

# EJERCICIS SPRINT 2

## 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.

### TAULES IMPORTADES

The screenshot shows the MySQL Workbench interface. The 'Navigator' pane on the left displays the database schema, including tables like 'company', 'transaction', 'union', and 'world'. The 'Table: company' is selected, and its columns are listed: id (PK, varchar(15)), company\_name (varchar(255)), phone (varchar(15)), email (varchar(100)), country (varchar(100)), and website (varchar(255)). The 'Result Grid' pane shows the data for the 'company' table, with columns: id, company\_name, phone, email, country, and website. The data includes entries for companies like 'Ac Permentum Incorporated', 'Magna A Neque Industries', 'Fusce Corp.', etc.

The screenshot shows the MySQL Workbench interface. The 'Navigator' pane on the left displays the database schema, including tables like 'company', 'transaction', 'union', and 'world'. The 'Table: transaction' is selected, and its columns are listed: id (PK, varchar(15)), company\_name (varchar(255)), phone (varchar(15)), email (varchar(100)), country (varchar(100)), and website (varchar(255)). The 'Result Grid' pane shows the data for the 'transaction' table, with columns: id, credit\_card\_id, company\_id, user\_id, lat, longitude, timestamp, amount, and declined. The data includes entries for transactions like '03C620 8E-D90A-1859-B4E2-84C299AD3802', '046FBA7E-99C9-4D24-F0D1-C0B689713128', etc.

## Mostra les característiques principals de l'esquema creat i explica les diferents taules i variables que existeixen

Hemos cargado dos archivos suministrados por ITAcademy en MySQL Workbench. Ejecutamos el primer archivo llamado *estructure\_dades* que nos ha creado una base de datos llamada **Transactions**. Ejecutamos el segundo archivo llamado *dades\_introduir* y nos crea dos tablas con sus columnas y sus datos en la base de datos Transactions. Las dos tablas se llaman *company* y *transaction*.

### TABLA COMPANY

Está formada por 6 columnas:

Id | company\_name | phone | email | country | webside

Contiene información sobre empresas. Todas las columnas son del tipo VARCHAR, es decir, aceptan letras y números. La primera columna es el identificador único de cada empresa. Es una Primary Key.

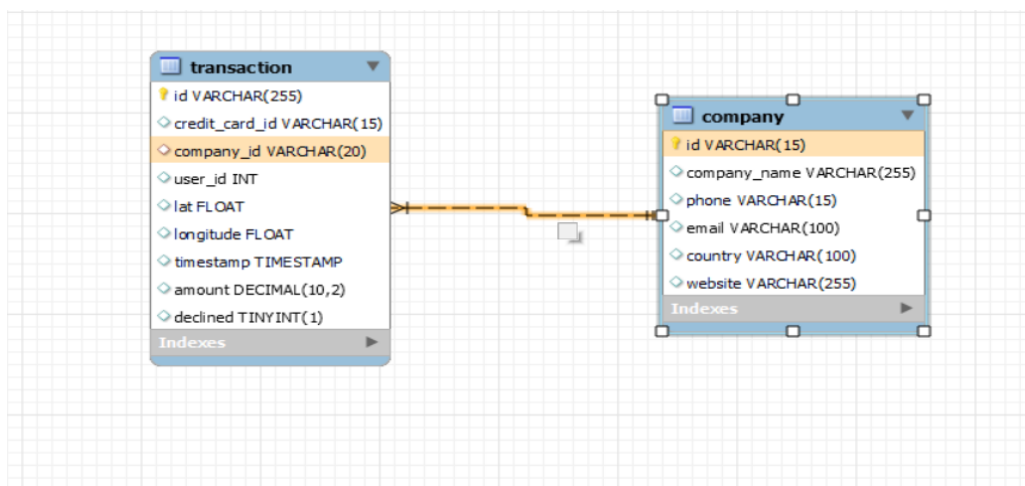
### TABLA TRANSACTION

Está formada por 9 columnas:

Id | credit\_card\_id | company\_id | user\_id | lat | longitude | timestamp | amount | declined

Contiene información sobre transacciones económicas con mis clientes con los datos necesarios para realizar esas transacciones. Las columnas son de diferentes tipos. Las columnas Id, credit\_card y la columna company\_id son del tipo VARCHAR. La columna user\_id es del tipo INT, es decir, solo acepta números enteros. Las columnas lat y longitude es del tipo FLOAT, es decir, puede aceptar números decimales. La columna timestamp es del tipo TIMESTAMP, es decir, solo acepta fecha y hora en el formato AAAA-MM-DD HH:MM:SS. La columna amount es del tipo DECIMAL, en este caso limitado a 2 decimales, acepta números siempre con dos decimales, y la columna declined es del tipo TINYINT, es decir, es del tipo boolean, solo acepta dos valores, true(1) o false(0).

La columna *company\_id* es igual a la columna Id de la tabla Company. La company\_id es una Foreign Key ya que se repite en la columna, una misma compañía puede tener varias transacciones.



## - Exercici 2

Utilitzant JOIN realitzaràs les següents consultes:

**Llistat dels països que estan fent compres**

```
1  -- Utilizo declined ya que solo tengo
2  -- en cuenta transacciones finalizadas ok
3  • SELECT DISTINCT c.country AS paises
4  FROM company c
5  JOIN transaction t ON c.id=t.company_id
6  WHERE t.declined=0;
7
```

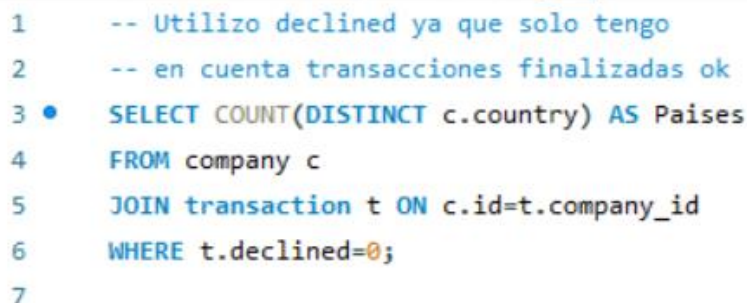


países
Canada
Germany
Italy
United Kingdom
Sweden
Ireland
United States
Norway
France
New Zealand

#	Time	Action	Message
3	11:34:25	SELECT distinct c.country as paises from company c join transaction t on c.id=t.company_id where t.de...	15 row(s) returned

**Des de quants països es realitzen les compres**



```
1  -- Utilizo declined ya que solo tengo
2  -- en cuenta transacciones finalizadas ok
3  • SELECT COUNT(DISTINCT c.country) AS Países
4  FROM company c
5  JOIN transaction t ON c.id=t.company_id
6  WHERE t.declined=0;
7
```

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

	Países
▶	15

Result 8 x

Output

Action Output

#	Time	Action	Message
✓ 5	11:47:59	select count(distinct c.country) as Países from company c join transaction t on c.id=t.company_id where ...	1 row(s) returned

Identifica la companyia amb la mitjana més gran de vende

```

23 • SELECT c.company_name, ROUND(AVG(t.amount), 2) AS MediaVentas
24 FROM company c
25 JOIN transaction t ON c.id = t.company_id
26 WHERE t.declined=0 -- Solo tengo en cuenta transacciones finalizadas
27 GROUP BY c.company_name
28 ORDER BY MediaVentas DESC
29 LIMIT 1;
30

```

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

	company_name	MediaVentas
▶	Eget Ipsum Ltd	481.86

Result 6 x

Output

Action Output

#	Time	Action	Message
✓ 1	10:11:49	SELECT c.company_name, ROUND(AVG(t.amount), 2) AS MediaVentas FROM company c JOIN transac...	1 row(s) returned

### - Exercici 3

Utilitzant només subconsultes (sense utilitzar JOIN):

Mostra totes les transaccions realitzades per empreses d'Alemanya

```

34 • SELECT *
35 FROM transaction
36 WHERE company_id IN (
37     SELECT id
38     FROM company
39     WHERE country = 'Germany' -- Tengo en cuenta TODAS las transacciones
40 );
41

```

Result Grid									
Filter Rows:									
Edit:									
Export/Import:									
Wrap Cell Content:									
	id	credit_card_id	company_id	user_id	lat	longitude	timestamp	amount	declined
▶	108B1D1D-5B23-A76C-55EF-C568E49A05DD	CcU-2938	b-2222	275	83.7839	-178.86	2021-07-07 17:43:16	293.57	0
	EA2C3281-C9C1-A387-44F8-729FB4B51C76	CcU-2938	b-2222	275	20.2004	-116.84	2021-05-09 10:25:08	119.36	1
	0DD2E608-5C9E-D1B3-4999-899F43AD735A	CcU-2959	b-2234	275	9.68811	130.282	2021-04-17 05:30:17	252.47	1
	AB069F53-965E-A2A8-CE06-CA8C4FD92501	CcU-2959	b-2234	275	1.64819	-158.007	2021-04-15 13:37:18	60.99	0
	0466A42E-47CF-8D24-FD01-C0B689713128	CcU-4219	b-2302	170	-43.9695	-117.525	2021-07-26 07:29:18	49.53	0
	0A476ED9-0C13-1962-F87B-D3563924B539	CcU-4359	b-2302	221	-56.4901	114.801	2022-02-26 20:33:54	430.49	0
	122DC333-E19F-D629-DCD8-9C54CF1EBB9A	CcU-4366	b-2302	221	29.6372	-166.173	2021-06-09 06:04:14	172.01	0
	135267BA-2E7D-957C-C42C-6450A2B3ED54	CcU-4520	b-2302	210	20.6724	14.9732	2021-12-29 20:38:23	17.97	0
	14CAE5B5-8FB1-3E4A-4C85-0EA4167534F4	CcU-4849	b-2302	189	-53.6202	93.0533	2021-12-31 00:29:42	388.04	0
	158A3ACB-541C-DBCC-65BD-6373CC67BF1C	CcU-4849	b-2302	183	42.5424	-170.347	2022-03-08 05:02:19	240.29	0

transaction 8 x

Output

Action Output

#	Time	Action	Message
✓ 1	10:20:34	SELECT * FROM transaction WHERE company_id IN ( SELECT id FROM company WHERE cou...	118 row(s) returned

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

```

1  -- Utilizo declined ya que no tengo
2  -- en cuenta solo las transacciones ok
3 • SELECT DISTINCT c.company_name
4 FROM company c
5 WHERE c.id IN (
6     SELECT t.company_id
7     FROM transaction t
8     WHERE t.declined=0 AND t.amount > (
9         SELECT AVG(amount) FROM Transaction
10     )
11 );
12

```

company\_name

- ▶ Lorem Eu Incorporated
- Non Institute
- Ut Semper Foundation
- Nunc Interdum Incorporated
- Ac Fermentum Incorporated
- Enim Condimentum Ltd
- Tortor Nunc Commodo Company

company 14 x

Output

Action Output

#	Time	Action	Message
1	12:17:21	SELECT DISTINCT c.company_name FROM company c WHERE c.id IN ( SELECT t.company_id F...	50 row(s) returned

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

Llistat:

Limit to 1000 rows

```

1 • SELECT id, company_name
2 FROM company
3 WHERE id NOT IN (SELECT DISTINCT company_id FROM transaction);

```

Result Grid

id	company_name
NULL	NULL

Para hacer una comprobación de si lo tenemos bien vamos a hacer lo contrario. Sabemos, haciendo un select distinct de la tabla company que tenemos 100 empresas registradas. Si hacemos la misma query sin usar el NOT debería dar 100 registros.

id	company_name
b-2222	Ac Fermentum Incorporated
b-2226	Magna A Neque Industries
b-2230	Fusce Corp.
b-2234	Convallis In Incorporated
b-2238	Ante Iaculis Nec Foundation
b-2242	Donec Ltd
b-2246	Sed Nunc Ltd
b-2250	Amet Nulla Donec Corporation
b-2254	Nascetur Ridiculus Mus Inc.
b-2258	Vestibulum Lorem PC
b-2262	Gravida Sagittis LLP
b-2266	Mus Aenean Egesta Foundation

company 16 x

Output

Action Output

#	Time	Action	Message
1	12:25:55	select id, company_name from company where id in (select distinct company_id from transaction) LIMIT 0,...	100 row(s) returned



Eliminar:

He usado el SET para desconectar el sistema de seguridad de Workbench ya que no me dejaba borrar una tabla que contiene una primary Key. Inmediatamente después lo he vuelto a activar.

```
5 • SET SQL_SAFE_UPDATES = 0;
6
7 • DELETE FROM company
8   WHERE id NOT IN (SELECT DISTINCT company_id FROM transaction);
```

✓	16	11:40:52	SET SQL_SAFE_UPDATES = 0	0 row(s) affected
✓	17	11:40:57	DELETE FROM company WHERE id NOT IN (SELECT DISTINCT company_id FROM transaction)	0 row(s) affected
✓	18	11:44:29	SET SQL_SAFE_UPDATES = 1	0 row(s) affected

## 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.

```
1  -- Utilizo declined ya que no tengo
2  -- en cuenta solo las transacciones ok
3 • SELECT DATE(timestamp), SUM(amount) AS total_sales
4   FROM transaction
5   WHERE declined=0
6   GROUP BY DATE(timestamp)
7   ORDER BY total_sales DESC
8   LIMIT 5;
9
```

Result Grid			Filter Rows:	Export:	Wrap Cell Content:	Fetch rows:
	date(timestamp)	total_sales				
▶	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				

Result 18 x

Output

Action Output

#	Time	Action	Message
✓ 1	12:32:41	select date(timestamp), sum(amount) as total_sales from transaction where declined=0 group by date(times...	5 row(s) returned

## -Exercici 2

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

```

1  -- Utilizo declined ya que no tengo
2  -- en cuenta solo las transacciones ok
3  • SELECT c.country, ROUND(AVG(t.amount), 2) AS average_sales
4  FROM transaction t
5  JOIN company c ON t.company_id=c.id
6  WHERE declined=0
7  GROUP BY c.country
8  ORDER BY average_sales DESC;
9

```

Result Grid

Filter Rows:

Export:

Wrap Cell Content:

	country	average_sales
▶	United States	287.53
	Ireland	285.83
	Sweden	276.67
	United Kingdom	271.77
	Canada	261.94
	Belgium	255.22

Result 21

Output

Action Output

#	Time	Action	Message
1	12:39:06	SELECT c.country, ROUND(AVG(t.amount), 2) AS average_sales FROM transaction t JOIN company c O...	15 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.

```

1  -- Utilizo declined ya que no tengo
2  -- en cuenta solo las transacciones ok
3  • SELECT t.*
4  FROM transaction t
5  JOIN company c ON t.company_id=c.id
6  WHERE c.country=(
7      SELECT country
8      FROM company
9      WHERE company_name='Non Institute' AND declined=0
10 );
11

```

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

	id	credit_card_id	company_id	user_id	lat	longitude	timestamp	amount	declined
▶	2B928E1C-EC14-A760-0A75-871477649D6A	CcU-2980	b-2246	275	-41.0496	161.685	2021-08-10 08:14:49	383.73	0
	4334349E-CEB0-3D68-A4D4-FEB7718A1ACE	CcU-3092	b-2310	275	-20.4859	150.87	2021-05-03 22:37:23	458.74	0
	147983D2-B7BA-C7BB-4CE3-8D7C2DE85ABB	CcU-2994	b-2326	133	66.2672	172.399	2021-08-09 00:58:07	309.45	0
	152598C2-029D-D684-4B66-91EDF393EBFF	CcU-2994	b-2326	126	-67.0189	-141.672	2021-07-05 03:10:00	395.43	0
	1B636B58-A2E8-7C69-D9C9-C54535DAFD3B	CcU-2994	b-2326	131	70.2543	-13.1336	2021-07-06 08:48:46	195.06	0
	20418DE5-B804-8E9B-BD7A-A95C1BFDBF5C	CcU-2994	b-2326	126	-79.1145	1.51481	2022-01-03 15:59:29	479.52	0

Result 3 x

Output

Action Output

#	Time	Action	Message
✓ 1	12:49:30	SELECT t.* FROM transaction t JOIN company c ON t.company_id=c.id WHERE c.country=( SELECT co...	93 row(s) returned

- Mostra el llistat aplicant solament subconsultes.

```

1  -- Utilizo declined ya que no tengo
2  -- en cuenta solo las transacciones ok
3  • SELECT *
4  FROM transaction
5  WHERE declined=0 AND company_id IN (
6      SELECT id
7      FROM company
8      WHERE country = (
9          SELECT country
10         FROM company
11         WHERE company_name = 'Non Institute'
12     )
13 );
14

```

Result Grid									
Filter Rows:									
Edit:									
Export/Import:									
Wrap Cell Content:									
	id	credit_card_id	company_id	user_id	lat	longitude	timestamp	amount	declined
▶	2B928E1C-EC14-A760-0A75-871477649D6A	CcU-2980	b-2246	275	-41.0496	161.685	2021-08-10 08:14:49	383.73	0
	4334349E-CEB0-3D68-A4D4-FEB7718A1ACE	CcU-3092	b-2310	275	-20.4859	150.87	2021-05-03 22:37:23	458.74	0
	147983D2-B7BA-C7BB-4CE3-8D7C2DE85ABB	CcU-2994	b-2326	133	66.2672	172.399	2021-08-09 00:58:07	309.45	0
	152598C2-029D-D684-4B66-91EDF393EBFF	CcU-2994	b-2326	126	-67.0189	-141.672	2021-07-05 03:10:00	395.43	0
	1B636B58-A2E8-7C69-D9C9-C54535DAFD3B	CcU-2994	b-2326	131	70.2543	-13.1336	2021-07-06 08:48:46	195.06	0
	20418DE5-B804-BE9B-8D7A-A95C1BFD8F5C	CcU-2994	b-2326	126	-79.1145	1.51481	2022-01-03 15:59:29	479.52	0

transaction 5 x

Output

Action Output

#	Time	Action	Message
✓	1 12:54:22	SELECT * FROM transaction WHERE declined=0 AND company_id IN ( SELECT id FROM company ...	93 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 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.

```

1  -- Utilizo declined ya que no tengo
2  -- en cuenta solo las transacciones ok
3  • SELECT c.company_name, c.phone, c.country, DATE(t.timestamp), t.amount
4  FROM transaction t
5  JOIN company c ON t.company_id = c.id
6  WHERE amount BETWEEN 100 AND 200
7  AND DATE(t.timestamp) IN ('2021-04-29', '2021-07-20', '2022-03-13')
8  AND t.declined=0
9  ORDER BY t.amount DESC;
10

```

Result Grid					
Filter Rows:					
Export:					
Wrap Cell Content:					
	company_name	phone	country	DATE(t.timestamp)	amount
▶	Interdum Feugiat Sed Associates	04 88 40 32 52	United Kingdom	2021-07-20	164.86
	Nunc Interdum Incorporated	05 18 15 48 13	Germany	2022-03-13	164.32
	Enim Condimentum Ltd	09 55 51 66 25	United Kingdom	2021-04-29	149.89
	Lorem Eu Incorporated	01 83 66 62 07	Canada	2021-07-20	133.39
	Nunc Interdum Incorporated	05 18 15 48 13	Germany	2021-04-29	111.51

Result 7 x

Output

Action Output

#	Time	Action	Message
✓	1 13:02:26	SELECT c.company_name, c.phone, c.country, DATE(t.timestamp), t.amount FROM transaction t JOIN c...	5 row(s) returned

## -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.

```
141 • SELECT c.id, c.company_name, COUNT(t.id) AS total_transacciones,  
142     CASE  
143         WHEN COUNT(t.id) >= 4 THEN 'mas de 4'  
144         ELSE 'menos de 4'  
145     END AS clasificacion  
146 FROM company c  
147 LEFT JOIN transaction t ON c.id=t.company_id  
148 GROUP BY c.id, c.company_name  
149 ORDER BY total_transacciones DESC;  
150
```

Result Grid				
Filter Rows: <input type="text"/>				
Export:				
Wrap Cell Content:				
	id	company_name	total_transacciones	clasificacion
▶	b-2302	Nunc Interdum Incorporated	105	mas de 4
	b-2346	Ut Semper Foundation	59	mas de 4
	b-2326	Enim Condimentum Ltd	57	mas de 4
	b-2278	Arcu LLP	56	mas de 4
	b-2362	Lorem Eu Incorporated	54	mas de 4
	b-2494	Malesuada PC	52	mas de 4
	b-2618	Non Institute	30	mas de 4
	b-2230	Fusce Corp.	2	menos de 4
	b-2234	Convallis In Incorporated	2	menos de 4
	b-2238	Ante Taculis Nec Foundation	2	menos de 4
Result 13 x				
Output				
Action Output				
#	Time	Action	Message	
✓ 1	13:15:09	SELECT c.id, c.company_name, COUNT(t.id) AS total_transacciones, CASE WHEN COUNT(t.id)...	100 row(s) returned	