

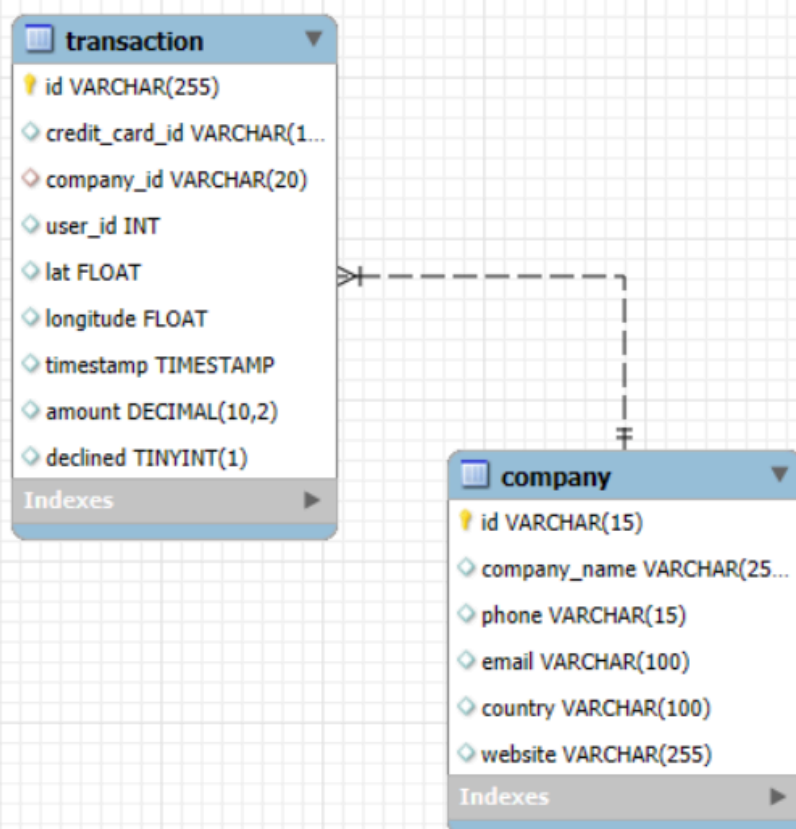
Nivell 1

- 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.

Hemos importado la base de datos transactions que contiene 2 tablas: company y transaction. Company tiene los campos id (clave primaria), company_name, phone, email, country, website, Transaction tiene los campos id, credit_card, company_id (clave foranea), user_id, lat (latitud), longitude, timestamp, amount y declined.

La relacion entre transaction y company es de muchos a uno y se conectan por la clave company_id (que es el campo id de la tabla company).



- Exercici 2

Utilitzant JOIN realitzaràs les següents consultes:

- ❖ Llistat dels països que estan fent compres.

```
select country, sum(amount) as total_amount
from company as c
inner join transaction
on company_id = c.id
group by country;
```

MySQL Workbench

The screenshot shows the MySQL Workbench interface. The left sidebar displays the 'SCHEMAS' tree with the 'sakila' database selected. The 'company' table is expanded, showing columns: id, company_name, phone, email, country, and website. The 'transaction' table is also expanded, showing columns: id, credit_card_id, company_id, user_id, lat, longitude, and timestamp. The main editor window shows a SQL query for 'Exercici 2' (Exercise 2), which is to list the countries that are making purchases. The query is as follows:

```
-- Nivel 1
-- Exercici 2

-- Llistat dels països que estan fent compres.

select country, sum(amount) as total_amount
from company as c
inner join transaction
on company_id = c.id
group by country;
```

The query is executed, and the results are displayed in the 'Result Grid' at the bottom. The results show the total amount for each country, sorted in descending order of total amount.

country	total_amount
Germany	28815.98
Australia	2784.63
United States	5256.05
New Zealand	2445.05
Norway	17286.71
United Kingdom	27073.17
Italy	3427.03
Belgium	2965.92
Sweden	20588.59

❖ Des de quants països es realitzen les compres.

```
select count(distinct country) as country_number, sum(amount) as total_amount
from company as c
inner join transaction
on company_id = c.id;
```

MySQL Workbench

The screenshot shows the MySQL Workbench interface. On the left, the 'SCHEMAS' pane displays a tree view of the database structure, including 'sakila', 'sys', and 'transactions'. The 'transactions' schema is expanded, showing tables 'company' and 'transaction'. The 'company' table is further expanded, showing columns: id, company_name, phone, email, country, and website. The 'transaction' table is also expanded, showing columns: id, credit_card_id, company_id, user_id, lat, longitude, and timestamp.

The main editor pane shows a SQL query with line numbers 9 through 19. The query is as follows:

```
9      on company_id = c.id
10     group by country;
11
12     -- Des de quants països es realitzen les compres.
13
14     select count(distinct country) as country_number, sum(amount) as total_amount
15     from company as c
16     inner join transaction
17     on company_id = c.id;
18
19
```

Below the query editor, the 'Result Grid' is displayed, showing the results of the query. The grid has two columns: 'country_number' and 'total_amount'. The first row shows the values 15 and 150703.75.

country_number	total_amount
15	150703.75

❖ *Identifica la companyia amb la mitjana més gran de vendes.*

```
select company_name, avg(amount) as average
from company as c
inner join transaction
on company_id = c.id
    where declined = 0
group by company_name
order by avg(amount) desc
limit 1;
```

MySQL Workbench

The screenshot shows the MySQL Workbench interface. On the left, the 'SCHEMAS' pane displays a tree view of the database structure, including 'company' and 'transaction' tables. The 'company' table has columns: id, company_name, phone, email, country, website. The 'transaction' table has columns: id, credit_card_id, company_id, user_id, lat, longitude, timestamp, amount, declined. The main editor window shows a SQL query that identifies the company with the highest average sales. The query is as follows:

```
-- Identifica la companyia amb la mitjana més gran de
select company_name, avg(amount) as average
from company as c
inner join transaction
on company_id = c.id
    where declined = 0
group by company_name
order by avg(amount) desc
limit 1;
```

Below the query editor, the 'Result Grid' shows the output of the query:

company_name	average
Eget Ipsum Ltd	481.860000

- Exercici 3

Utilitzant només subconsultes (sense utilitzar JOIN):

Mostra totes les transaccions realitzades per empreses d'Alemanya.

```
select id as order_id, amount
from transaction
where company_id in (select c.id
                     from company as c
                     where country = 'Germany');
```

MySQL Workbench

The screenshot shows the MySQL Workbench interface. On the left, the 'Navigator' pane displays the database schema with 'company' and 'transaction' tables. The 'company' table has columns: id, company_name, phone, email, country, website. The 'transaction' table has columns: id, credit_card_id, company_id, user_id, lat, longitude, timestamp, amount, declined. The main editor shows a SQL query with two parts. The first part is a comment: '-- Mostra totes les transaccions realitzades per emp'. The second part is a query that selects 'id as order_id, amount' from 'transaction' where 'company_id' is in a subquery selecting 'c.id' from 'company' where 'country = \'Germany\''. The third part is another comment: '-- Muestro los campos de company_name y country'. The fourth part is a query that selects 't.id as order_id,'. The 'Result Grid' at the bottom shows the results of the query, with columns 'order_id' and 'amount'. The results are as follows:

order_id	amount
108B1D1D-5B23-A76C-55EF-C568E49A05DD	293.57
EA2C3281-C9C1-A387-44F8-729FB4B51C76	119.36
0DD2E608-5C9E-D1B3-4999-B99F43AD735A	252.47
AB069F53-965E-A2A8-CE06-CA8C4FD92501	60.99
0466A42E-47CF-8D24-FD01-C0B689713128	49.53
0A476ED9-0C13-1962-F87B-D3563924B539	430.49
122DC333-E19F-D629-DCD8-9C54CF1EBB9A	172.01
135267BA-2E7D-957C-C42C-6450A2B3ED54	17.97
14CAE5B5-8FB1-3E4A-4C85-0EA4167534F4	388.04

Utilitzant només subconsultes (sense utilitzar JOIN) - Otra manera:
Mostra totes les transaccions realitzades per empreses d'Alemanya.

```
select
    t.id as order_id,
    amount,
    (select company_name from company where id = t.company_id) as company_name,
    (select country from company where id = company_id) as country
from transaction as t
where company_id in(
    select id
    from company as c
    where country = 'Germany');
```

MySQL Workbench

The screenshot shows the MySQL Workbench interface. On the left, the 'SCHEMAS' pane displays the database structure, including tables 'company' and 'transaction'. The 'company' table has columns: id, company_name, phone, email, country, website. The 'transaction' table has columns: id, credit_card_id, company_id, user_id, lat, longitude, timestamp, amount, declined. On the right, the 'Query' pane shows the following SQL query:

```
select
    t.id as order_id,
    amount,
    (select company_name from company where id = t.company_id) as company_name,
    (select country from company where id = company_id) as country
from transaction as t
where company_id in(
    SELECT id
    FROM company as c
    WHERE country = 'Germany'
);
```

Below the query, the 'Result Grid' shows the results of the query. The columns are 'order_id', 'amount', 'company_name', and 'country'. The results are as follows:

order_id	amount	company_name	country
108B1D1D-5B23-A76C-55EF-C568E49A05DD	293.57	Ac Fermentum Incorporated	Germany
EA2C3281-C9C1-A387-44F8-729FB4B51C76	119.36	Ac Fermentum Incorporated	Germany
0DD2E608-5C9E-D1B3-4999-B99F43AD735A	252.252.47	Convallis In Incorporated	Germany
AB069F53-965E-A2A8-CE06-CA8C4FD92501	60.99	Convallis In Incorporated	Germany
0466A42E-47CF-8D24-FD01-C0B689713128	49.53	Nunc Interdum Incorporated	Germany
0A476ED9-0C13-1962-F87B-D3563924B539	430.49	Nunc Interdum Incorporated	Germany
122DC333-E19F-D629-DCD8-9C54CF1EBB9A	172.01	Nunc Interdum Incorporated	Germany
135267BA-2E7D-957C-C42C-6450A2B3ED54	17.97	Nunc Interdum Incorporated	Germany
14CAE5B5-8FB1-3E4A-4C85-0EA4167534F4	388.04	Nunc Interdum Incorporated	Germany

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

```
select id, company_name
from company
where id in (select distinct company_id
            from transaction
            where amount > (select avg(amount) from transaction)
);
```

MySQL Workbench

The screenshot shows the MySQL Workbench interface. On the left, the 'SCHEMAS' pane displays a tree view of the database structure, including tables like 'company' and 'transaction'. The 'transaction' table is selected, showing its columns: id, credit_card_id, company_id, user_id, lat, longitude, timestamp, amount, and declined. The main editor displays a SQL query that filters companies based on the average transaction amount. The query is as follows:

```
74 from transaction);*/
75
76 -- CORRECCION: debe listarse las empresas que tengan pedidos su
77
78 • select id, company_name
79 from company
80 where id in (
81     select distinct company_id
82     from transaction
83     where amount > (select avg(amount) from transaction)
84 );
85
86
87 Eliminar del sistema las empresas que no tengan transacciones
```

Below the query editor, the 'Result Grid' shows the output of the query. It contains a table with two columns: 'id' and 'company_name'. The results are as follows:

id	company_name
b-2222	Ac Fermentum Incorporated
b-2226	Magna A Neque Industries
b-2230	Fusce Corp.
b-2238	Ante Iaculis Nec Foundation
b-2242	Donec Ltd
b-2246	Sed Nunc Ltd
b-2254	Nascetur Ridiculus Mus Inc.
b-2258	Vestibulum Lorem PC
b-2262	Gravida Sagittis LLP
b-2266	Mus Aenean Eget Foundation
b-2270	Dis Parturient Institute

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

```
select c.id, c.company_name
from company as c
      where c.id not in (select t.company_id
                        from transaction as t
                        where t.company_id = c.id)
group by c.id;
```

Comprobacion:

```
select count(c.id)
from company as c
      where c.id in (select t.company_id
                    from transaction as t
                    where t.company_id = c.id);
```

```
select count(c.id)
from company as c;
```

The screenshot shows a SQL IDE interface with a menu bar (File, Edit, View, Query, Database, Server, Tools, Scripting, Help) and a toolbar. The left sidebar contains a 'Navigator' pane with a 'SCHEMAS' tree showing a database structure including tables like 'phone', 'email', 'country', 'website', 'transaction', and 'company'. The main editor pane shows a SQL script with two queries. The first query is highlighted in blue and matches the query provided in the text. The second query is a count query. The bottom pane shows a 'Result Grid' with two columns: 'id' and 'company_name'. The first row of the result grid shows 'NULL' for both columns.

```
69  -- Eliminaran del sistema les empreses que no tenen transaccions regist
70  •  select c.id, c.company_name
71  from company as c
72  where c.id not in (select t.company_id
73                    from transaction as t
74                    where t.company_id = c.id)
75  group by c.id;
76
77  •  select count(c.id)
78  from company as c
79  where c.id in (select t.company_id
```

id	company_name
NULL	NULL

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.

```
select date(timestamp) as date, sum(amount) as amount_day
from transaction
where declined = 0
group by date(timestamp)
order by sum(amount) desc
limit 5;
```

MySQL Workbench

Navigation: estructura_dades, dades_introduir, sprint02*, lb_sprint02_nivel2*, lb_sprint02_nivel3

SCHEMAS

- sys
- transactions
 - Tables
 - company
 - Columns
 - id
 - company_name
 - phone
 - email
 - country
 - website
 - Indexes
 - Foreign Keys
 - Triggers
 - transaction
 - Columns
 - id
 - credit_card_id
 - company_id
 - user_id
 - lat
 - longitude
 - timestamp

SQL Editor

```
-- 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.*/
-- Arreglar

select date(timestamp) as date, sum(amount) as amount_day
from transaction
where declined = 0
group by date(timestamp)
order by sum(amount) desc
limit 5;
```

Result Grid

date	amount_day
2021-12-20	1532.36
2021-04-22	1397.96
2021-05-09	1344.37
2022-02-26	1337.62
2021-03-29	1325.12

Exercici 2

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

```
select country, round(avg(amount),2) as average
from company as c
inner join transaction
on c.id = company_id
group by country
order by avg(amount) desc;
```

MySQL Workbench

The screenshot shows the MySQL Workbench interface. The left sidebar displays the 'SCHEMAS' tree with the 'transactions' database selected, showing tables 'company' and 'transaction'. The main editor window contains a SQL query for Exercise 2. The 'Result Grid' at the bottom shows the query results, ordered by average amount in descending order.

SQL Query:

```
15 Quina és la mitjana de vendes per país? Presenta els resultats ordenats de major a menor mitjà.*
16
17 select country, round(avg(amount),2) as average
18 from company as c
19 inner join transaction
20 on c.id = company_id
21 group by country
22 order by avg(amount) desc;
23
24 -- Exercici 3
25 /*En la teva empresa, es planteja un nou projecte per a llançar algunes campanyes publicitàries
26 a la companyia "Non Institute". Per a això, et demanen la llista de totes les transaccions reali
```

Result Grid:

country	average
United States	309.18
Ireland	277.31
United Kingdom	270.73
Canada	269.65
Sweden	260.62
Norway	254.22
Netherlands	253.02
Germany	244.20
Australia	232.05

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.

```
select c.id, company_name, country, t.id as order_id, amount
from transaction as t
inner join company as c
on c.id = company_id
where country = (select country from company
where company_name = 'Non Institute');
```

MySQL Workbench

The screenshot shows the MySQL Workbench interface. On the left, the 'SCHEMAS' pane displays a tree view of the database structure, including tables like 'company' and 'transaction'. The main editor window shows a SQL query with comments in Catalan. The query uses an inner join between 'transaction' and 'company' tables, filtering for companies in the same country as 'Non Institute'. Below the query, the 'Result Grid' displays the results of the query, showing columns: id, company_name, country, order_id, and amount. The results list various transactions from companies like 'Sed Nunc Ltd' and 'Enim Condimentum Ltd'.

```
24 /*En la teva empresa, es planteja un nou projecte per a llançar algunes cam
25 a la companyia "Non Institute". Per a això, et demanen la llista de totes l
26 que estan situades en el mateix país que aquesta companyia.*/
27
28 -- Mostra el llistat aplicant JOIN i subconsultes. -- da 70 rows
29 select c.id, company_name, country, t.id as order_id, amount
30 from transaction as t
31 inner join company as c
32 on c.id = company_id
33 where country = (select country from company
34 where company_name = 'Non Institute');
```

	id	company_name	country	order_id	amount
▶	b-2246	Sed Nunc Ltd	United Kingdom	2B928E1C-EC14-A760-0A75-871477649D6A	383.73
	b-2246	Sed Nunc Ltd	United Kingdom	ACD2011A-A2B1-C365-41E1-2AB00C65147A	60.07
	b-2310	Non Magna LLC	United Kingdom	4334349E-CEB0-3D68-A4D4-FEB7718A1ACE	458.74
	b-2310	Non Magna LLC	United Kingdom	BC2B9A38-77B4-28CD-1FE8-14DED863E773	477.95
	b-2326	Enim Condimentum Ltd	United Kingdom	1479B3D2-B7BA-C7BB-4CE3-8D7C2DE85ABB	309.45
	b-2326	Enim Condimentum Ltd	United Kingdom	152 1479B3D2-B7BA-C7BB-4CE3-8D7C2DE85ABB	
	b-2326	Enim Condimentum Ltd	United Kingdom	1B636B58-A2E8-7C69-D9C9-C54535DAFD3B	195.06
	b-2326	Enim Condimentum Ltd	United Kingdom	20418DE5-B804-8E9B-BD7A-A95C1BFD5F5C	479.52
	b-2326	Enim Condimentum Ltd	United Kingdom	239B8576-6C0E-137A-C2F6-3180A188A2D3	43.90
	b-2326	Enim Condimentum Ltd	United Kingdom	267C4A86-7BA7-1C5E-0718-2824983C87DD	122.63
	b-2326	Enim Condimentum Ltd	United Kingdom	3142C93E-B3B7-49E4-EE2D-29CA834B198D	91.59
	b-2326	Enim Condimentum Ltd	United Kingdom	3578688E-7B1D-B887-3BC7-20B8673AA31E	303.60

Mostra el llistat aplicant solament subconsultes.

```
select
  t.id as order_id,
  amount,
  c.id,
  company_name,
  country
from transaction as t,
  company as c
where company_id = c.id
and country = (
  select country
  from company
  where company_name = 'Non Institute'
);
```

MySQL Workbench

The screenshot shows the MySQL Workbench interface. The left sidebar displays the 'SCHEMAS' tree with the 'transactions' database selected, showing tables 'company' and 'transaction'. The main editor window shows a SQL query (lines 44-57) that selects transaction details, joining with the company table to filter for 'Non Institute' companies. The 'Result Grid' at the bottom displays the query results, showing columns: order_id, amount, id, companies, and country. The results list 6 rows of data.

order_id	amount	id	companies	country
2B928E1C-EC14-A760-0A75-871477649D6A	383.73	b-2246	Sed Nunc Ltd	United Kingdom
ACD2011A-A2B1-C365-41E1-2AB00C65147A	60.07	b-2246	Sed Nunc Ltd	United Kingdom
4334349E-CEB0-3D68-A4D4-FEB7718A1ACE	458.74	b-2310	Non Magna LLC	United Kingdom
BC2B9A38-77B4-28CD-1FE8-14DED863E773	477.95	b-2310	Non Magna LLC	United Kingdom
1479B3D2-B7BA-C7BB-4CE3-8D7C2DE85ABB	309.45	b-2326	Enim Condimentum Ltd	United Kingdom
152598C2-029D-D684-4B66-91EDF393EBFF	395.43	b-2326	Enim Condimentum Ltd	United Kingdom

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.

```
select
  c.company_name,
  c.phone,
  c.country,
  date(t.timestamp) as date,
  t.id as order_id, t.amount
from company as c
join transaction as t
  on c.id = t.company_id
where t.amount between 100 and 200
and date(t.timestamp) in ('2021-04-29', '2021-07-20', '2022-03-13')
and declined = 0
order by amount desc;
```

MySQL Workbench

Navigation: Migration x dataanalytics x

File Edit View Query Database Server Tools Scripting Help

Navigator: estructura_dades dades_introduir sprint02 lb_sprint02_nivel2 lb_sprint02_nivel3*

SCHEMAS

Filter objects

sys

transactions

Tables

company

Columns

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

Indexes

Foreign Keys

Triggers

transaction

Columns

- id
- credit_card_id
- company_id
- user_id
- lat
- longitude
- timestamp

Administration Schemas Information

Limit to 300 rows

5 i en alguna d'aquestes dates: 29 d'abril del 2021, 20 de juliol del 2021 i 13 de març del 2022.

6 Ordena els resultats de major a menor quantitat.*

7

8 • select company_name, phone, country, date(t.timestamp) as date, t.id as order_id, amount

9 from company as c

10 join transaction as t

11 on c.id = company_id

12 where amount between 100 and 200

13 and date(timestamp) in ('2021-04-29', '2021-07-20', '2022-03-13')

14 and declined = 0

15 order by amount desc;

16

17

18 /*Exercici 2

Result Grid

company_name	phone	country	date	order_id	amount
Interdum Feugiat Sed Associates	04 88 40 32 52	United Kingdom	2021-07-20	B53165B9-7C93-0783-641C-5EA94E4C8683	164.86
Nunc Interdum Incorporated	05 18 15 48 13	Germany	2022-03-13	5BA81852-2D60-169A-805B-E1FA120E9683	149.89
Enim Condimentum Ltd	09 55 51 66 25	United Kingdom	2021-04-29	45CA3E45-6B42-CAC4-7683-EBB69D523B3E	133.39
Lorem Eu Incorporated	01 83 66 62 07	Canada	2021-07-20	44D08BB1-975E-86AA-75DA-BDAFED65F368	111.51
Nunc Interdum Incorporated	05 18 15 48 13	Germany	2021-04-29	9D4AB77C-9F51-FD95-EAB4-A37163E6D3E2	

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.

```
select
company_name,
count(t.id) as client_orders,
case
    when count(t.id) >= 4 then '4 or more orders'
    else 'less than 4 orders'
end as 'client_category'
from company as c
inner join transaction as t
on c.id = company_id
group by company_name;
```

MySQL Workbench

The screenshot shows the MySQL Workbench interface. On the left, the 'SCHEMAS' pane displays the database structure, including the 'transactions' table. The main editor shows a SQL query that counts transactions per company and categorizes them based on the count. The 'Result Grid' at the bottom displays the query results.

```
29 on c.id = company_id
30 group by c.id;
31
32 select
33     company_name,
34     count(t.id) as client_orders,
35     case
36         when count(t.id) >= 4 then '4 or more orders'
37         else 'less than 4 orders'
38     end as 'client_category'
39 from company as c
40 inner join transaction as t
41 on c.id = company_id
42 group by company_name;
```

company_name	client_orders	client_category
Ac Fermentum Incorporated	2	less than 4 orders
Magna A Neque Industries	2	less than 4 orders
Fusce Corp.	2	less than 4 orders
Convallis In Incorporated	2	less than 4 orders
Ante Iaculis Nec Foundation	2	less than 4 orders
Donec Ltd	2	less than 4 orders