

Subqueries

We can write nested queries, i.e., a query inside another query.

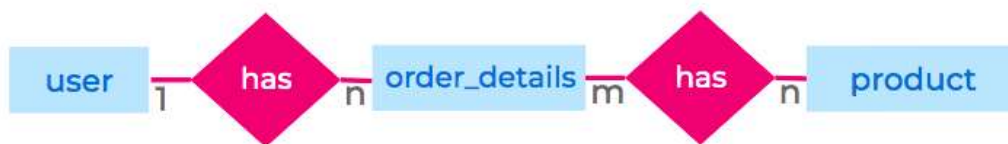
Let's understand the scenarios where subqueries can be used with the following database.

Database:

The database stores the sample data of an e-commerce application.

Here, the database consists of

`user` , `order_details` and `product` tables that store the information of products, orders placed, and the products on the platform.



Refer the tables in the code playground for a better understanding of the database.

Examples

Example 1:

Get the rating variance of products in the "WATCH" category. Rating variance is the difference between average rating and rating of a product.

Here, we need to write an expression to subtract rating of each product from the average rating as following.

```
1 SELECT name,  
2 (average_rating - rating) AS rating_variance  
3 ...
```

SQL

Replace `average_rating` with a query which computes the average.

```
1  
2 SELECT  
3     name,  
4     (
```

SQL

```

5      SELECT AVG(rating)
6      FROM product
7      WHERE category = "WATCH"
8  ) - rating AS rating_variance
9  FROM product
10 WHERE category = "WATCH";

```

Output

name	rating_variance
Analog-Digital	-0.766666666666667
Fastfit Watch	-0.366666666666666
Fastrack M01	0.333333333333334
...	...

Example 2:

Fetch all the products whose ratings is greater than average rating of all products.

Output

SQL

```

1
2  SELECT *
3  FROM product
4  WHERE rating > (
5      SELECT AVG(rating)
6      FROM product
7  );

```

Expected Output

product_id	name	price_per_unit	rating	category
202	Biotique Almond Soap	34	4.5	SOAP
203	Boat Stone Speaker	1999	4.3	SPEAKER
...

Example 3:

Fetch all the order_ids in which order consists of mobile (product_ids : 291, 292, 293, 294, 296) and not ear phones (product_ids : 227, 228, 229, 232, 233).

```
1  SELECT
2    order_id
3  FROM
4    order_details
5  WHERE
6    order_id IN (
7    SELECT
8      order_id
9    FROM
10     order_product
```

SQL

Expand

Output

order_id
801
802
806
807

Possible Mistakes

In SELECT Clause

A subquery in the SELECT clause can have only one column.

Query

```
1  SELECT name, (
2    SELECT AVG(rating), MAX(rating)
3    FROM product
4    WHERE category = "WATCH"
5  ) - rating AS rating_variance
6  FROM product
7  WHERE category = "WATCH";
```

SQL

Output

SQL

- 1 Error:
- 2 sub-select returns 2 columns - expected 1

In WHERE Clause

Query

In WHERE clause, a subquery can have only one column.

SQL

```

1  SELECT
2    order_id, total_amount
3  FROM order_details
4  WHERE total_amount > (
5    SELECT total_amount, order_id
6    FROM order_details
7  );

```

Output

SQL

- 1 Error: Row value misused

Try it Yourself!

Question 1

Get the rating variance of products in the "MOBILE" category. Rating variance is the difference between average rating and rating of a product.

Rating variance is the difference between average rating and rating of a product

Expected Output Format:

name	rating_variance
Oneplus 8 Pro	-0.040000000000000924
Oneplus 8t Pro	0.25999999999999989
...	...

Question 2

Get all the products from the "MOBILE" category, where rating is greater than average rating.

Expected Output Format:

name	rating
Oneplus 8 Pro	4.5
Mi 10T	4.5
Samsung S21 Ultra	4.7
...	...



MARKED AS COMPLETE