

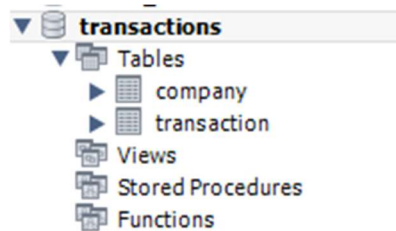
Tasca S2.01. Nocions bàsiques SQL

Nivell 1

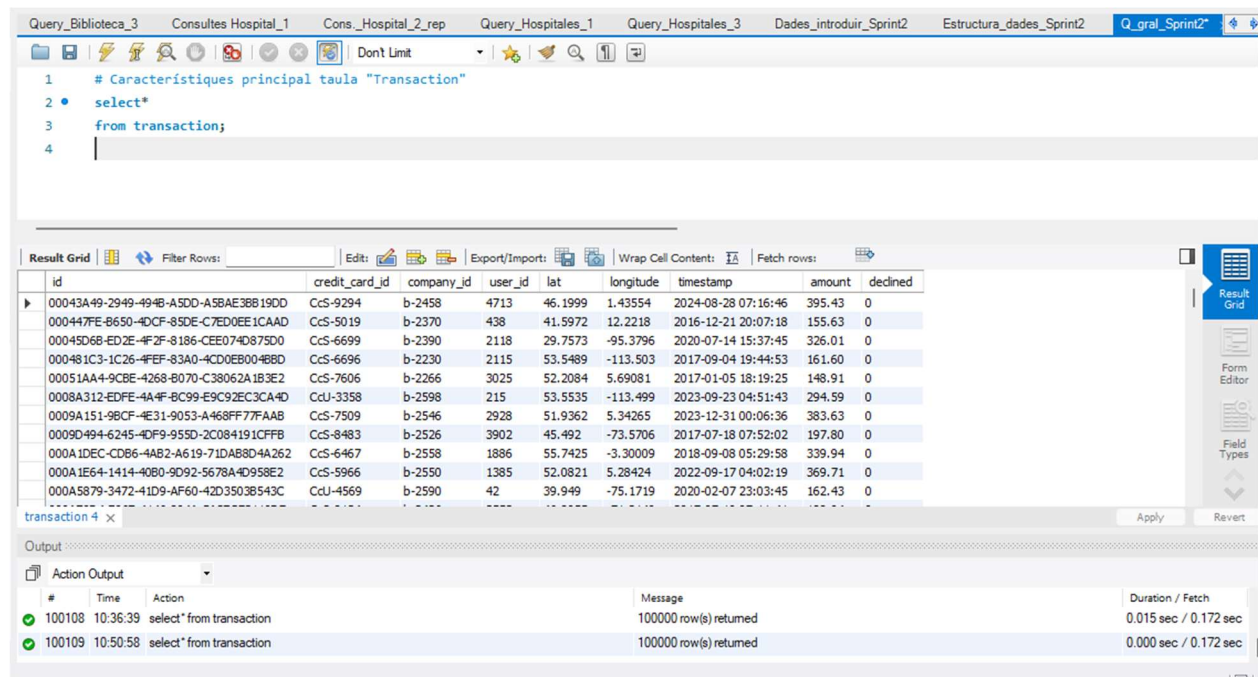
Exercici 1

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.

L'importació dels arxius ens ha aportat 2 taules: "company", "transaction".



La taula "transaction" ens dona informació general sobre les transaccions de les vendes. En la taula "transaction", he fet una consulta general per veure la seva composició: té 9 columnes/variables (id, Credit_card_id, company_id, user_id, lat, longitude, timestamp, amount i declined) i 100.000 files. Aquí la Primary key es tal com veurem més clarament en el diagrama la columna "id" i la Foreign key es "company_id" que ens assegura la integritat de les dades i la relaciona amb la taula "company".



```
1 # Característiques principal taula "Transaction"
2 select *
3 from transaction;
4
```

id	credit_card_id	company_id	user_id	lat	longitude	timestamp	amount	declined
00043A49-2949-494B-A5DD-A5BAE3BB19DD	CcS-9294	b-2458	4713	46.1999	1.43554	2024-08-28 07:16:46	395.43	0
000447FE-B650-4DCF-85DE-C7ED0EE1CAA0	CcS-5019	b-2370	438	41.5972	12.2218	2016-12-21 20:07:18	155.63	0
00045D68-ED2E-4F2F-8186-CEE074D875D0	CcS-6699	b-2390	2118	29.7573	-95.3796	2020-07-14 15:37:45	326.01	0
000481C3-1C26-4FEF-83A0-4C0EB0048BD	CcS-6696	b-2230	2115	53.5489	-113.503	2017-09-04 19:44:53	161.60	0
00051AA4-9CBE-4268-B070-C38062A1B3E2	CcS-7606	b-2266	3025	52.2084	5.69081	2017-01-05 18:19:25	148.91	0
0008A312-EDFE-4A4F-BC99-E9C92EC3CA4D	CcU-3358	b-2598	215	53.5535	-113.499	2023-09-23 04:51:43	294.59	0
0009A151-9BCF-4E31-9053-A468FF77FAAB	CcS-7509	b-2546	2928	51.9362	5.34265	2023-12-31 00:06:36	383.63	0
0009D494-6245-4DF9-955D-2C084191CFFB	CcS-8483	b-2526	3902	45.492	-73.5706	2017-07-18 07:52:02	197.80	0
000A1DEC-CD86-4AB2-A619-71DAB8D4A262	CcS-6467	b-2558	1886	55.7425	-3.30009	2018-09-08 05:29:58	339.94	0
000A1E64-1414-40B0-9D92-5678A4D958E2	CcS-5966	b-2550	1385	52.0821	5.28424	2022-09-17 04:02:19	369.71	0
000A5879-3472-41D9-AF60-42D3503B543C	CcU-4569	b-2590	42	39.949	-75.1719	2020-02-07 23:03:45	162.43	0

#	Time	Action	Message	Duration / Fetch
100108	10:36:39	select * from transaction	100000 row(s) returned	0.015 sec / 0.172 sec
100109	10:50:58	select * from transaction	100000 row(s) returned	0.000 sec / 0.172 sec

Respecte a la segona taula "Company" té: 6 columnes/variables amb els detalls dels clients (id, company_name, phone, email, country, website) i 100 files. La Primary key es "id".

Don't Limit

```

1 # Característiques principal taula "company"
2 • select*
3 from company;
4

```

Result Grid

	id	company_name	phone	email	country	website
▶	b-2222	Ac Fermentum Incorporated	06 85 56 52 33	donec.porttitor.tellus@yahoo.net	Germany	https://instagram.com/site
	b-2226	Magna A Neque Industries	04 14 44 64 62	risus.donec.nibh@icloud.org	Australia	https://whatsapp.com/group/9
	b-2230	Fusce Corp.	08 14 97 58 85	risus@protonmail.edu	United States	https://pinterest.com/sub/cars
	b-2234	Convallis In Incorporated	06 66 57 29 50	mauris.ut@aol.couk	Germany	https://cnn.com/user/110
	b-2238	Ante Iaculis Nec Foundation	08 23 04 99 53	sed.dictum.proin@outlook.ca	New Zealand	https://netflix.com/settings
	b-2242	Donec Ltd	01 25 51 37 37	at.iaculis@hotmail.couk	Norway	https://nytimes.com/user/110
	b-2246	Sed Nunc Ltd	02 62 64 73 48	nibh@yahoo.org	United Kingdom	https://cnn.com/one
	b-2250	Amet Nulla Donec Corporation	07 15 25 14 74	mattis.integer.eu@protonmail.net	Italy	https://netflix.com/sub/cars
	b-2254	Nascetur Ridiculus Mus Inc.	06 26 87 61 84	suspendisse.dui@icloud.net	United States	https://ebay.com/sub
	b-2258	Vestibulum Lorem PC	02 02 87 33 40	aenean.massa.integer@aol.net	Belgium	https://pinterest.com/sub/cars
	b-2262	Gravida Sagittis LLP	03 81 28 33 97	turpis.vitae@google.ca	Sweden	https://naver.com/site
	b-2266	Mus Aenean Eget Foundation	06 25 15 52 43	mi.duis@hotmail.net	Sweden	https://instagram.com/group/9

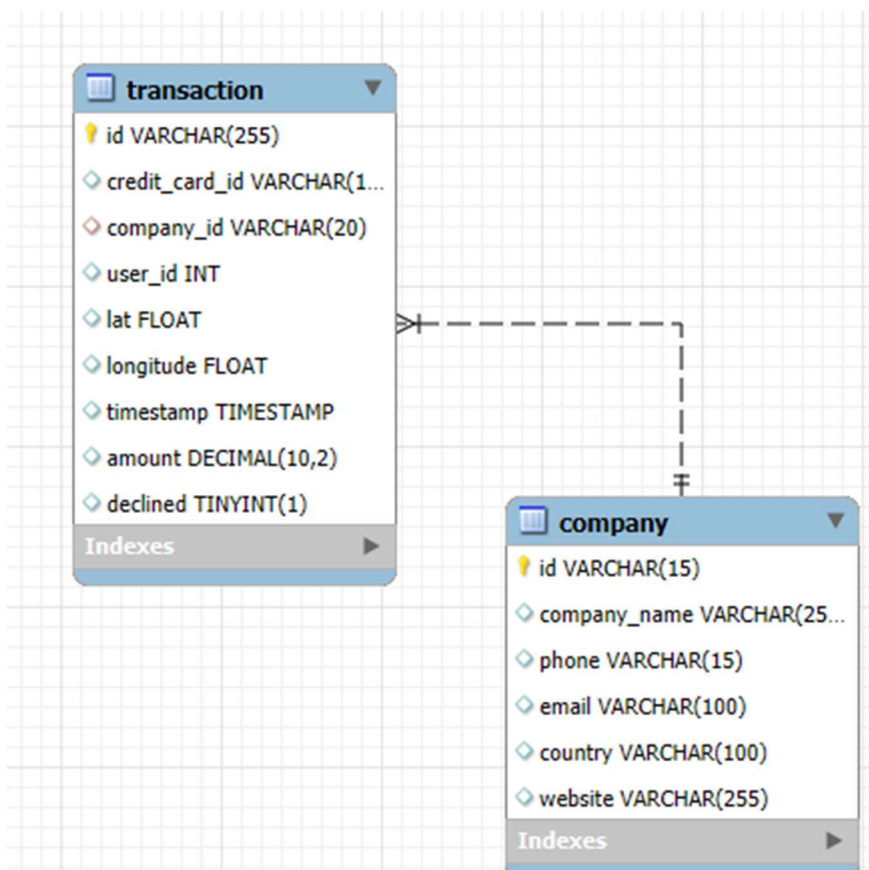
company 2 x

Output

Action Output

#	Time	Action	Message
✓ 4	11:11:21	select* from transaction	100000 row(s) returned
✓ 5	11:16:07	select* from company	100 row(s) returned

Diagrama:



Exercici 2

Utilitzant JOIN realitzaràs les següents consultes:

- Llistat dels països que estan generant vendes.

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

```
1 #1 Llistat dels països que estan generant vendes.
2 • select c.country
3   from company c
4  join transaction t
5   on c.id=t.company_id
6  group by 1;
```

The results pane shows a table with the following data:

country
Germany
Australia
United States
New Zealand
Norway

The output pane shows the following log entries:

#	Time	Action	Message
76	11:05:55	select c.country from company c join transaction t on c.id=t.company_id group by 1	15 row(s) returned
77	11:06:29	select c.country from company c join transaction t on c.id=t.company_id group by 1	15 row(s) returned

- Des de quants països es generen les vendes.

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

```
14 #Des de quants països es generen les vendes.
15 • Select count(distinct(country))
16   from company c
17  join transaction t
18   on c.id=t.company_id
19   where t.amount>0 and t.amount is not null;
20
21
22
```

The results pane shows a table with the following data:

count(distinct(country))
15

The output pane shows the following log entries:

#	Time	Action	Message
6	15:43:13	Select count(distinct(country)) from company join transaction on company.id=transaction.co...	1 row(s) returned
7	15:44:39	Select count(distinct(country)) from company c join transaction t on c.id=t.company_id wher...	1 row(s) returned

- Identifica la companyia amb la mitjana més gran de vendes.

```

15 #identifica la companyia amb la mitjana més gran de vendes.
16 • select c.company_name, format(avg(t.amount),2) as mitjana
17   from company c
18   join transaction t
19   on c.id=t.company_id
20  where t.declined=0
21  group by 1
22  order by avg(t.amount) desc
23  limit 1;
24
25
26

```

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

company_name	mitjana
Ac Fermentum Incorporated	284.91

Result 61 x

Output

Action Output

#	Time	Action	Message
81	11:09:19	select c.company_name, format(avg(t.amount),2) as mitjana from company c join transactio...	1 row(s) returned
82	11:09:22	select c.company_name, format(avg(t.amount),2) as mitjana from company c join transactio...	1 row(s) returned

Exercici 3

Utilitzant només subconsultes (sense utilitzar JOIN):

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

```

27 #Exercici 3
28 #Utilitzant només subconsultes (sense utilitzar JOIN):
29 #Mostra totes les transaccions realitzades per empreses d'Alemanya.
30 • select *
31   from transaction t
32  where t.declined=0 and t.company_id in (select company.id from company where country='Germany');
33
34
35
36
37
38

```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content: | Fetch rows:

id	credit_card_id	company_id	user_id	lat	longitude	timestamp	amount	declined
00138D38-206D-4C03-94B7-63A2676EB984	CcS-4899	b-2222	318	41.3781	12.447	2020-03-25 10:43:43	426.36	0
0013C1B6-3884-4D6C-8154-E2B3FEBCA8E9	CcS-5070	b-2222	489	41.3814	2.18176	2020-12-17 18:15:37	316.90	0
00201A11-2E62-44C4-941D-198FC8DB77F0	CcU-3512	b-2222	193	55.5704	-3.65129	2021-01-22 23:44:27	453.04	0
00235618-0A5C-4D49-9DCB-83A9405D8923	CcS-8137	b-2222	3556	59.8421	18.729	2020-09-09 15:43:19	263.14	0
005A5A7B-1F1A-4B6C-9B15-1625A78C9C38	CcS-8998	b-2222	4417	41.1591	-8.63905	2024-05-15 09:10:11	442.01	0

transaction 63 x

Output

Action Output

#	Time	Action	Message
83	11:10:43	select * from transaction t where t.declined=0 and t.company_id in (select company.id from...	13269 row(s) returned
84	11:10:45	select * from transaction t where t.declined=0 and t.company_id in (select company.id from...	13269 row(s) returned

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

```

35 select c.company_name
36 from company c
37 where id in (
38     select company_id
39     from (
40         select t2.company_id, count(t2.id) as NumTrans
41         from transaction t2
42         group by t2.company_id) as Tot
43     where NumTrans > (
44         select avg(NumTrans)
45         from (
46             select t3.company_id, count(t3.id) as NumTrans
47             from transaction t3

```

company_name
Ac Fermentum Incorporated
Convallis In Incorporated
Sed Nunc Ltd
Amet Nulla Donec Corporation
Gravida Sagittis LLP

company 65 x

Output

Action Output

#	Time	Action	Message
85	11:13:09	select c.company_name from company c where id in (select company_id from (select t2.company_id, count(t2.id) as NumTrans from transaction t2 group by t2.company_id) as Tot where NumTrans > (select avg(NumTrans) from (select t3.company_id, count(t3.id) as NumTrans from transaction t3 group by t3.company_id) as total2))	51 row(s) returned

No m'ha cabut tota la query ho feig en 2 parts:

```

40 select t2.company_id, count(t2.id) as NumTrans
41 from transaction t2
42 group by t2.company_id) as Tot
43 where NumTrans > (
44     select avg(NumTrans)
45     from (
46         select t3.company_id, count(t3.id) as NumTrans
47         from transaction t3
48         group by t3.company_id) as total2
49     )
50 );
51

```

company_name
Ac Fermentum Incorporated
Convallis In Incorporated
Sed Nunc Ltd
Amet Nulla Donec Corporation
Gravida Sagittis LLP

company 65 x

Output

Action Output

#	Time	Action	Message
85	11:13:09	select c.company_name from company c where id in (select company_id from (select t2.company_id, count(t2.id) as NumTrans from transaction t2 group by t2.company_id) as Tot where NumTrans > (select avg(NumTrans) from (select t3.company_id, count(t3.id) as NumTrans from transaction t3 group by t3.company_id) as total2))	51 row(s) returned

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

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

```

52 #Eliminaran del sistema les empreses que no tenen transaccions registrades, entrega el llistat d'aquestes empreses.
53 • select company.company_name
54   from company
55  where not exists (
56      select transaction.company_id
57      from transaction
58      where transaction.company_id=company.id
59  );
60
61
62

```

The results pane shows the column `company_name`. Below it, the output section shows two rows of action output, both indicating that 0 rows were returned.

#	Time	Action	Message
87	11:16:43	select company.company_name from company where not exists (select transaction.comp...	0 row(s) returned
88	11:16:44	select company.company_name from company where not exists (select transaction.comp...	0 row(s) returned

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 with a query editor and a results pane. The query is as follows:

```

61 #Nivell 2
62 #Exercici 1
63 #Identifica els cinc dies que es va generar la quantitat més gran d'ingressos a l'empresa per vendes. Mostra la data
64 #de cada transacció juntament amb el total de les vendes.
65 • select date(t.timestamp) as Dia,sum(t.amount) as Total
66   from transaction t
67  where t.declined=0
68  group by 1
69  order by Total desc
70  limit 5;
71

```

The results pane shows a table with two columns: `Dia` and `Total`. The data is as follows:

Dia	Total
2022-12-13	14337.44
2019-11-18	13591.32
2023-02-20	13332.59
2017-12-20	13318.43
2019-03-18	12680.95

The output section shows two rows of action output, both indicating that 5 rows were returned.

#	Time	Action	Message
89	11:18:29	select date(t.timestamp) as Dia,sum(t.amount) as Total from transaction t where t.declined=...	5 row(s) returned
90	11:18:36	select date(t.timestamp) as Dia,sum(t.amount) as Total from transaction t where t.declined=...	5 row(s) returned

Exercici 2

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

```
73 #Quina és la mitjana de vendes per país? Presenta els resultats ordenats de major a menor mitjà.
74 • select company.country,T.A
75   from(
76     select company_id,avg(amount) as A
77   from transaction t1
78  where t1.declined=0
79  group by 1 ) as T
80  join company
81 on company.id=T.company_id
82  order by 2 desc;
83
```

Result Grid

country	A
Germany	284.911333
Australia	275.578064
United States	273.566925
New Zealand	272.736985
Australia	270.051876
United States	269.291145
Mexico	268.604937

Result 71

Output

Action Output

#	Time	Action	Message
91	11:20:44	select company.country,T.A from(select company_id,avg(amount) as A from transaction t1...	100 row(s) returned
92	11:20:47	select company.country,T.A from(select company_id,avg(amount) as A from transaction t1...	100 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.

```
88 • select *
89   from transaction t
90  join company c
91 on t.company_id=c.id
92  where t.declined=0 and c.country = (
93    select c2.country
94   from company c2
95  where c2.company_name='Non Institute'
96  );
97
98 # num. transaccions
```

Result Grid

id	credit_card_id	company_id	user_id	lat	longitude	timestamp	amount	declined	id	company_name	phone
008629B4-C9A9-406C-A3D2-71FDA47BC546	CCS-7063	b-2246	2482	45.7666	4.83048	2015-07-30 12:12:42	486.44	0	b-2246	Sed Nunc Ltd	02 62 64 73 48
00872BA4-54A3-4B8E-B13F-2D57535AA17A	CCS-8475	b-2246	3894	55.6212	-3.7546	2017-10-26 22:08:26	414.06	0	b-2246	Sed Nunc Ltd	02 62 64 73 48
01F075B1-D7AE-4D02-AAD9-5FFD72A43F3C	CCS-8700	b-2246	4119	55.856	-3.15783	2018-01-27 13:44:36	103.73	0	b-2246	Sed Nunc Ltd	02 62 64 73 48
023FFCE8-E618-4938-BF56-C8DF80540ADD	CCS-7816	b-2246	3235	46.3568	1.82755	2016-12-19 11:53:45	219.28	0	b-2246	Sed Nunc Ltd	02 62 64 73 48
026838EB-EF91-4564-957B-D6F1662AB7C5	CCS-9471	b-2246	4890	42.1332	12.396	2017-01-10 21:09:29	326.87	0	b-2246	Sed Nunc Ltd	02 62 64 73 48
02707F29F-CFF2-4C1F-B594-F476F8F779C0	CCS-9892	b-2246	4501	39.4662	-1.77246	2020-05-24 01:17:29	155.77	0	b-2246	Sed Nunc Ltd	02 62 64 73 48

Result 73

Output

Action Output

#	Time	Action	Message	Duration /
93	11:21:50	select * from transaction t join company c on t.company_id=c.id where t.declined=0 and c....	13754 row(s) returned	0.000 sec
94	11:21:52	select * from transaction t join company c on t.company_id=c.id where t.declined=0 and c....	13754 row(s) returned	0.000 sec

- Mostra el llistat aplicant solament subconsultes.

Query_Hospitales_1 Query_Hospitales_3 Subq_BD_hospital Dades_introduir_Sprint2 Estructura_dades_Sprint2 Q_gral_Sprint2Rev

```

99 • select*
100 from transaction t
101 where t.declined=0
102 and t.company_id in (
103     select c1.id
104     from company c1
105     where c1.country= (
106         select c2.country
107         from company c2
108         where c2.company_name= 'Non Institute'
109     )
110 );

```

Result Grid

id	credit_card_id	company_id	user_id	lat	longitude	timestamp	amount	declined
008629B4-C9A9-406C-A3D2-71FDA47BC546	CcS-7063	b-2246	2482	45.7666	4.83048	2015-07-30 12:12:42	486.44	0
00B72BA4-54A3-4B8E-B13F-2D57535AA17A	CcS-8475	b-2246	3894	55.6212	-3.7546	2017-10-26 22:08:26	414.06	0
01F075B1-D7AE-4D02-AAD9-5FFD72A43F3C	CcS-8700	b-2246	4119	55.856	-3.15783	2018-01-27 13:44:36	103.73	0
023FFCE8-E618-4938-BF56-C8DF80540ADD	CcS-7816	b-2246	3235	46.3568	1.82755	2016-12-19 11:53:45	219.28	0
026838EB-EF91-4564-957B-D6F1662AB7C5	CcS-9471	b-2246	4890	42.1332	12.396	2017-01-10 21:09:29	326.87	0

transaction 75 x

Output

Action Output

#	Time	Action	Message
95	11:23:28	select* fromtransaction t where t.declined=0 and t.company_id in (select c1.id from compa...	13754 row(s) returned
96	11:23:33	select* fromtransaction t where t.declined=0 and t.company_id in (select c1.id from compa...	13754 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 350 i 400 euros i en alguna d'aquestes dates: 29 d'abril del 2015, 20 de juliol del 2018 i 13 de març del 2024. Ordena els resultats de major a menor quantitat.

Query_Hospitales_1 Query_Hospitales_3 Subq_BD_hospital Dades_introduir_Sprint2 Estructura_dades_Sprint2 Q_gral_Sprint2Rev Q_gral_Sprint2* Query_Sakila_exam

```

113 #Exercici 1
114 #Presenta el nom, telèfon, país, data i amount, d'aquelles empreses que van realitzar transaccions amb un valor comprès entre 350 i 400 euros
115 #i en alguna d'aquestes dates: 29 d'abril del 2015, 20 de juliol del 2018 i 13 de març del 2024. Ordena els resultats de major a menor quantitat.
116 • select c.company_name,c.phone,c.country,t.timestamp,t.amount
117 from company c
118 join transaction t
119 on c.id=t.company_id
120 where t.amount between 350 and 400 and t.declined=0
121 and date(t.timestamp) in ('2024-03-13','2018-07-20','2015-04-29')
122 order by t.amount desc;
123
124

```

Result Grid

company_name	phone	country	timestamp	amount
Aliquam PC	01 45 73 52 16	Germany	2024-03-13 01:07:21	399.84
Auctor Mauris Vel LLP	08 09 28 74 14	United States	2018-07-20 13:57:29	399.51
At Pedo Corp.	06 14 48 33 15	Italy	2015-04-29 15:35:40	390.69
Aliquam PC	01 45 73 52 16	Germany	2024-03-13 19:05:41	388.29
Ordi Adipiscing Limited	03 18 00 77 81	United Kingdom	2018-07-20 01:20:14	373.71

Result 79 x

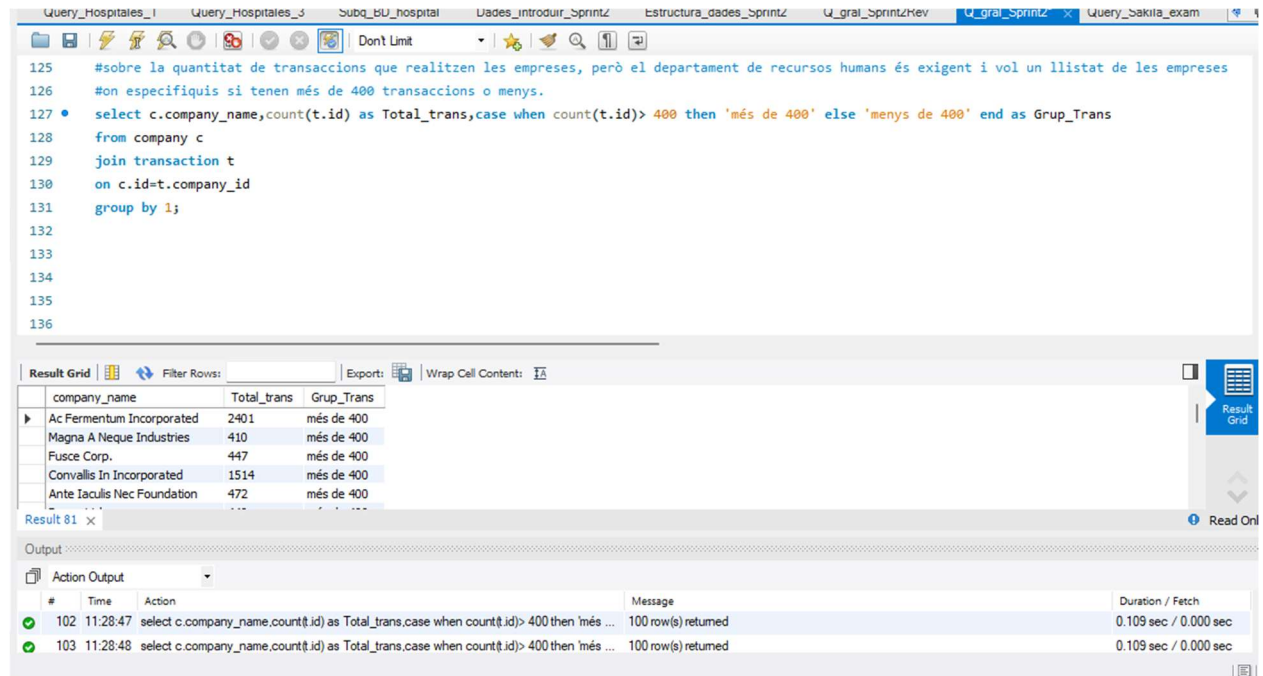
Output

Action Output

#	Time	Action	Message	Duration / Fetch
99	11:26:40	select c.company_name,c.phone,c.country,t.timestamp,t.amount from company c join tran...	8 row(s) returned	0.063 sec / 0.000 sec
100	11:27:04	select c.company_name,c.phone,c.country,t.timestamp,t.amount from company c join tran...	8 row(s) returned	0.063 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 especifiquis si tenen més de 400 transaccions o menys.



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

```
125 #sobre la quantitat de transaccions que realitzen les empreses, però el departament de recursos humans és exigent i vol un llistat de les empreses
126 #on especifiquis si tenen més de 400 transaccions o menys.
127 • select c.company_name,count(t.id) as Total_trans,case when count(t.id)> 400 then 'més de 400' else 'menys de 400' end as Grup_Trans
128 from company c
129 join transaction t
130 on c.id=t.company_id
131 group by 1;
132
133
134
135
136
```

The results grid shows the following data:

company_name	Total_trans	Grup_Trans
Ac Fermentum Incorporated	2401	més de 400
Magna A Neque Industries	410	més de 400
Fusce Corp.	447	més de 400
Convallis In Incorporated	1514	més de 400
Ante Iaculis Nec Foundation	472	més de 400

The output section shows the execution of the query:

#	Time	Action	Message	Duration / Fetch
102	11:28:47	select c.company_name,count(t.id) as Total_trans,case when count(t.id)> 400 then 'més de 400' else 'menys de 400' end as Grup_Trans	100 row(s) returned	0.109 sec / 0.000 sec
103	11:28:48	select c.company_name,count(t.id) as Total_trans,case when count(t.id)> 400 then 'més de 400' else 'menys de 400' end as Grup_Trans	100 row(s) returned	0.109 sec / 0.000 sec

Recursos

Objectius

- Construir una base de dades relacional senzilla amb MySQL.
- Realitzar consultes únicament amb JOIN..
- Crear subconsultes SQL per a mostrar informació sense l'ús de JOIN.

Durada:

2 dies.

Lliurament:

Emmagatzema en un repositori del teu GitHub una carpeta que contingui:

- L'arxiu .sql que contingui tots els scripts.
- Un PDF que contingui una captura de pantalla del workbench on es pugui observar el script de la consulta que vas fer i el resultat obtingut per a cada exercici.

En el lliurament, col·loca el link al repositori.

Important

Recorda revisar les millors pràctiques abans de fer el lliurament.