

Tarea S2.01. Nociones básicas SQL

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.

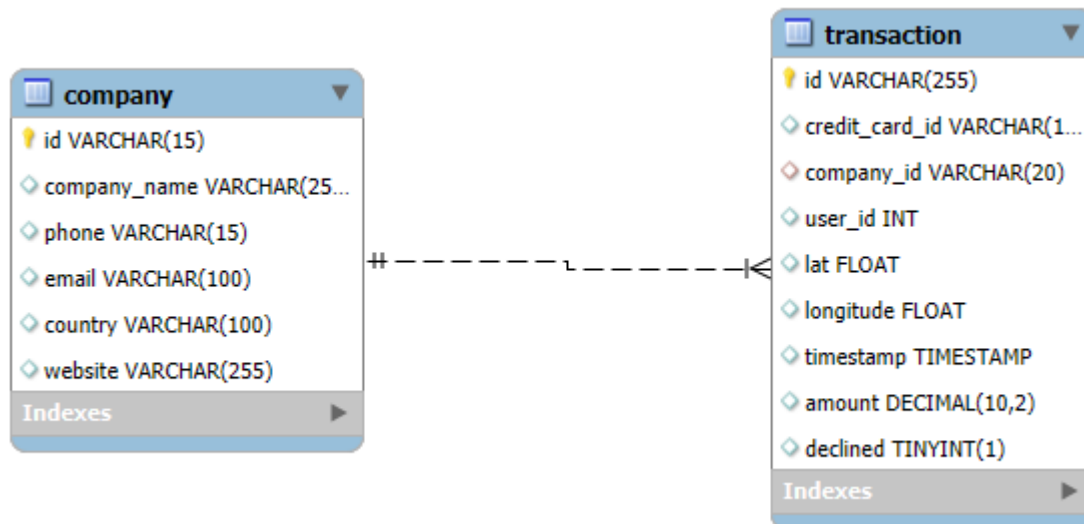


diagrama entidad relación

En este diagrama se puede visualizar y consultar las transacciones comerciales realizadas por diversas compañías. Cada transacción (que se puede identificar como venta) incluye la siguiente información:

- **Fecha y hora**
- **Ubicación geográfica**
- **Monto económico**
- **Resultado de la transacción (aceptada o rechazada)**

Con una relación de 1 :N de la tabla company a la tabla transaction

Ejercicio 2

Utilizando JOIN realizarás las siguientes consultas:

- Listado de los países que están generando ventas.

The screenshot shows a SQL IDE interface with two queries and their results.

Query 1 (Line 5-9):

```
5 SELECT DISTINCT company.country
6 FROM company
7 JOIN transaction
8 ON company.id = transaction.company_id
9 WHERE amount != 0;
```

Query 2 (Line 11-15):

```
11 SELECT DISTINCT company.country
12 FROM company
13 JOIN transaction
14 ON company.id = transaction.company_id
15 WHERE amount > 0;
```

Result Grid:

country
Germany
Australia
United States
New Zealand
Norway
United Kingdom
Italy

Action Output:

#	Time	Action	Message	Duration /
11	11:53:14	SELECT company.id, company_name, phone, country, DATE(timestamp) as fecha, amount FROM compan...	10 row(s) returned	0.062 sec /
12	12:29:43	SELECT DISTINCT company.country FROM company JOIN transaction ON company.id = transaction.com...	15 row(s) returned	0.203 sec /
13	12:29:46	SELECT DISTINCT company.id, company_name, company.country FROM company JOIN transaction ON ...	100 row(s) returned	0.391 sec /
14	12:30:25	SELECT DISTINCT company.country FROM company JOIN transaction ON company.id = transaction.com...	15 row(s) returned	0.031 sec /

- Desde cuántos países se generan las ventas.

The screenshot shows the SQL Server Enterprise Manager interface. On the left, the 'Schemas' pane is expanded, showing the 'transaction' table. The main window displays a SQL query with the following code:

```

16
17 --#2 Desde cuántos países se generan las ventas.
18 SELECT COUNT(DISTINCT country) as Num_Paises
19 FROM company
20 JOIN transaction
21 ON company.id = transaction.company_id
22 WHERE amount > 0;
23
24 --#3 Identifica a la compañía con la mayor media de ventas.
25
26 SELECT company.id, company_name, AVG(amount) as media_Ventas
27 FROM company

```

The 'Results' pane shows a single row with the value 15 for the 'Num_Paises' column.

The 'Output' pane shows the execution log with the following messages:

#	Time	Action	Message
13	12:29:46	SELECT DISTINCT company.id, company_name, company.country FROM company JOIN transaction ON ...	100 row(s) returned
14	12:30:25	SELECT DISTINCT company.country FROM company JOIN transaction ON company.id = transaction.com...	15 row(s) returned
15	12:31:10	SELECT COUNT(DISTINCT country) as Num_paises FROM company JOIN transaction ON company.id = tr...	1 row(s) returned
16	12:31:33	SELECT COUNT(DISTINCT country) as Num_Paises FROM company JOIN transaction ON company.id = t...	1 row(s) returned

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

The screenshot shows the SQL Server Enterprise Manager interface. On the left, the 'Schemas' pane is expanded, showing the 'transaction' table. The main window displays a SQL query with the following code:

```

52 ORDER BY media_Ventas DESC;
53
54 --#3 Identifica a la compañía con la mayor media de ventas.
55 SELECT company.id, company_name, AVG(amount) as media_Ventas
56 FROM company
57 JOIN transaction
58 ON company.id = transaction.company_id
59 Group by company_id, company_name
60 ORDER BY media_Ventas DESC
61 LIMIT 1;

```

The 'Results' pane shows a single row with the following data:

id	company_name	media_Ventas
b-2222	Ac Fermentum Incorporated	284.867160

The 'Output' pane shows the execution log with the following messages:

#	Time	Action	Message
21	10:27:53	SELECT * FROM transaction where declined = 1	237 row(s) returned
22	10:39:16	SELECT DISTINCT company.id, country FROM company JOIN transaction ON company.id = transaction.c...	100 row(s) returned
23	10:41:27	SELECT COUNT(DISTINCT country) FROM company JOIN transaction ON company.id = transaction.comp...	1 row(s) returned
24	10:45:08	SELECT company.id, company_name, AVG(amount) as media_Ventas FROM company JOIN transaction O...	1 row(s) returned

Ejercicio 3

Utilizando sólo subconsultas (sin utilizar JOIN):

- Muestra todas las transacciones realizadas por empresas de Alemania.

The screenshot shows the SQL Server Enterprise Manager interface. On the left, the 'transaction' table is selected under the 'Columns' tab. The 'Columns' list includes: id, credit_card_id, company_id, user_id, lat, longitude, timestamp, amount, and declined. The 'Table: transaction' section shows the column definitions: id (varchar(255)), credit_card_id (varchar(15)), company_id (varchar(20)), user_id (int), lat (float), longitude (float), timestamp (timestamp), amount (decimal(10,2)), and declined (tinyint(1)).

The query editor shows the following SQL query:

```

SELECT *
FROM transaction
WHERE company_id IN (SELECT id
FROM company
WHERE country = "Germany");

```

The 'Result Grid' displays the results of the query, showing columns: id, credit_card_id, company_id, user_id, lat, longitude, timestamp, amount, and declined. The results are filtered to show only transactions from Germany.

The 'Output' pane shows the execution progress of the query, with messages indicating the number of rows returned for each step.

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

The screenshot shows the SQL Server Enterprise Manager interface. On the left, the 'company' table is selected under the 'Columns' tab. The 'Columns' list includes: id, company_name, phone, email, country, and website. The 'Table: company' section shows the column definitions: id (int), company_name (varchar(255)), phone (varchar(20)), email (varchar(255)), country (varchar(255)), and website (varchar(255)).

The query editor shows the following SQL query:

```

SELECT id, company_name
FROM company
WHERE id IN (SELECT company_id
FROM transaction
WHERE amount > (
SELECT AVG(amount)
FROM transaction));

```

The 'Result Grid' displays the results of the query, showing columns: id, company_name, and company_id. The results are filtered to show only companies with transaction amounts above the average.

The 'Output' pane shows the execution progress of the query, with messages indicating the number of rows returned for each step.

- Eliminarán del sistema las empresas que carecen de transacciones registradas, entrega el listado de estas empresas.

SCHEMAS

Filter objects

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

Administration Schemas

Information

Column: **company_id**

Collation: utf8mb4_0900_ai_ci

Definition:

company_id varchar(20)

```

166 SELECT *
167 FROM company
168 WHERE id NOT IN (SELECT DISTINCT company_id
169 FROM transaction);
170
171
172 SELECT *
173 FROM company
174 LEFT JOIN transaction
175 ON company.id = transaction.company_id
  
```

Result Grid

id	company_name	phone	email	country	website
NULL	NULL	NULL	NULL	NULL	NULL

company 19 x

Output

#	Time	Action	Message
32	11:16:49	SELECT * FROM company WHERE id NOT IN (SELECT DISTINCT company_id FROM transaction)	0 row(s) returned
33	11:17:37	SELECT * FROM company LEFT JOIN transaction ON company.id = transaction.company_id WHERE t.id ...	Error Code: 1054. Unknown column 't.id' in 'where clause'
34	11:17:46	SELECT * FROM company LEFT JOIN transaction ON company.id = transaction.company_id WHERE tran...	0 row(s) returned
35	11:18:41	SELECT * FROM company WHERE id NOT IN (SELECT DISTINCT company_id FROM transaction)	0 row(s) returned

Object Info Session

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.

```

70 #
71 #Identifica los cinco días que se generó la mayor cantidad de ingresos en la empresa por ventas.
72 #Muestra la fecha de cada transacción junto con el total de las ventas.
73
74 SELECT DATE(timestamp) as fecha, SUM(amount) as total_ventas #!!! si dejo el timestamp, me considera la hora, dejando fuera transacciones que ocurrieron el mismo día q
75 FROM transaction
76 GROUP BY DATE(timestamp)
77 ORDER BY total_ventas DESC
78 LIMIT 5;
79
80 #¿Cuál es la media de ventas por país? Presenta los resultados ordenados de mayor a menor medio.
81
  
```

Result Grid

fecha	total_ventas
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

Result 20 x

Output

#	Time	Action	Message	Duration / Fetch
18	12:35:43	SELECT * FROM company WHERE id IN (SELECT company_id FROM transaction WHERE amount > (SE...	100 row(s) returned	0.125 sec / 0.000
19	12:36:04	SELECT id, company_name FROM company WHERE id IN (SELECT company_id FROM transaction WHE...	100 row(s) returned	0.094 sec / 0.000
20	12:38:15	SELECT DATE(timestamp) as fecha, SUM(amount) as total_ventas #!!! si dejo el timestamp, me considera l...	Error Code: 1064. You have an error in your SQL syntax; check the manual that corresponds to your MySQL...	0.000 sec
21	12:38:21	SELECT DATE(timestamp) as fecha, SUM(amount) as total_ventas #!!! si dejo el timestamp, me considera l...	5 row(s) returned	0.109 sec / 0.000

Ejercicio 2

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

The screenshot shows a database management tool interface. On the left, a 'SCHEMAS' panel displays a tree view of database objects, including 'transaction' and 'Columns'. The 'Columns' panel shows the definition of 'company_id' as 'varchar(20)'. The main area displays a SQL query:

```
28
29 #¿Cuál es la media de ventas por país? Presenta los resultados ordenados de mayor a menor medio.
30
31 • SELECT country, AVG(amount) as media_ventas
32 FROM company
33 JOIN transaction
34 ON company.id = transaction.company_id
35 GROUP BY country
36 ORDER BY media_ventas DESC;
37
38 #En tu empresa, se plantea un nuevo proyecto para lanzar algunas campañas publicitarias para hacer
```

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

country	media_ventas
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
Netherlands	258.425178

At the bottom, the 'Action Output' panel shows the execution results of the query:

#	Time	Action	Message
34	11:17:46	SELECT * FROM company LEFT JOIN transaction ON company.id = transaction.company_id WHERE tran...	0 row(s) returned
35	11:18:41	SELECT * FROM company WHERE id NOT IN (SELECT DISTINCT company_id FROM transaction)	0 row(s) returned
36	11:20:56	SELECT company_id, timestamp, SUM(amount) as total_ventas FROM transaction GROUP BY company_i...	5 row(s) returned
37	11:22:11	SELECT country, AVG(amount) as media_ventas FROM company JOIN transaction ON company.id = trans...	15 row(s) returned

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.

Muestra el listado aplicando JOIN y subconsultas.

Muestra el listado aplicando solo subconsultas.

Navigator

SCHEMAS

Filter objects

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

Administration

Information

Column: company_id

Collation: utf8mb4_0900_ai_ci

Definition: company_id varchar(20)

Query 1: nociones_basicas_sql_sprint2*

sprint2_nivel2Tania* x sprint2_nivel3_Tania*

Don't Limit

```

72 WHERE company_name = "Non Institute")
73 GROUP BY company_id;
74
75 SELECT transaction.id, company.company_name, transaction.amount, transaction.timestamp
76 FROM transaction
77 JOIN company ON transaction.company_id = company.id
78 WHERE company.country = (SELECT country
79 FROM company
80 WHERE company_name = 'Non Institute')
81 ORDER BY transaction.timestamp DESC;
82

```

Result Grid

id	company_name	amount	timestamp
DD000334-AFFF-4DC5-8378-5420-B70569A	Enim Conditum Ltd	485.81	2024-12-31 15:10:31
275A59C1-B599-491F-856E-E99CC122A120	Non Migne LLC	539.45	2024-12-31 12:55:18
00F94C0B-AC1A-4B05-AC21-486475C2838A	Act Libero Inc.	248.19	2024-12-31 08:03:47
A4653920-06AD-43F0-82EE-F942CF8C7177	Amet Faucibus Ut Foundation	477.83	2024-12-31 01:50:51
973F228D-E107-4EC5-8A40-015EF3603CED	Amet Faucibus Ut Foundation	342.82	2024-12-31 01:41:35
6480E80F-6947-4789-980B-AEC2D84EE5F3	Amet Faucibus Ut Foundation	92.91	2024-12-30 23:32:45
976A9F88-A35D-4E54-91E1-8AADD7F84C6D	Viverra Donec Foundation	53.31	2024-12-30 18:52:40
89B32258-3CCB-41CA-BF46-92155EF27EF4	Viverra Donec Foundation	130.59	2024-12-30 18:49:37
36B465E3-9466-40ED-AC22-A02676F69EEA	Enim Conditum Ltd	127.09	2024-12-30 18:47:44
8A9A1E0F-0F6A-4B41-DEA7-EE29A1F0B6EA	Enim Conditum Ltd	146.71	2024-12-30 14:47:10

Result 11 x

Output

Action Output

#	Time	Action	Message
39	11:25:52	SELECT transaction.company_id, company_name, count(*) as transacciones FROM company JOIN transa...	9 row(s) returned
40	11:26:26	SELECT transaction.id, company.company_name, transaction.amount, transaction.timestamp FROM transa...	13776 row(s) returned
41	11:27:14	SELECT transaction.id #, company.company_name, transaction.amount, transaction.timestamp FROM tran...	9 row(s) returned
42	11:28:18	SELECT transaction.id, company.company_name, transaction.amount, transaction.timestamp FROM transa...	13776 row(s) returned

Object Info Session

solo subqueries

Don't Limit

```

101
102 SELECT transaction.id
103 FROM transaction
104 WHERE company_id IN
105 (
106 SELECT company.id
107 FROM company
108 WHERE company.country =
109 (
110 SELECT company.country
111 FROM company
112 WHERE company_name = 'Non Institute'));

```

Result Grid

id
008629B4-C9A9-406C-A3D2-71FDA47BC546
00B72BA4-54A3-4B8E-B13F-2D57535AA17A
01F075B1-D7AE-4D02-AAD9-5FFD72A43F3C
023FFCE8-E618-4938-BF56-C8DF80540ADD
026838E8-EF91-4564-957B-D6F1662AB7C5
02C2F29E-CE24-4C1E-A594-F476E8F279C0
02F468DC-426C-47C2-880A-D8B25B7A81AF

transaction 26 x

Output

Action Output

#	Time	Action	Message	Duration / Fetch
24	12:54:13	SELECT company.id FROM company WHERE company.country = (SELECT company.country FROM com...	9 row(s) returned	0.000 sec / 0.000 sec
25	12:58:06	SELECT transaction.id, company.company_name, transaction.amount, transaction.timestamp FROM transa...	13776 row(s) returned	0.109 sec / 0.000 sec
26	12:58:28	SELECT transaction.id #, company.company_name, transaction.amount, transaction.timestamp FROM tran...	13776 row(s) returned	0.062 sec / 0.000 sec
27	12:58:43	SELECT transaction.id FROM transaction WHERE company_id IN (SELECT company.id FROM company ...	13776 row(s) returned	0.000 sec / 0.000 sec

Nivel 3

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 y 13 de marzo de 2024. Ordena los resultados de mayor a menor cantidad.

116

#Presenta el nombre, teléfono, país, fecha y amount, de aquellas empresas que realizaron transacciones con un valor comprendido entre 350 y 400 euros

117

#y en alguna de estas fechas: 29 de abril de 2015, 20 de julio de 2018 y 13 de marzo de 2024.

118

#Ordena los resultados de mayor a menor cantidad.

119

120

• SELECT company.id, company_name, phone, country, DATE(timestamp) as fecha, amount

121

FROM company

122

JOIN transaction

123

ON company.id = transaction.company_id

124

WHERE amount BETWEEN 350 AND 400

125

AND DATE(transaction.timestamp) IN ("2015-04-29", "2018-07-20", "2024-07-02")

126

ORDER BY amount DESC;

127

Result Grid

Filter Rows:

Edit

Export/Import:

Wrap Cell Content:

15

Fetch rows:

id

008629B4-C9A9-406C-A3D2-71FDA478C546

00B72BA4-54A3-4B8E-B13F-2D57535AA17A

01F075B1-D7AE-4D02-AA09-5FFD72A43F3C

023FFCE8-E618-4938-BF56-C8DF80540ADD

026838EB-EF91-4564-957B-D6F1662AB7C5

02C2F29E-CEP2-4C1E-A594-F476E8F279C0

02F468DC-426C-47C2-880A-D8B25B7A81AF

transaction 26

x

Apply

Output

Action Output

#	Time	Action	Message	Duration / Fetch
24	12:54:13	SELECT company.id FROM company WHERE company.country = (SELECT company.country FROM com...	9 row(s) returned	0.000 sec / 0.000 sec
25	12:58:06	SELECT transaction.id, company.company_name, transaction.amount, transaction.timestamp FROM transa...	13776 row(s) returned	0.109 sec / 0.000 sec
26	12:58:28	SELECT transaction.id #, company.company_name, transaction.amount, transaction.timestamp FROM tran...	13776 row(s) returned	0.062 sec / 0.000 sec
27	12:58:43	SELECT transaction.id FROM transaction WHERE company_id IN (SELECT company.id FROM company ...	13776 row(s) returned	0.000 sec / 0.000 sec

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.

133
134
135
136
137
138
139
140
141
142
143
144

#USAR CASE#
SELECT company_id, company_name, COUNT(*) as numTransacciones,
CASE WHEN COUNT(transaction.id) > 400 THEN 'Más de 400 transacciones'
ELSE '400 transacciones o menos'
END AS "capacidad operativa"
FROM transaction
JOIN company
ON company.id = transaction.company_id
GROUP BY company_id, company_name
ORDER BY numTransacciones DESC

Result Grid

Filter Rows: | Export: | Wrap Cell Contents: |

company_id	company_name	numTransacciones	capacidad operativa
b-2222	Ac Fermentum Incorporated	2401	Más de 400 transacciones
b-2302	Nunc Interdum Incorporated	1999	Más de 400 transacciones
b-2330	Donec Fringilla PC	1593	Más de 400 transacciones
b-2366	Mauris Institute	1586	Más de 400 transacciones
b-2614	Rutrum Non Inc.	1585	Más de 400 transacciones
b-2350	Aliquet Vel Vulputate Incorporated	1583	Más de 400 transacciones
b-2566	Aliquam PC	1576	Más de 400 transacciones

Result 30 x

Read Or

Output

Action Output

#	Time	Action	Message	Duration / Fetch
29	13:11:35	SELECT company_id, company_name, COUNT(*) as numTransacciones, CASE WHEN COUNT(transaction...	100 row(s) returned	0.235 sec / 0.000 sec
30	13:12:18	SELECT company_id, company_name, COUNT(*) as numTransacciones, CASE WHEN COUNT(transaction...	100 row(s) returned	0.140 sec / 0.000 sec
31	13:12:42	SELECT company_id, company_name, COUNT(*) as numTransacciones, CASE WHEN COUNT(transaction...	100 row(s) returned	0.125 sec / 0.000 sec
32	13:13:23	SELECT company_id, company_name, COUNT(*) as numTransacciones, CASE WHEN COUNT(transaction...	100 row(s) returned	0.140 sec / 0.000 sec