

Data Analytics - SQL - Sprint 1

Exercises

Nivel 1

Ejercicio 1

A partir de los documentos adjuntos (estructura_datos y datos_introducir), importa las dos tablas. Muestra las principales características del esquema creado y explica las diferentes tablas y variables que existen. Asegúrate de incluir un diagrama que ilustre la relación entre las distintas tablas y variables.

The screenshot shows the MySQL Workbench interface. The left sidebar displays the database schema, including tables like 'company' and 'transaction'. The main window shows the SQL editor with the following code:

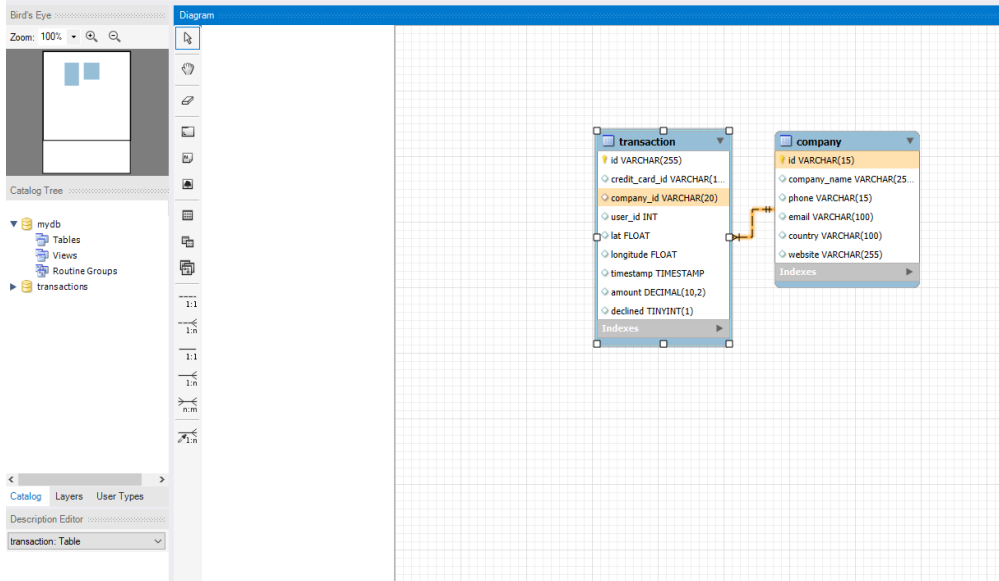
```
-- Crea la base de datos
1 CREATE DATABASE IF NOT EXISTS transactions;
2 USE transactions;

-- Crea la tabla company
3
4
5 CREATE TABLE IF NOT EXISTS company (
6   id VARCHAR(15) PRIMARY KEY,
7   company_name VARCHAR(255),
8   phone VARCHAR(15),
9   email VARCHAR(100),
10  country VARCHAR(200),
11  website VARCHAR(255)
12 );

-- Crea la tabla transaction
13
14 CREATE TABLE IF NOT EXISTS transaction (
15   id VARCHAR(20) PRIMARY KEY,
16   credit_card_id VARCHAR(15),
17   company_id VARCHAR(15),
18   user_id VARCHAR(15),
19   lat FLOAT,
20   longitude FLOAT,
21   timestamp TIMESTAMP,
22   amount DECIMAL(10, 2),
23   declined BOOLEAN
24 );
25 FOREIGN KEY (company_id) REFERENCES company(id);
26
```

The bottom panel shows the 'Output' window with a list of actions performed, including creating the database, creating the tables, and inserting data into the 'transaction' table. The 'transaction' table structure is also visible in the left sidebar:

Column	Type
id	varchar(20) PK
credit_card_id	varchar(15)
company_id	varchar(15)
user_id	varchar(15)
lat	float
longitude	float
timestamp	timestamp
amount	decimal(10,2)
declined	boolean



Ejercicio 2

Utilizando JOIN realizarás las siguientes consultas:

2.1 Lista de países que están generando ventas.

Navigator

SCHEMAS

Filter objects

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
- amount
- declined

Indexes

Foreign Keys

Triggers

Views

Stored Procedures

Functions

world

Administration

Schemas

Information

Table: transaction

Columns:

- id: varchar(255) PK
- credit_card_id: varchar(15)
- company_id: varchar(20)
- user_id: int
- lat: float
- longitude: float
- timestamp: timestamp
- amount: decimal(10,2)
- declined: tinyint(1)

Query 1 estructura datos (1)* company transaction

```

1 select distinct c.country
2 from company c
3 join transaction t
4 on t.company_id = c.id
5 where t.amount > 0
6 ORDER BY c.country asc

```

Result Grid

country
Australia
Belgium
Canada
China
France
Germany
Ireland

Output

#	Time	Action	Message	Duration /
46	11:02:09	select distinct c.country from company c join transaction t on t.transac...	Error Code: 1054. Unknown column 'transaction_id' in 'on clause'	0.000 sec
47	11:03:03	select distinct c.country from company c join transaction t on t.company_j...	Error Code: 1054. Unknown column 'c.company_id' in 'on clause'	0.000 sec
48	11:03:28	select distinct c.country from company c join transaction t on t.company_j...	15 row(s) returned	0.078 sec
49	11:03:34	select distinct c.country from company c join transaction t on t.company_j...	15 row(s) returned	0.047 sec

2.2 Desde cuántos países se generan las ventas.

The screenshot shows a database management tool interface. On the left is a tree view of the database schema, including tables like 'company' and 'transaction', and their columns. The 'transaction' table is selected. In the center, a SQL query is written in a text editor:

```
5 where t.amount > 0
6 ORDER BY c.country asc;
7
8 select count(distinct c.country) as country_number
9 from company c
10 join transaction t
11 on t.company_id = c.id
12 where t.amount > 0
```

At the bottom, a 'Result Grid' is displayed, showing the result of the query. A red circle highlights the result:

country_number
15

The 'Result Grid' also includes options for 'Filter Rows', 'Export', and 'Wrap Cell Content'.

Australia
Belgium
Canada
China
France
Germany
Ireland
Italy
Netherlands
New Zealand
Norway
Spain
Sweden
United Kingdom
United States

2.3 Identifica a la compañía con la mayor media de ventas.

```
13
14 • select c.company_name, avg(t.amount) as avg_sales
15   from company c
16  join transaction t
17   on t.company_id = c.id
18  group by c.company_name
19  order by avg_sales desc
20
```

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

company_name	avg_sales
Ac Fermentum Incorporated	284.867160

Ejercicio 3

Utilizando sólo subconsultas (sin utilizar JOIN):

3.1 Muestra todas las transacciones realizadas por empresas de Alemania.

phone
email
country
website
Indexes
Foreign Keys
Triggers
transaction
Columns
id
credit_card_id
company_id
user_id
lat
longitude
timestamp
amount
declined
Indexes
Foreign Keys
Triggers

```
21
22 • select *
23   from transaction t
24  where company_id IN (
25    select id
26    from company c
27   where country = 'Germany')
28
29
30
```

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

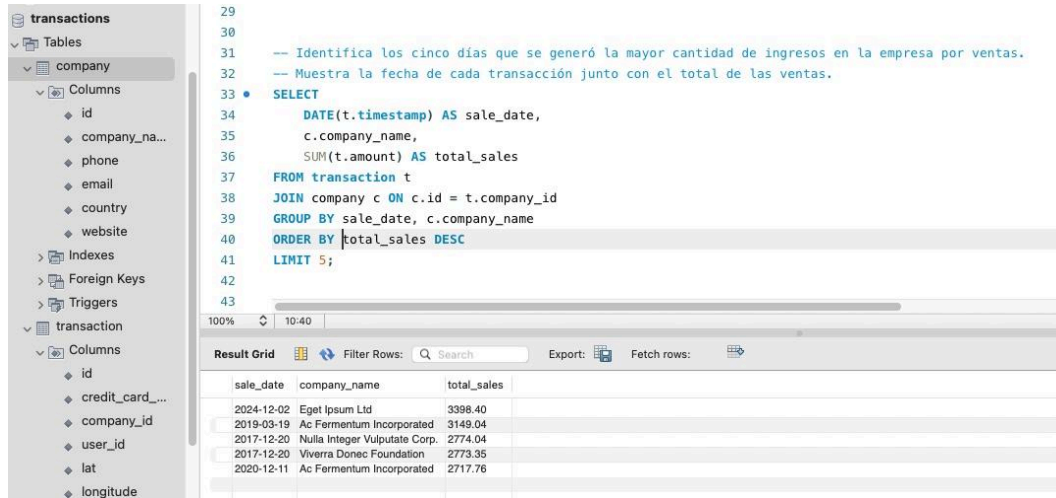
id	credit_card_id	company_id	user_id	lat	longitude	timestamp	amount	declined
00138D3B-206D-4C03-94B7-63A2676EB984	CcS-4899	b-2222	318	41.3781	12.447	2020-03-25 10:43:43	426.36	0
0013C1B6-3B84-4D6C-8154-E2B3FEBCA8E9	CcS-5070	b-2222	489	41.3814	2.18176	2020-12-17 18:15:37	316.90	0
00201A11-2E62-44C4-941D-198FC8DB77F0	CcU-3512	b-2222	193	55.5704	-3.65129	2021-01-22 23:44:27	453.04	0
00235618-0A5C-4D49-9DCB-B3A9405D8923	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
00687139-48B2-4FFA-8E73-B20376F04AB4	CcS-4870	b-2222	289	51.1966	10.4669	2019-03-09 19:37:49	524.84	0
0074F4DD-32F1-4827-8758-55896314623A	CcS-8081	b-2222	3500	39.7016	-8.50325	2016-12-26 23:06:57	491.90	0
00AAB0B7-3D86-4D7F-B81D-13EF73D7D0A0	CcS-6707	b-2222	3716	55.7657	-2.76745	2021-04-15 03:06:50	167.15	0

3.2 Lista las empresas que han realizado transacciones por un amount superior a la media de todas las transacciones.

Nivel 2

Ejercicio 1

Identifica los cinco días que se generó la mayor cantidad de ingresos en la empresa por ventas. Muestra la fecha de cada transacción junto con el total de las ventas.



The screenshot shows a database interface with a sidebar on the left displaying a schema tree. The 'transactions' table is selected, showing columns: id, company_name, phone, email, country, website, credit_card_id, company_id, user_id, lat, and longitude. The main area displays a SQL query:

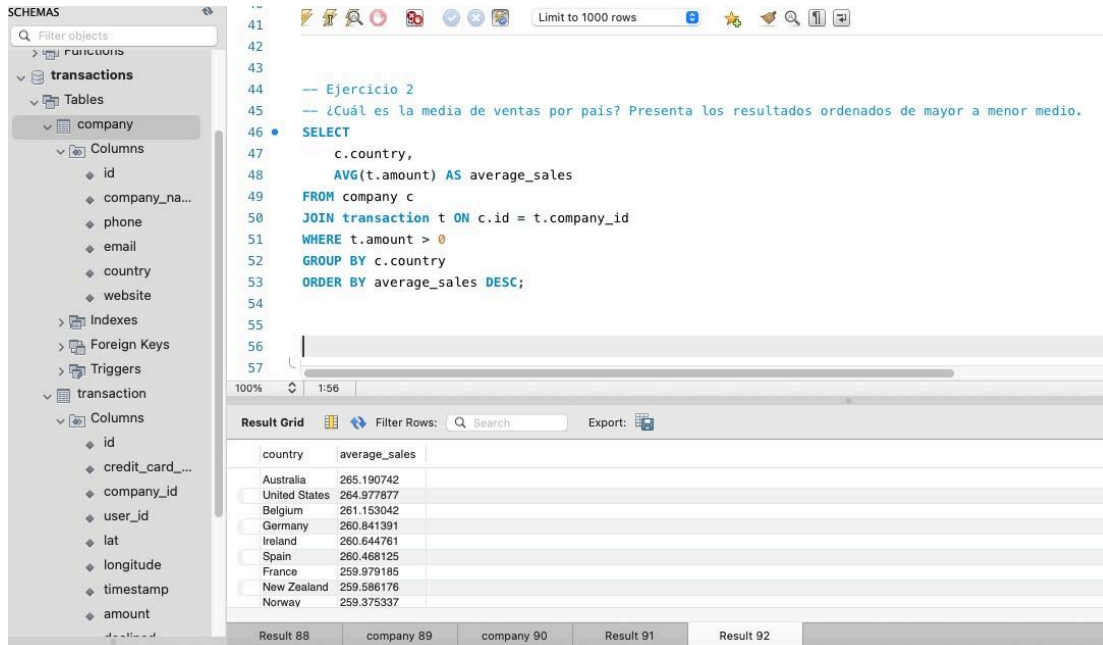
```
29
30
31 -- Identifica los cinco días que se generó la mayor cantidad de ingresos en la empresa por ventas.
32 -- Muestra la fecha de cada transacción junto con el total de las ventas.
33 • SELECT
34     DATE(t.timestamp) AS sale_date,
35     c.company_name,
36     SUM(t.amount) AS total_sales
37 FROM transaction t
38 JOIN company c ON c.id = t.company_id
39 GROUP BY sale_date, c.company_name
40 ORDER BY total_sales DESC
41 LIMIT 5;
42
43
```

Below the query, the 'Result Grid' shows the following data:

sale_date	company_name	total_sales
2024-12-02	Eget Ipsum Ltd	3398.40
2019-03-19	Ac Fermentum Incorporated	3149.04
2017-12-20	Nulla Integer Vulputate Corp.	2774.04
2017-12-20	Viverra Donec Foundation	2773.35
2020-12-11	Ac Fermentum Incorporated	2717.76

Ejercicio 2

¿Cuál es la media de ventas por país? Presenta los resultados ordenados de mayor a menor medio.



The screenshot shows a database interface with a sidebar on the left displaying a schema tree. The 'transactions' table is selected, showing columns: id, company_name, phone, email, country, website, credit_card_id, company_id, user_id, lat, longitude, timestamp, and amount. The main area displays a SQL query:

```
41
42
43 -- Ejercicio 2
44 -- ¿Cuál es la media de ventas por país? Presenta los resultados ordenados de mayor a menor medio.
45
46 • SELECT
47     c.country,
48     AVG(t.amount) AS average_sales
49 FROM company c
50 JOIN transaction t ON c.id = t.company_id
51 WHERE t.amount > 0
52 GROUP BY c.country
53 ORDER BY average_sales DESC;
54
55
56
57
```

Below the query, the 'Result Grid' shows the following data:

country	average_sales
Australia	265.190742
United States	264.977877
Belgium	261.153042
Germany	260.841391
Ireland	260.644761
Spain	260.468125
France	259.979185
New Zealand	259.586176
Norway	259.375337

Ejercicio 3

En tu empresa, se plantea un nuevo proyecto para lanzar algunas campañas publicitarias para hacer competencia a la compañía “Non Institute”. Para ello, te piden la lista de todas las transacciones realizadas por empresas que están ubicadas en el mismo país que esta compañía.

3.1 Muestra el listado aplicando JOIN y subconsultas.

SCHEMAS
Limit to 1000 rows

Filter objects

- Functions
- transactions
 - Tables
 - company
 - Columns
 - id
 - company_na...
 - phone
 - email
 - country
 - website
 - Indexes
 - Foreign Keys
 - Triggers
 - transaction
 - Columns
 - id
 - credit_card_...
 - company_id
 - user_id
 - lat
 - longitude
 - timestamp
 - amount

```

59
60 • SELECT
61     t.id AS transaction_id,
62     t.company_id,
63     c.company_name,
64     c.country,
65     t.timestamp,
66     t.amount
67 FROM transaction t
68 JOIN company c ON c.id = t.company_id
69 WHERE c.country = (
70     SELECT country
71     FROM company
72     WHERE company_name = 'Non Institute'
73 );
74

```

100% 3/73

Result Grid
Filter Rows:
Export:
Fetch rows:

transaction_id	company_id	company_name	country	timestamp	amount
008629B4-C9A9-406C-A3D2-71FDA47BC546	b-2246	Sed Nunc Ltd	United Kingdom	2015-07-30 12:12:42	486.44
00B72BA4-5A43-4B8E-B13F-2D57535AA17A	b-2246	Sed Nunc Ltd	United Kingdom	2017-10-26 22:08:26	414.06
01F075B1-D7AE-4D02-AAD9-5FFD72A43F3C	b-2246	Sed Nunc Ltd	United Kingdom	2018-01-27 13:44:36	103.73
023FFCEB-E618-4938-BF56-C8DF80540ADD	b-2246	Sed Nunc Ltd	United Kingdom	2016-12-19 11:53:45	219.28
02683BEB-EF91-4564-957B-DE6F1662AB7C5	b-2246	Sed Nunc Ltd	United Kingdom	2017-01-10 21:09:29	326.87
02C2F29E-CEF2-4C1E-A594-F476E8F279C0	b-2246	Sed Nunc Ltd	United Kingdom	2020-05-24 01:17:29	155.72
02F468DC-426C-47C2-8B0A-D8B25B7A81AF	b-2246	Sed Nunc Ltd	United Kingdom	2023-03-17 16:36:27	305.35
0306BE3B-817B-4A49-934E-0E439291A104	b-2246	Sed Nunc Ltd	United Kingdom	2021-12-02 23:06:02	339.58
0347BFE6-8EB5-4387-B187-0E78E8F2B8FB	b-2246	Sed Nunc Ltd	United Kingdom	2021-12-30 08:40:24	172.93

Result 93
company 94
company 95
Result 96
Result 97
Result 98

3.2 Muestra el listado aplicando solo subconsultas.

```
SELECT t.*
FROM transaction t
WHERE company_id IN (
    SELECT id
    FROM company
    WHERE country = (
        SELECT country
        FROM company
        WHERE company_name = 'Non Institute'
        LIMIT 1
    )
    LIMIT 1
);
```

id	credit_card...	company_id	user_id	lat	longitude	timestamp	amount	declined	country
008629B4-C9A9-406C-A3D2-71FDA47BC546	CcS-7063	b-2246	2482	45.7666	4.83048	2015-07-30 12:12:42	486.44	0	United Kingdom
00B72BA4-54A3-4B8E-B13F-2D57535AA17A	CcS-8475	b-2246	3894	55.6212	-3.7546	2017-10-26 22:08:26	414.06	0	United Kingdom
01F075B1-D7AE-4D02-AAD9-5FFD72A43F3C	CcS-8700	b-2246	4119	55.856	-3.15783	2018-01-27 13:44:36	103.73	0	United Kingdom
023FFCEB-6B18-4938-BF56-C8DF805A0ADD	CcS-7816	b-2246	3235	46.3568	1.82755	2016-12-19 11:53:45	219.28	0	United Kingdom
02843BEB-EF91-4564-957B-D8F1662AB7C5	CcS-9471	b-2246	4890	42.1332	12.396	2017-01-10 21:09:29	326.87	0	United Kingdom
02C2F29E-CEF2-4C1E-A594-F478E8F279C0	CcS-9082	b-2246	4501	39.4662	-0.373246	2020-05-24 01:17:29	155.72	0	United Kingdom
02F468DC-426C-47C2-8B0A-D8B25B7A81AF	CcS-6913	b-2246	2332	52.175	19.3508	2023-03-17 16:36:27	305.35	0	United Kingdom
0396BEB3-817B-4A49-894E-0E439291A1D4	CcS-5302	b-2246	721	51.9233	16.926	2021-12-02 23:06:02	339.58	0	United Kingdom
0347BF7E-AEB6-4087-B187-0E78E8F28BFB	CcS-7674	b-2246	3093	45.768	4.84271	2021-12-30 08:40:24	172.93	0	United Kingdom
03AEB0DE-DC97-4B03-9C57-6AEDB78026FD	CcS-6121	b-2246	1540	50.8113	10.3145	2018-11-11 11:28:49	114.77	0	United Kingdom
03CA36D3-88FF-40BF-BFD4-4CC7DA4EED2B	CcS-8036	b-2246	3455	52.5178	13.4131	2017-02-25 15:38:21	440.27	0	United Kingdom
04A84185-6E7F-4DEB-B9EE-CE997C91NE27	CcS-8761	b-2246	2910	41.8649	19.4607	2018-06-17 17:49:49	541.65	0	United Kingdom

Nivel 3

Ejercicio 1

Presenta el **nombre, teléfono, país, fecha y amount**, de aquellas empresas que realizaron transacciones con un valor comprendido entre 350 y 400 euros y en alguna de estas fechas:

- 29 de abril de 2015,
- 20 de julio de 2018
- 13 de marzo de 2024.

Ordena los resultados de mayor a menor cantidad.

SCHEMAS

Filter objects

transactions

Tables

company

Columns

id

company_na...

phone

email

country

website

Indexes

Foreign Keys

Triggers

transaction

Columns

id

credit_card_...

company_id

user_id

lat

longitude

timestamp

amount

declined

Object Info

Session

Table: company

Limit to 1000 rows

116

-- Ordena los resultados de mayor a menor cantidad.

117

118

119 • SELECT

120 c.company_name,

121 c.phone,

122 c.country,

123 DATE(t.timestamp) AS transaction_date,

124 t.amount

125 FROM company c

126 JOIN transaction t ON c.id = t.company_id

127 WHERE

128 t.amount BETWEEN 350 AND 400

129 AND DATE(t.timestamp) IN ('2015-04-29', '2018-07-20', '2024-03-13')

130 ORDER BY t.amount DESC;

131

132

133

100%

1:132

Result Grid

Filter Rows: Search

Export:

company_name	phone	country	transaction_d...	amount
Aliquam PC	01 45 73 52 16	Germany	2024-03-13	399.84
Auctor Mauris Vel LLP	08 09 28 74 14	United States	2018-07-20	399.51
At Pede Corp.	06 14 48 33 15	Italy	2015-04-29	390.69
Aliquam PC	01 45 73 52 16	Germany	2024-03-13	388.29
Orci Adipiscing Limited	03 18 00 77 81	United Kingdom	2018-07-20	373.71
Fringilla LLC	08 29 15 93 57	New Zealand	2015-04-29	367.62
Pede Cum Ltd	07 62 26 48 38	Norway	2018-07-20	356.87
Auctor Mauris Vel LLP	08 09 28 74 14	United States	2024-03-13	353.75

Ejercicio 2

Necesitamos optimizar la asignación de los recursos y dependerá de la capacidad operativa que se requiera, por lo que te piden la información sobre la cantidad de transacciones que realizan las empresas, pero el departamento de recursos humanos es exigente y quiere un **listado de las empresas en las que especifiques si tienen más de 400 transacciones o menos.**

Filter objects

transactions

Tables

company

Columns

id

company_na...

phone

email

country

website

Indexes

Foreign Keys

Triggers

transaction

Columns

id

credit_card_...

company_id

user_id

lat

longitude

timestamp

amount

declined

Object Info

Session

table: company

Columns:

Limit to 1000 rows

Ejercicio 2

Necesitamos optimizar la asignación de los recursos y dependerá de la capacidad operativa que se requiera,

por lo que te piden la información sobre la cantidad de transacciones que realizan las empresas,

pero el departamento de recursos humanos es exigente y

quiere un listado de las empresas en las que especifiques si tienen más de 400 transacciones o menos.

SELECT

c.company_name,

COUNT(t.id) AS total_transactions,

CASE

WHEN COUNT(t.id) > 400 THEN 'More than 400'

ELSE 'Fewer than 400'

END AS transaction_status

FROM company c

LEFT JOIN transaction t ON c.id = t.company_id

GROUP BY c.id, c.company_name

ORDER BY total_transactions DESC;

100%

4:137

Result Grid

Filter Rows: Search

Export:

company_name	total_transaccio...	transaction_stat...
Mattis Foundation	418	More than 400
Elit Etiam Laoreet Associates	418	More than 400
Euismod Mauris Institute	418	More than 400
Amet Luctus Vulputate Foundation	411	More than 400
Magna A Neque Industries	410	More than 400
Risus Associates	407	More than 400
Dui Quis Institute	402	More than 400
Nec Luctus LLC	399	Fewer than 400
Fringilla LLC	397	Fewer than 400
Lorem Eu Incorporated	380	Fewer than 400