

NIVELL 1

Ex1

Se realiza un **LEFT JOIN** de *transactions* con *company* especificando en la cláusula **WHERE** que el país sea Germany y que la transacción no se haya declinado.

```
1 #NIVELL 1
2
3 #Ex1
4 SELECT transaction.*
5 FROM transaction
6 LEFT JOIN company ON company.id = transaction.company_id
7 WHERE country = 'Germany' AND declined = 0;
```

id	credit_card_id	company_id	user_id	lat	longitude	timestamp	amount	declined
108B1D1D-5B23-476C-55F8-C568E49A01D0	CcU-2938	b-2222	275	83.7839	-178.86	2021-07-07 17:43:16	293.57	0
AB069F53-9652-A248-CE08-CAB8CFD92501	CcU-2959	b-2234	275	1.64819	-158.007	2021-04-15 13:37:18	60.99	0
0466A42E-47CF-8D24-FD01-C06689713128	CcU-4219	b-2302	170	-43.9695	-117.525	2021-07-26 07:29:18	49.53	0
0A478ED9-0C13-1962-F87B-D3563924B539	CcU-4359	b-2302	221	-56.4901	114.801	2022-02-26 20:33:54	430.49	0
1220C333-E19F-0629-DCD8-9C34CF1EB99A	CcU-4366	b-2302	221	29.6372	-166.173	2021-06-09 06:04:14	172.01	0
1332678A-2E7D-937C-C42C-6450A2B3ED54	CcU-4520	b-2302	210	20.6724	14.9732	2021-12-29 20:38:23	17.97	0
14CAE595-8F81-3E44-4C85-0EA4167534F4	CcU-4849	b-2302	189	-53.6202	93.0533	2021-12-31 00:29:42	388.04	0
158A3ACB-541C-0C8C-658D-6373C6578F1C	CcU-4849	b-2302	183	42.5424	-170.347	2022-03-08 05:02:19	240.29	0
162C7E78-2682-7971-A1E4-D124E732451	CcU-4527	b-2302	210	-69.1381	58.0017	2021-04-11 05:59:18	231.26	0
1717D06B-ADAD-7082-A748-9112BE8920CC	CcU-4219	b-2302	172	69.4892	-138.411	2021-12-29 16:18:54	249.91	0
1753A288-9FC1-52E6-9C39-A3F8978003A	CcU-4345	b-2302	222	57.9422	-114.729	2021-08-17 05:32:08	497.84	0
188FAF20E2C274BFE803F1395162E97726	CcU-4310	b-2302	225	-72.7448	36.6211	2021-12-28 13:13:45	236.16	0
18C4E20D-1EAC-F35E-2198-C66B0D81DC25	CcU-4849	b-2302	177	68.0133	91.4839	2021-09-24 18:55:25	237.04	0
18CDBA7C-ABC1-813D-FAF3-4BAB97429368	CcU-4219	b-2302	173	51.3881	-156.371	2021-06-21 03:21:34	58.16	0
19E1EC3E-2119-18FD-BAAE-593004A4E63F	CcU-4219	b-2302	154	-56.0839	116.987	2021-07-06 21:40:15	29.63	0
1B11D493-936C-6A6C-E94B-30C3293AA239	CcU-4219	b-2302	163	-75.099	109.034	2021-05-09 23:56:04	371.35	0
1B521626-586D-5A86-5364-4E8BA8C21B97	CcU-4226	b-2302	231	-53.4613	49.1484	2021-08-14 02:39:50	476.33	0
1C383C5C-4919-7516-6A57-EE8D07B76688	CcU-4415	b-2302	217	81.1737	62.8835	2021-09-27 16:07:34	462.35	0
2078D12D-694B-7022-578B-33ED49872766	CcU-4247	b-2302	229	-9.03682	88.9005	2022-02-13 04:07:29	87.44	0
241827A6-E87C-40A3-5AC9-B8CFD428702A	CcU-4849	b-2302	190	-12.1172	-175.322	2021-08-04 04:44:35	487.64	0
2585891B-C4C7-079E-3588-8575339E5177	CcU-4450	b-2302	215	32.9171	-40.6059	2021-08-24 05:32:36	253.49	0
263035AA-8758-E413-8CC4-6D8F81B8F999	CcU-4338	b-2302	223	36.61	83.1953	2021-06-21 11:23:01	499.23	0
2C5A4725-4B19-421C-4EE4-A09C31CFE5B0	CcU-4219	b-2302	149	-46.7357	162.102	2021-08-14 09:23:34	28.95	0
33529F74-4B64-C19F-7023-ABD786687C4	CcU-4492	b-2302	212	10.3105	13.9999	2021-12-15 12:22:03	423.71	0

Ex2

En este caso se requiere una **SubQUERY**. En la cláusula **WHERE** se especificará mediante un **SELECT** de la cantidad media (**AVG()**) de cada transacción.

```
9 #Ex2
10 SELECT DISTINCT(company_name)
11 FROM company
12 JOIN transaction ON company.id = transaction.company_id
13 WHERE declined = 0 AND amount > (SELECT AVG(amount)
14 FROM transaction);
```

company_name
Non Incorporated
Non Incorporated
Ut Semper Foundation
Nunc Interdum Incorporated
Ac Fermentum Incorporated
Enim Conditum Ltd
Tortor Nunc Commodo Company
Malesuada PC
Accu LLP
Aliquet Diam Limited
Mauris Institute
Sed Nunc Ltd
Pringilla LLC
Neque Tellus Incorporated
Non Magna LLC
Sed LLC
Quam A Felis Industries
Rutrum Non Inc.
Amet Luctus Vulputate Foundat...
Eget Ipsum Ltd
Sapien Nunc Pulvinar LLP
Amet Institute
Ac Industries
Wiverra Donec Foundation
Placerat LLP

Ex3

En este caso se recuperarán todas las transacciones realizadas por empresas cuyo nombre empieza por la letra c. Se adjuntará toda la info de las transacciones, así como los nombres de las empresas. Se espera que con esta información contabilidad pueda recuperar los datos perdidos.

dades_introduir estructura_dades sprint1 **sprint2**

Don't Limit

13 WHERE amount > (SELECT AVG(amount)
14 FROM transaction);
15
16 #Ex3
17 SELECT transaction.*, company_name
18 FROM company, transaction
19 WHERE company.id = transaction.company_id AND company_name LIKE 'C%';
20

Result Grid

id	credit_card_id	company_id	user_id	lat	longitude	timestamp	amount	declined	company_name
0002E608-5C9E-01B3-4999-899F43AD735A	CCU-2959	b-2234	275	9.68811	130.282	2021-04-17 05:30:17	252.47	1	Convallis In Incorporated
AB069F53-969E-42A8-CE06-CABC4FD92501	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-A03677885E1F	CCU-3449	b-2514	268	9.75306	-134.718	2021-11-28 23:27:04	230.41	1	Cras Consulting
5C3A8A3D-8974-4046-4B4F-C1F7A46B7C94	CCU-3519	b-2554	267	15.1828	165.662	2021-07-23 15:35:14	158.05	1	Cras Vehicula Aliquet Industries
8D895ADD-5501-349C-24DD-2E4EB7A6F1C5	CCU-3519	b-2554	267	8.58711	-34.6616	2021-10-27 19:43:57	181.87	0	Cras Vehicula Aliquet Industries

Result 67 x

Output

Action Output

#	Time	Action	Message
84	19:38:19	SELECT company_name, amount FROM company, transaction WHERE transaction.company_id = company.id AND amount > (SELECT MAX(amount)...	1 row(s) returned
85	19:38:27	SELECT AVG(amount), country FROM transaction, company WHERE transaction.company_id = company.id GROUP BY country HAVING AVG(amou...	5 row(s) returned
86	19:38:32	SELECT company_name, COUNT(transaction.id), CASE WHEN COUNT(transaction.id) >= 4 THEN 'TRUE' WHEN COUNT(transaction.id) < 4 TH...	100 row(s) returned
87	19:38:49	SELECT transaction.* FROM transaction LEFT JOIN company ON company.id = transaction.company_id WHERE country = 'Germany'	118 row(s) returned
88	19:39:17	SELECT transaction.* FROM transaction LEFT JOIN company ON company.id = transaction.company_id WHERE country = 'Germany'	118 row(s) returned
89	19:39:55	SELECT DISTINCT(company_name) FROM company JOIN transaction ON company.id = transaction.company_id WHERE amount > (SELECT AVG(...	70 row(s) returned
90	19:40:32	SELECT transaction.*, company_name FROM company, transaction WHERE company.id = transaction.company_id AND company_name LIKE 'C%'	6 row(s) returned

Ex4

Se hará un **LEFT JOIN** con la condición en la clausula **WHERE** de que el *company_id* sea **NULL**, de esta forma se obtienen las empresas que quedan fuera del **JOIN**. En este caso el **JOIN** es de las tablas *company* y *transaction*, así que el sentido opuesto del **JOIN** nos proporciona las empresas que no tienen datos en las dos tablas, y por tanto las empresas que no han realizado transacciones. En este caso todas las compañías han realizado alguna transacción.

The screenshot shows a SQL IDE interface with a query editor and a results pane. The query editor contains the following SQL code:

```
22 #Ex4
23 SELECT company_name
24 FROM company
25 LEFT JOIN transaction ON company.id = transaction.company_id
26 WHERE company_id IS NULL;
27
28 #NIVELL 2
29
```

The results pane shows the execution of the query. The output is as follows:

#	Time	Action	Message
86	19:38:32	SELECT company_name, COUNT(transaction.id), CASE WHEN COUNT(transaction.id) >= 4 THEN 'TRUE' WHEN COUNT(transaction.id) < 4 TH...	100 row(s) returned
87	19:38:49	SELECT transaction.* FROM transaction LEFT JOIN company ON company.id = transaction.company_id WHERE country = 'Germany'	118 row(s) returned
88	19:39:17	SELECT transaction.* FROM transaction LEFT JOIN company ON company.id = transaction.company_id WHERE country = 'Germany'	118 row(s) returned
89	19:39:55	SELECT DISTINCT(company_name) FROM company JOIN transaction ON company.id = transaction.company_id WHERE amount > (SELECT AVG(...	70 row(s) returned
90	19:40:32	SELECT transaction.*, company_name FROM company, transaction WHERE company.id = transaction.company_id AND company_name LIKE 'C%'	6 row(s) returned
91	19:41:04	SELECT transaction.*, company_name FROM company, transaction WHERE company.id = transaction.company_id AND company_name LIKE 'C%'	6 row(s) returned
92	19:41:09	SELECT company_name FROM company LEFT JOIN transaction ON company.id = transaction.company_id WHERE company_id IS NULL	0 row(s) returned

NIVELL 2

Ex1

Aquí se realizará una **SubQuery** en la cláusula **WHERE** donde se especifica que el *country* ha de ser el mismo que el de la empresa *Nos Institute*.

```
28 #NIVELL 2
29
30 #Ex1
31 • SELECT transaction.*
32 FROM transaction, company
33 WHERE transaction.company_id = company.id AND country = (SELECT country FROM company WHERE company_name = 'Nos Institute');
```

id	credit_card_id	company_id	user_id	lat	longitude	timestamp	amount	declined
2B92BEC-EC14-A760-5A75-871477649D6A	CcU-2980	b-2246	275	-41.0496	161.685	2021-08-10 08:14:49	383.73	0
ACD2011A-A2B1-C365-41E1-2A800C651A7A	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
8C2B9A36-77B4-2KCD-1FEB-14CED663E773	CcU-3092	b-2310	275	-78.0295	18.5295	2021-10-18 07:27:35	477.95	1
14785D2-678A-C7B8-4CE3-4D7C2E6548B	CcU-2994	b-2326	133	66.2672	172.399	2021-08-09 00:58:07	309.45	0
152588C2-023D-D684-4B66-91EDF393EBFF	CcU-2994	b-2326	126	-67.0189	-141.672	2021-07-05 03:10:00	395.43	0
1B636858-A2E8-7C69-D9C9-C5453DAFD3B	CcU-2994	b-2326	131	70.2543	-13.1336	2021-07-06 08:48:46	195.06	0
20418DE5-8B04-8E9B-8D7A-A95C18FDBF5C	CcU-2994	b-2326	126	-79.1145	1.51481	2022-01-03 15:59:29	479.52	0
23988576-6CDE-137A-C3F6-3180A188A2D3	CcU-2994	b-2326	126	23.6174	137.222	2021-08-25 06:04:05	43.90	0
267C-A486-7B47-1C5E-073B-3824983C70D	CcU-2994	b-2326	126	-17.5259	104.915	2021-10-01 21:08:53	122.63	0
114DCC3E-4B3D-74E4-EE2D-29CA834B18D	CcU-2994	b-2326	126	-67.8476	-119.578	2021-04-06 17:24:44	91.59	0
3578888E-7B1D-8887-38C7-208673AA31E	CcU-2994	b-2326	126	87.0665	-22.7339	2021-07-26 22:59:24	303.60	0
360C7B14-F74F-B43A-0946-AB38D2683C86	CcU-2994	b-2326	116	-7.93005	-79.0733	2021-08-21 10:19:58	494.82	0
391E1CFD-D653-E4B8-A729-F2E893247B58	CcU-2994	b-2326	118	60.5512	103.904	2021-10-09 00:50:38	271.27	0
3C4D7CA-A402-8941-625A-D64CA33526E8	CcU-2994	b-2326	117	23.1627	-10.381	2021-04-25 19:11:52	441.27	0
3ED3AC2A-01CA-60E9-208D-34E55A7912F7	CcU-4219	b-2326	137	69.0549	96.5023	2021-03-29 11:38:38	478.54	0
3FEC4131-9EED-2E46-1776-82674C8D00B8	CcU-2994	b-2326	126	-7.28469	179.063	2021-07-25 04:59:17	393.42	0
41C13F08-473E-D475-3E14-760F3F79B42	CcU-4219	b-2326	138	-51.7289	55.3294	2022-01-16 16:48:55	45.63	0
41EC591D-808E-D85C-F0F9-08BC3DE7A618	CcU-2994	b-2326	126	5.38535	-78.3917	2022-01-06 07:47:39	335.54	0
4217E857-1D51-5D25-8645-EC24D23CB759	CcU-2994	b-2326	129	65.4733	-20.2735	2021-04-23 13:07:58	193.33	0
45CA2E45-4B42-CAC-7683-EBB64D52863E	CcU-4219	b-2326	140	85.7055	36.1497	2021-04-29 06:17:02	149.89	0
49CD105D-E569-1733-C9C9-3908ED7E1838	CcU-3393	b-2326	108	-47.8783	168.275	2021-12-24 23:43:59	411.81	0
4ABE3D77-6F66-1D33-EC5-22663D37C199	CcU-3120	b-2326	273	-63.6087	69.6023	2021-11-13 04:18:28	38.02	1
4B74B94B-D123-7C7E-A9CE-7DA26F911F55	CcU-2994	b-2326	128	25.6024	53.4543	2022-02-12 14:27:28	304.43	0
4D8E4891-1711-7D3D-E4CB-645ABDF59A43	CcU-2994	b-2326	120	5.71915	-155.369	2021-12-26 01:49:19	365.83	0

Result 13

#	Time	Action	Message
24	16:35:00	SELECT company_name, amount FROM company.transaction WHERE transaction.company_id = company.id AND amount = (SELECT MAX(amount) FROM transaction);	1 row(s) returned
25	16:35:00	SELECT AVG(amount), country FROM transaction, company WHERE transaction.company_id = company.id GROUP BY country HAVING AVG(amount) > 400;	5 row(s) returned
26	16:35:00	SELECT company_name, COUNT(transaction.id), CASE WHEN COUNT(transaction.id) >= 4 THEN TRUE WHEN COUNT(transaction.id) < 4 THEN FALSE END AS high_transaction FROM transaction, company WHERE transaction.company_id = company.id AND country = (SELECT country FROM company WHERE company_name = 'Nos Institute');	100 row(s) returned
27	16:35:04	SELECT transaction.* FROM transaction, company WHERE transaction.company_id = company.id AND country = (SELECT country FROM company WHERE company_name = 'Nos Institute');	0 row(s) returned
28	16:35:25	SELECT * FROM company WHERE company_name = 'Nos Institute';	0 row(s) returned
29	16:35:44	SELECT distinct(company_name) FROM company	100 row(s) returned
30	16:36:09	SELECT transaction.* FROM transaction, company WHERE transaction.company_id = company.id AND country = (SELECT country FROM company WHERE company_name = 'Nos Institute');	100 row(s) returned
31	16:40:11	SELECT company_name, amount FROM transaction, company WHERE transaction.company_id = company.id AND declined = 0 AND amount = (SELECT MAX(amount) FROM transaction);	1 row(s) returned
32	16:40:20	SELECT company_name, amount FROM company.transaction WHERE transaction.company_id = company.id AND amount = (SELECT MAX(amount) FROM transaction);	1 row(s) returned
33	16:40:26	SELECT company_name, amount FROM company.transaction WHERE transaction.company_id = company.id AND declined = 0 AND amount = (SELECT MAX(amount) FROM transaction);	1 row(s) returned

Ex2

Este caso es exactamente igual que el anterior, pero en este caso la **SubQuery** nos condiciona el *amount*, siendo este la cantidad máxima adquirida mediante la función **MAX()**.

```
34
35 #Ex2
36 • SELECT company_name, amount
37 FROM company, transaction
38 WHERE transaction.company_id = company.id AND declined = 0 AND amount = (SELECT MAX(amount) FROM transaction);
39
```

company_name	amount
Nunc Interdum Incorporated	499.23

Result 16

#	Time	Action	Message
27	16:35:04	SELECT transaction.* FROM transaction, company WHERE transaction.company_id = company.id AND country = (SELECT country FROM company WHERE company_name = 'Nos Institute');	0 row(s) returned
28	16:35:25	SELECT * FROM company WHERE company_name = 'Nos Institute';	0 row(s) returned
29	16:35:44	SELECT distinct(company_name) FROM company	100 row(s) returned
30	16:36:09	SELECT transaction.* FROM transaction, company WHERE transaction.company_id = company.id AND country = (SELECT country FROM company WHERE company_name = 'Nos Institute');	100 row(s) returned
31	16:40:11	SELECT company_name, amount FROM transaction, company WHERE transaction.company_id = company.id AND declined = 0 AND amount = (SELECT MAX(amount) FROM transaction);	1 row(s) returned
32	16:40:20	SELECT company_name, amount FROM company.transaction WHERE transaction.company_id = company.id AND amount = (SELECT MAX(amount) FROM transaction);	1 row(s) returned
33	16:40:26	SELECT company_name, amount FROM company.transaction WHERE transaction.company_id = company.id AND declined = 0 AND amount = (SELECT MAX(amount) FROM transaction);	1 row(s) returned

NIVELL 3

Ex1

En este caso, como se ha de usar una función de agrupación como es **AVG()**, se tendrá que usar la cláusula **HAVING** para establecer la condición, que en este caso es que el gasto medio del país sea superior al gasto medio general.

The screenshot shows a SQL IDE interface with a query editor and a results pane. The query editor contains the following SQL code:

```
40 #NIVELL 3
41
42 #Ex1
43 SELECT country
44 FROM transaction, company
45 WHERE transaction.company_id = company.id
46 GROUP BY country
47 HAVING AVG(amount) > (SELECT AVG(amount) FROM transaction);
48
```

The results pane shows a table with the following data:

country
United States
United Kingdom
Sweden
Ireland
Canada

The bottom pane shows the execution log with the following messages:

```
32 16:40:20 SELECT company_name, amount FROM company, transaction WHERE transaction.company_id = company.id AND amount = (SELECT MAX(amount) FROM transaction) 1 row(s) returned
33 16:40:26 SELECT company_name, amount FROM company, transaction WHERE transaction.company_id = company.id AND declined = 0 AND amount = (SELECT MAX(amount) FROM transaction) 1 row(s) returned
34 16:44:00 SELECT company_name FROM company, transaction WHERE transaction.company_id = company.id AND declined = 0 AND amount = (SELECT MAX(amount) FROM transaction) 1 row(s) returned
35 16:45:21 SELECT country FROM transaction, company WHERE transaction.company_id = company.id AND AVG(amount) > (SELECT AVG(amount) FROM transaction) Error Code: 1111. Invalid use of group function
36 16:47:07 SELECT AVG(amount), country FROM transaction, company WHERE transaction.company_id = company.id GROUP BY country HAVING AVG(amount) > (SELECT AVG(amount) FROM transaction) 5 row(s) returned
37 16:47:33 SELECT country FROM transaction, company WHERE transaction.company_id = company.id GROUP BY country HAVING AVG(amount) > (SELECT AVG(amount) FROM transaction) 5 row(s) returned
38 16:48:02 SELECT country FROM transaction, company WHERE transaction.company_id = company.id GROUP BY country HAVING AVG(amount) > (SELECT AVG(amount) FROM transaction) 5 row(s) returned
```

Ex2

Para proporcionar la información como nos la piden usaremos la cláusula **CASE**, que nos devolverá una nueva columna los valores de la cual dependerán de la condición que nosotros determinemos, en este caso que la empresa hay realizado más de 4 transacciones.

The screenshot shows a SQL IDE interface with a query editor and a results grid. The query is as follows:

```
49 #Ex2
50 SELECT company_name, COUNT(transaction.id),
51 CASE
52 WHEN COUNT(transaction.id) >= 4 THEN 'TRUE'
53 WHEN COUNT(transaction.id) < 4 THEN 'FALSE'
54 END AS 'Mas de 4 transacciones'
55 FROM company, transaction
56 WHERE transaction.company_id = company.id
57 GROUP BY company_name
58 ORDER BY COUNT(transaction.id) DESC;
59
```

The results grid displays the following data:

company_name	COUNT(transaction.id)	Mas de 4 transacciones
Nunc Interdum Incorporated	105	TRUE
Ut Semper Foundation	59	TRUE
Enim Conditmentum Ltd	57	TRUE
Arcu LLP	56	TRUE
Lorem Eu Incorporated	54	TRUE
Malesuada PC	52	TRUE
Non Institute	30	TRUE
Fusce Corp.	2	FALSE
Convalle In Incorporated	2	FALSE
Ante Taculis Nec Foundation	2	FALSE
Donec Ltd	2	FALSE
Sed Nunc Ltd	2	FALSE
Amet Nulla Donec Corporation	2	FALSE
Nascetur Ridiculus Mus Inc.	2	FALSE
Vestibulum Lorem PC	2	FALSE
Gravida Sagittis LLP	2	FALSE
Mus Aenean Eget Foundation	2	FALSE

The bottom section of the IDE shows the 'Action Output' tab with a log of SQL execution messages, including the final query execution at 19:49:37.