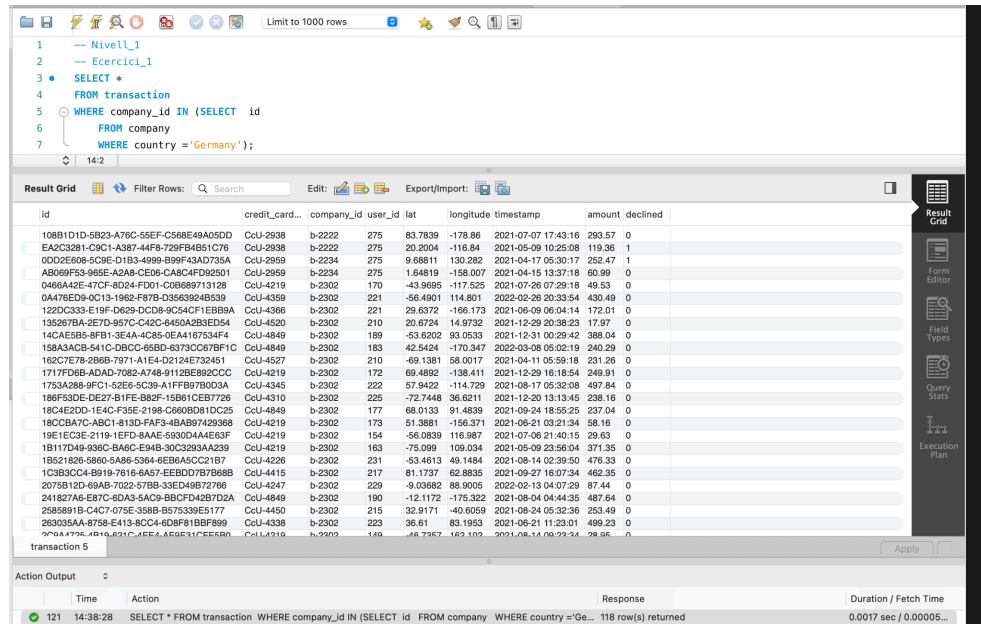


# Nivell 1

## - Exercici 1

Mostra totes les transaccions realitzades per empreses d'Alemanya.



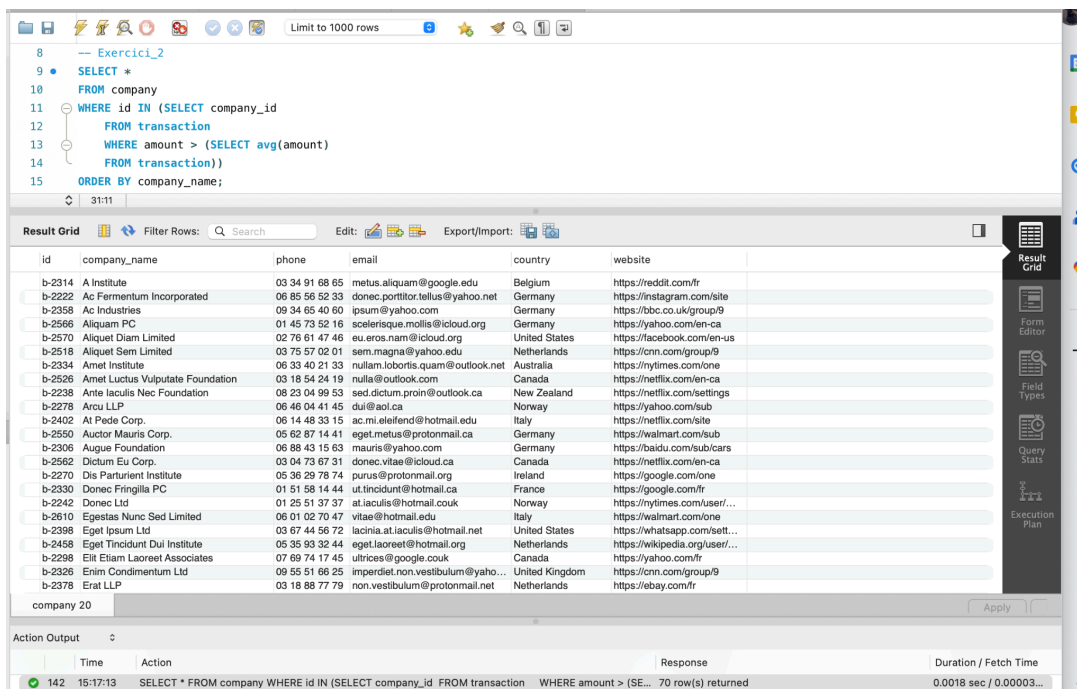
The screenshot shows a database query interface. The SQL query is as follows:

```
1 -- Nivell_1
2 -- Exercici_1
3 SELECT *
4 FROM transaction
5 WHERE company_id IN (SELECT id
6 FROM company
7 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, and declined. The table contains 118 rows of transaction data for companies in Germany.

## - 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:

```
8 -- Exercici_2
9 SELECT *
10 FROM company
11 WHERE id IN (SELECT company_id
12 FROM transaction
13 WHERE amount > (SELECT avg(amount)
14 FROM transaction))
15 ORDER BY company_name;
```

The results are displayed in a table with the following columns: id, company\_name, phone, email, country, and website. The table contains 20 rows of company data, ordered by company name.

## - 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:

The screenshot shows a SQL query in the 'SQL Worksheet' window:

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

The 'Result Grid' is empty, indicating no results were returned. The 'Action Output' window at the bottom shows the execution details for step 83:

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...

The screenshot shows a SQL query in the 'SQL Worksheet' window:

```
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 'Result Grid' is empty, indicating no results were returned. The 'Action Output' window at the bottom shows the execution details for step 84:

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.

```
SELECT *
FROM transaction
WHERE company_id IN (
  SELECT id
  FROM company
  WHERE country = (
    SELECT country
    FROM company
    WHERE company_name = 'Non Institute')
);
```

id	credit_card...	company_id	user_id	lat	longitude	timestamp	amount	declined
29929E10-EC14-A760-0A75-871477649D0A	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
BC299A38-77B4-28CD-1FE8-14DED863E773	CcU-3092	b-2310	275	-78.0295	18.5295	2021-10-18 07:27:35	477.95	1
1479B3D2-87BA-C7B8-4CE3-8D7C2DE8EAB8	CcU-2994	b-2326	133	66.2672	172.399	2021-08-09 00:56:07	308.45	0
152596C2-029D-D684-4B66-91EDF38E9BFF	CcU-2994	b-2326	126	-87.0189	-141.872	2021-07-05 03:10:00	396.43	0
1B63658E-A2E8-7C69-D9C9-C54535DAFD3B	CcU-2994	b-2326	131	70.2543	-13.1336	2021-07-06 08:48:46	195.06	0
20418DE5-B804-BE9B-BD7A-A95C1BFDBF5C	CcU-2994	b-2326	126	-79.1145	1.51481	2022-01-03 15:59:29	479.52	0
239B8576-6CDE-137A-C2F6-3180A18A2D3	CcU-2994	b-2326	126	23.6174	137.222	2021-08-26 06:04:05	43.90	0
287C4A86-7BA7-1C5E-0718-2B2A883C97DD	CcU-2994	b-2326	126	-17.5259	104.915	2021-10-01 21:08:53	122.63	0
3142C93E-83B7-49E4-EE2D-29CA834B198D	CcU-2994	b-2326	126	-87.8476	-119.978	2021-04-06 17:24:44	91.59	0
3578688E-7B1D-B887-3BC7-20B8673AA31E	CcU-2994	b-2326	126	87.0665	-22.7339	2021-07-26 22:59:24	303.60	0
360C7814-F7AF-843A-0946-AB3BD2883C86	CcU-2994	b-2326	116	-7.93005	-79.0733	2021-08-21 10:19:58	494.82	0
391E1CFD-D653-7458-A729-72E939247B58	CcU-2994	b-2326	118	60.8512	103.304	2021-10-09 00:50:38	271.27	0
3CD7C2A-A402-8941-625A-D64CA53526E8	CcU-2994	b-2326	117	23.1627	-10.381	2021-04-25 19:11:52	441.27	0
3ED634C2-01CA-D6E9-2DBD-24B53A7912F7	CcU-4219	b-2326	137	69.0549	96.5033	2021-03-29 11:38:38	478.54	0
3FEC4131-9BED-2E68-1776-82674C80DDB8	CcU-2994	b-2326	126	-7.28469	179.063	2021-07-25 04:59:17	393.42	0
41C19F08-471E-D475-3E14-76DF3F79B42	CcU-4219	b-2326	138	-51.7289	55.3294	2022-01-18 18:48:55	45.63	0
41EC981D-808E-D85C-F05F-08C3DE7A618	CcU-2994	b-2326	126	5.38535	-78.3917	2022-01-06 07:47:39	335.54	0

## - Exercici 2

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

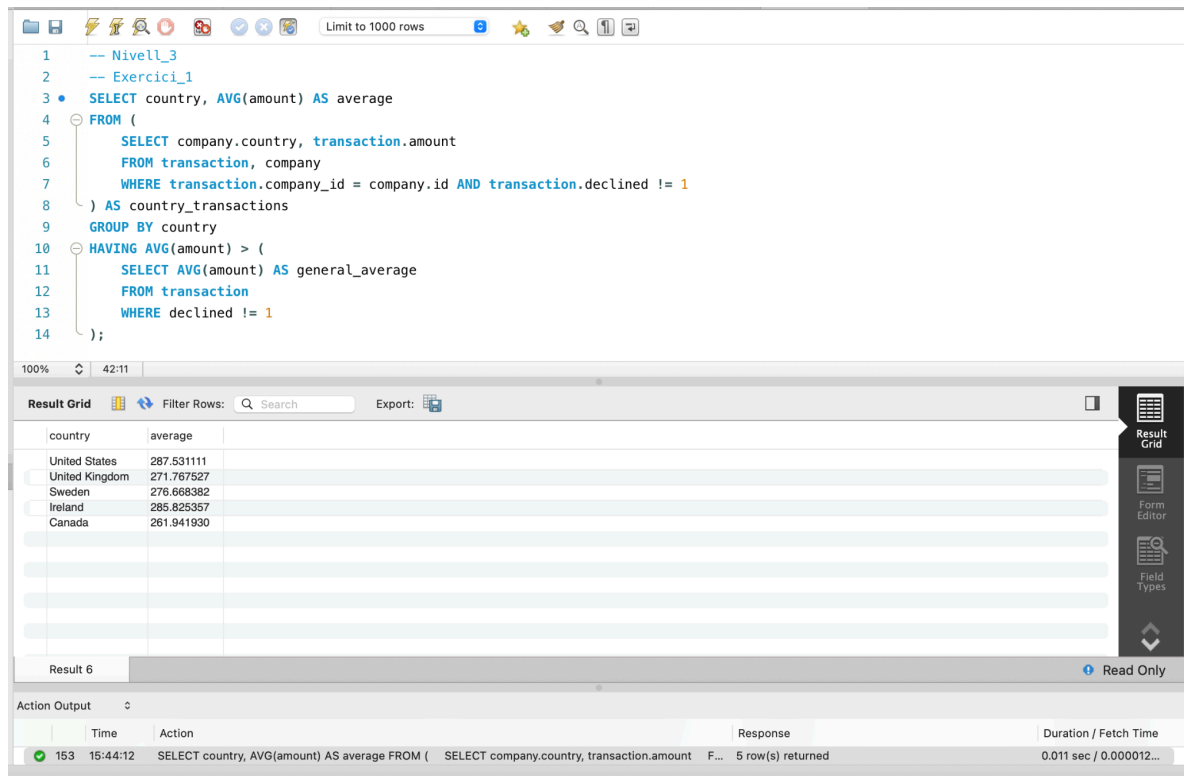
```
SELECT
  company_name,
  (
    SELECT
      MAX(amount)
    FROM
      transaction
  ) AS amount
FROM
  company
WHERE
  id = (
    SELECT
      company_id
    FROM
      transaction
    WHERE
      amount = (
        SELECT
          MAX(amount)
        FROM
          transaction
      )
  );
```

company_name	amount
Nunc Interdum Incorporated	499.23

# 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 displays a SQL IDE interface. The top pane contains a SQL query labeled 'Nivell\_3 - Exercici\_1'. The query calculates the average transaction amount for each country and compares it to the overall average, filtering for countries where the average is greater.

```
1  -- Nivell_3
2  -- Exercici_1
3  • SELECT country, AVG(amount) AS average
4     FROM (
5         SELECT company.country, transaction.amount
6         FROM transaction, company
7         WHERE transaction.company_id = company.id AND transaction.declined != 1
8     ) AS country_transactions
9     GROUP BY country
10    HAVING AVG(amount) > (
11        SELECT AVG(amount) AS general_average
12        FROM transaction
13        WHERE declined != 1
14    );
```

The bottom pane shows the 'Result Grid' with 5 rows of data. The columns are 'country' and 'average'.

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

Below the result grid, the 'Action Output' pane shows the execution details: 153 rows at 15:44:12, the full SQL query, 5 rows returned, and a duration of 0.011 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 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
Maeculum 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...