Amazon Sales Data Analysis in SQL

Presented By
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List all the 18 questions mentioned:

1. Write a query to list all products with their product_id, product_name, and category.

2. Write a query to display all columns for products that have a rating of 4.0 or higher.

3. Write a query to list products that are in the Computers&Accessories category.

4. Write a query to find all products where the about_product column contains the word durable.

5. Write a query to count the total number of products in the dataset.

6. Write a query to find the average rating of all products.

7. Write a query to list the top 5 highest-rated products based on the rating, sorted in descending order.

8. Write a query to list all products along with the number of reviews they have. Include columns for product_id, product_name, and review_count.

9. Write a query to find products that have the same rating and belong to the same category. Display product_id, product_name, category, and rating.

10. Write a query using a CASE statement to categorize products into three categories based on their rating: Excellent for ratings 4.5 and above, Good for ratings between 4.0 and 4.5, and Average for ratings below 4.0.

11. Write a query to add a new column discount_amount to the products table that calculates the difference between actual_price and discounted_price.

12. Write a query using an advanced function to find the product with the highest discount_percentage.

13. Create a view named HighRatingProducts that includes products with a rating of 4.5 and above.

14. Write a query using a window function to rank products based on their rating within each category.

15. Write a query to calculate the cumulative count of products added each month sorted by discounted_price.

16. Write a stored procedure to update the rating of a product given its product_id and new rating.

17. Write a query to find the category with the highest average rating for products. Use subqueries and aggregate functions to achieve this.

18. Write a query to find pairs of products from the same category where one product has a higher rating than the other. Display columns for product_id_1, product_name_1, rating_1, product_id_2, product_name_2, and rating_2.

Question 1 - List all products with their `product_id`, `product_name`, and `category`.

Query used:

```
SELECT product_id, product_name, category

FROM product_reviews;
```

```
30    -- apoorv ranjan
31 •  SELECT product_id, product_name, category
32    FROM product_reviews;
```

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

product_id	product_name	category
B07JW9H4J1	Wayona Nylon Braided USB to Lightning Fast Ch...	Computers&Accessories|Accessories&Peripheral...
B098NS6PVG	Ambrane Unbreakable 60W / 3A Fast Charging ...	Computers&Accessories|Accessories&Peripheral...
B096MSW6CT	Sounce Fast Phone Charging Cable & Data Sync...	Computers&Accessories|Accessories&Peripheral...
B08HDJ86NZ	boAt Deuce USB 300 2 in 1 Type-C & Micro USB ...	Computers&Accessories|Accessories&Peripheral...
B08CF3B7N1	Portronics Konnect L 1.2M Fast Charging 3A 8 P...	Computers&Accessories|Accessories&Peripheral...

product_reviews 4 ×

Output

Question 2 - Display all columns for products that have a rating of 4.0 or higher.

Query used:

SELECT *

FROM product_reviews

WHERE rating >= 4.0;

```
33    -- Q2.
34    -- apoorv ranjan
35    SELECT * FROM product_reviews WHERE rating >= 4.0;
36
```

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

product_id	product_name	category	discount
B07JW9H4J1	Wayona Nylon Braided USB to Lightning Fast Ch...	Computers&Accessories|Accessories&Peripheral...	399
B098NS6PVG	Ambrane Unbreakable 60W / 3A Fast Charging ...	Computers&Accessories|Accessories&Peripheral...	199
B08HDJ86NZ	boAt Deuce USB 300 2 in 1 Type-C & Micro USB ...	Computers&Accessories|Accessories&Peripheral...	329
B08CF3B7N1	Portronics Konnect L 1.2M Fast Charging 3A 8 P...	Computers&Accessories|Accessories&Peripheral...	154

Question 3 - List products in the "Computers&Accessories" category.

Query used:

SELECT product_id, product_name, category, rating
FROM product_reviews WHERE category LIKE 'Computers&Accessories%';

```
36      -- Q3.
37      -- apoorv ranjan
38 •    SELECT product_id, product_name, category, rating
39      FROM product_reviews WHERE category LIKE 'Computers&Accessories%';
```

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

product_id	product_name	category	rating
B07JW9H4J1	Wayona Nylon Braided USB to Lightning Fast Ch...	Computers&Accessories|Accessories&Peripheral...	4.2
B098NS6PVG	Ambrane Unbreakable 60W / 3A Fast Charging ...	Computers&Accessories|Accessories&Peripheral...	4
B096MSW6CT	Sounce Fast Phone Charging Cable & Data Sync...	Computers&Accessories|Accessories&Peripheral...	3.9
B08HDJ86NZ	boAt Deuce USB 300 2 in 1 Type-C & Micro USB ...	Computers&Accessories|Accessories&Peripheral...	4.2
B08CF3B7N1	Portronics Konnect L 1.2M Fast Charging 3A 8 P...	Computers&Accessories|Accessories&Peripheral...	4.2

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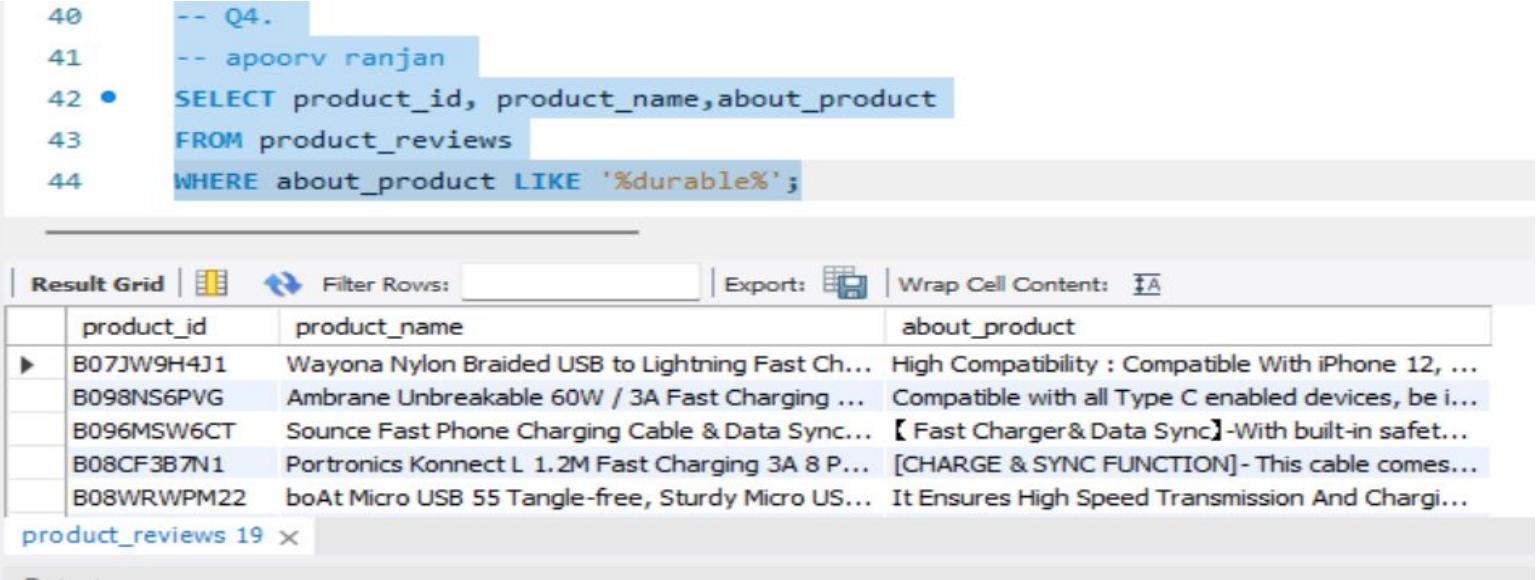
Action Output

#	Time	Action	Message

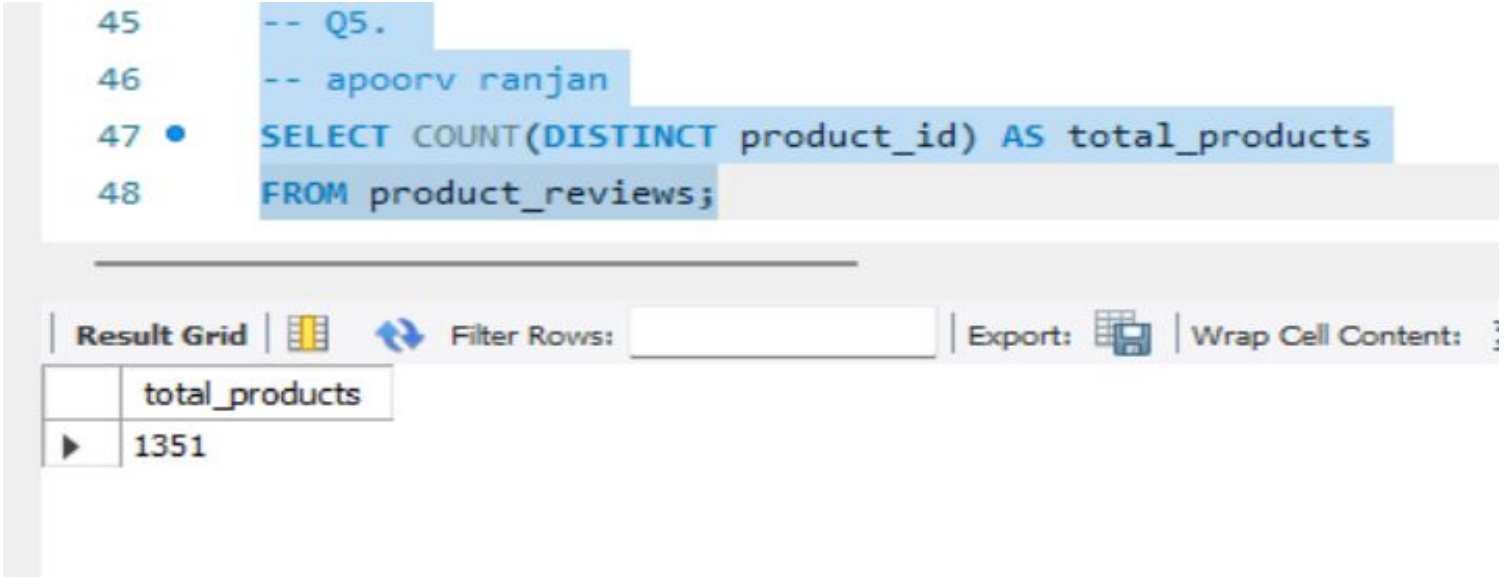
Question 4 - Find all products where about_product contains "durable."

```
SELECT product_id,
       product_name,
       about_product
FROM product_reviews
WHERE about_product LIKE '%durable%';
```



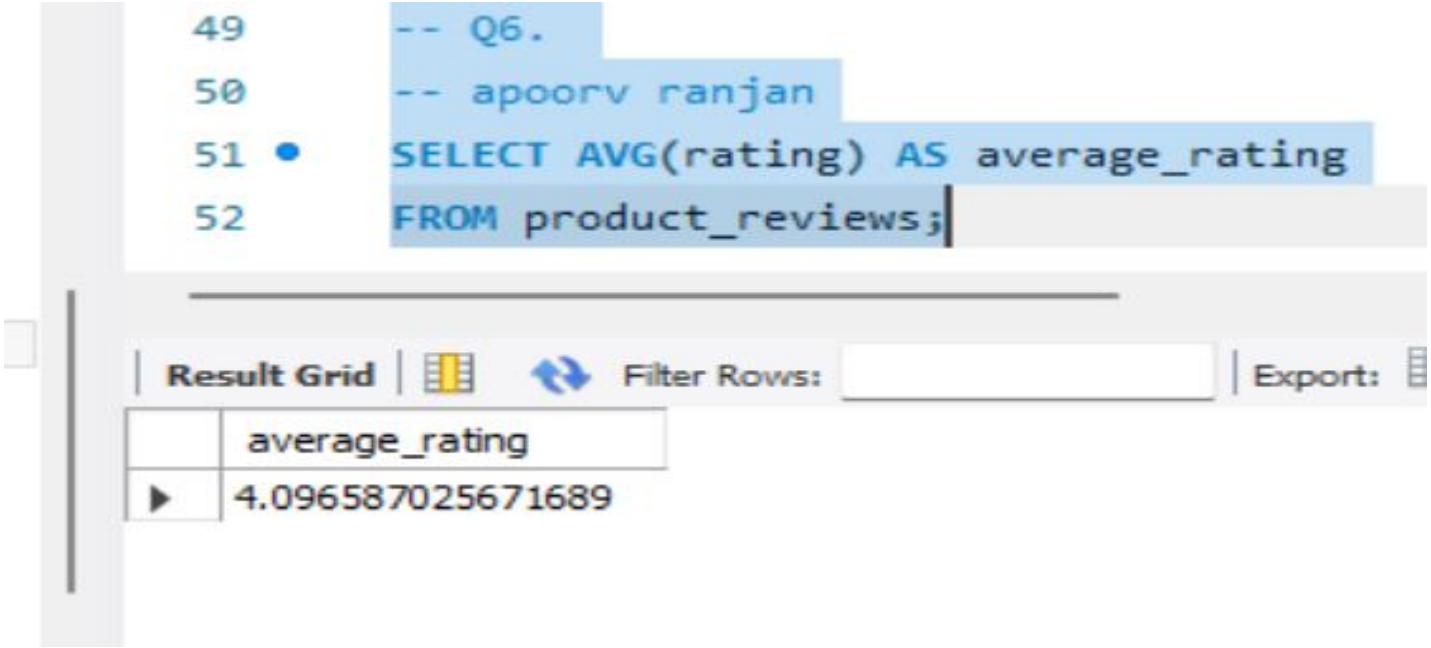
Question 5 - Count the total number of products.

SELECT COUNT(DISTINCT product_id) AS total_products
FROM product_reviews;



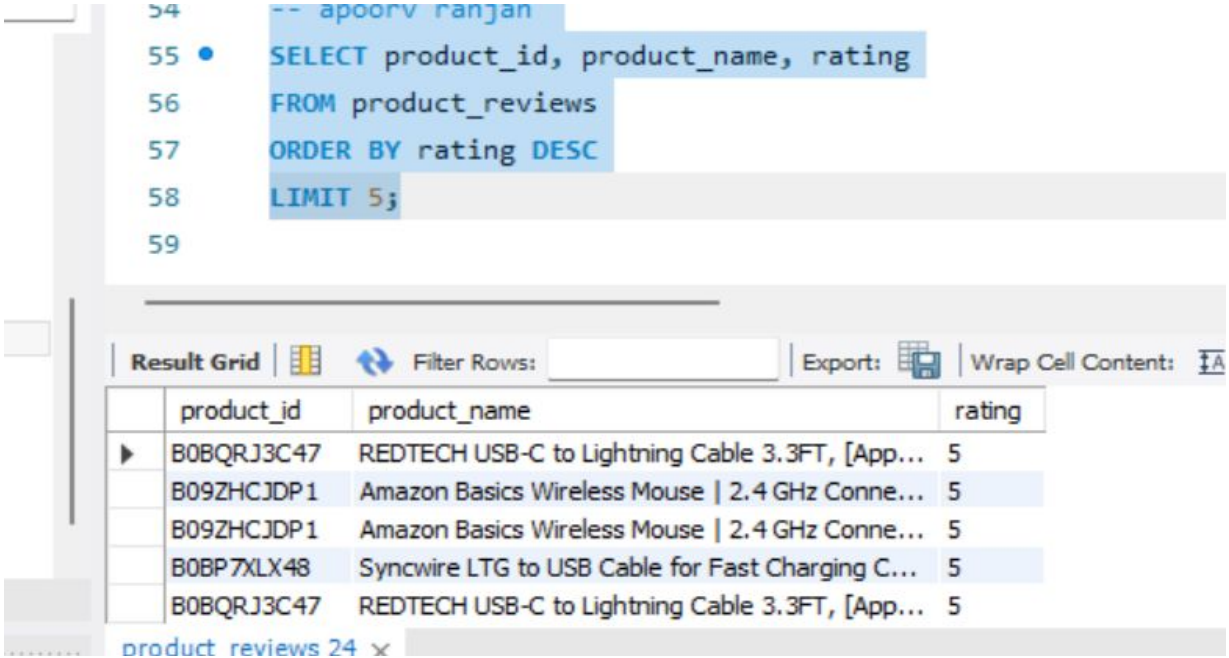
Question 6 - Average rating of all products.

SELECT AVG(rating) AS average_rating
FROM product_reviews;



Question 7 - Top 5 highest-rated products based on rating.

```
SELECT product_id, product_name, rating
FROM product_reviews
ORDER BY rating DESC
LIMIT 5;
```



Question 8 - List products with number of reviews.

SELECT product_id, product_name, COUNT(review_id) AS review_count
FROM product_reviews
GROUP BY product_id, product_name
ORDER BY review_count DESC;

```
60    -- apoorv ranjan
61    SELECT product_id, product_name, COUNT(review_id) AS review_count
62    FROM product_reviews
63    GROUP BY product_id, product_name
64    ORDER BY review_count DESC;
65
```

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

product_id	product_name	review_count
B07JW9H4J1	Wayona Nylon Braided USB to Lightning Fast Ch...	9
B098NS6PVG	Ambrane Unbreakable 60W / 3A Fast Charging ...	9
B096MSW6CT	Sounce Fast Phone Charging Cable & Data Sync...	9
B08HDJ86NZ	boAt Deuce USB 300 2 in 1 Type-C & Micro USB ...	9
B08CF3B7N1	Portronics Konnect L 1.2M Fast Charging 3A 8 P...	9

Question 9 - Same rating in the same category.

SELECT p1.product_id, p1.product_name, p1.category, p1.rating, p2.product_id, p2.product_name, p2.rating

FROM product_reviews p1

JOIN product_reviews p2

ON p1.category = p2.category AND p1.product_id <> p2.product_id

WHERE p1.rating = p2.rating;

```
65  -- Q9.
66  -- apoorv ranjan
67  SELECT p1.product_id, p1.product_name, p1.category, p1.rating, p2.product_id, p2.product_name, p2.
68  FROM product_reviews p1
69  JOIN product_reviews p2
70  ON p1.category = p2.category AND p1.product_id <> p2.product_id
```

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

product_id	product_name	category	rating	produc
B07GVGTSLN	Wayona Usb Type C Fast Charger Cable Fast C...	Computers&Accessories|Accessories&Peripheral...	4.2	B07JWS
B01GGKZ0V6	AmazonBasics USB Type-C to USB Type-C 2.0 C...	Computers&Accessories|Accessories&Peripheral...	4.2	B07JWS
B0B4DT8MKT	Wecool Unbreakable 3 in 1 Charging Cable with ...	Computers&Accessories|Accessories&Peripheral...	4.2	B07JWS
B07232M876	Amazonbasics Micro Usb Fast Charging Cable F...	Computers&Accessories|Accessories&Peripheral...	4.2	B07JWS

Result 41

Question 10 - Categorize products into Excellent, Good, and Average.

```
SELECT *, CASE
    WHEN rating >= 4.5 THEN 'Excellent'
    WHEN rating >= 4.0 THEN 'Good'
    ELSE 'Average'
END AS rating_category
FROM product_reviews;
```

```
75    -- apoorv ranjan
76 •  SELECT product_id, product_name, rating,
77        CASE
78            WHEN rating >= 4.5 THEN 'Excellent'
79            WHEN rating >= 4.0 THEN 'Good'
80            ELSE 'Average'
```

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

product_id	product_name	rating	rating_category
B0BQRJ3C47	REDTECH USB-C to Lightning Cable 3.3FT, [App...	5	Excellent
B09ZHCJDP1	Amazon Basics Wireless Mouse | 2.4 GHz Conne...	5	Excellent
B0BP7XLX48	Syncwire LTG to USB Cable for Fast Charging C...	5	Excellent
B0BQRJ3C47	REDTECH USB-C to Lightning Cable 3.3FT, [App...	5	Excellent
B09ZHCJDP1	Amazon Basics Wireless Mouse | 2.4 GHz Conne...	5	Excellent

Result 28

Question 11 - Add `discount_amount` as a new column.

```
ALTER TABLE
product_reviews
ADD COLUMN
discount_amount
DECIMAL(10, 2);
UPDATE product_reviews
SET discount_amount =
COALESCE(actual_price, 0) -
COALESCE(discounted_price,
0);
```

```
88  UPDATE product_reviews
89  SET discount_amount = COALESCE(actual_price, 0) - COALESCE(discounted_price, 0);
90  SELECT product_id, product_name, actual_price, discounted_price, discount_amount
91  FROM product_reviews
92  LIMIT 10;
93
```

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

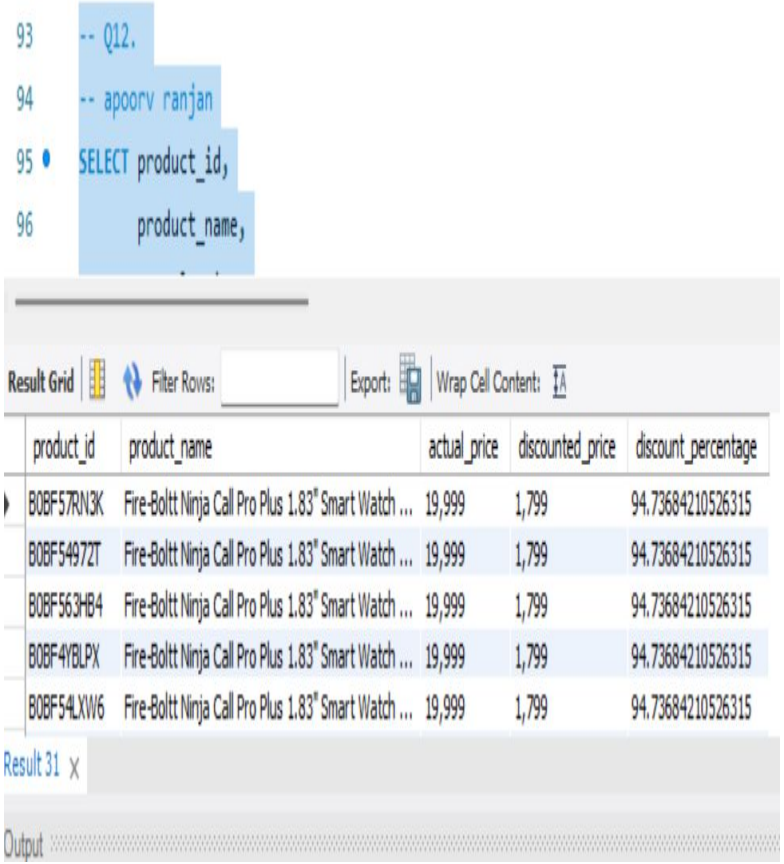
product_id	product_name	actual_price	discounted_price	discount_amount
B07JW9H4J1	Wayona Nylon Braided USB to Lightning Fast Ch...	1,099	399	-398.00
B098NS6PVG	Ambrane Unbreakable 60W / 3A Fast Charging ...	349	199	150.00
B096MSW6CT	Sounce Fast Phone Charging Cable & Data Sync...	1,899	199	-198.00
B08HDJ86NZ	boAt Deuce USB 300 2 in 1 Type-C & Micro USB ...	699	329	370.00
B08CF3B7N1	Portronics Konnect L 1.2M Fast Charging 3A 8 P...	399	154	245.00

product_reviews 29 x

Output

Question 12 - Query for the highest discount percentage.

```
SELECT product_id,
       product_name,
       actual_price,
       discounted_price,
       (actual_price - discounted_price) / actual_price * 100 AS
discount_percentage
FROM (
    SELECT product_id,
           product_name,
           actual_price,
           discounted_price,
           RANK() OVER (ORDER BY (actual_price - discounted_price) /
actual_price * 100 DESC) AS ranking
    FROM product_reviews
    WHERE actual_price > 0
) AS ranked
WHERE ranking = 1;
```

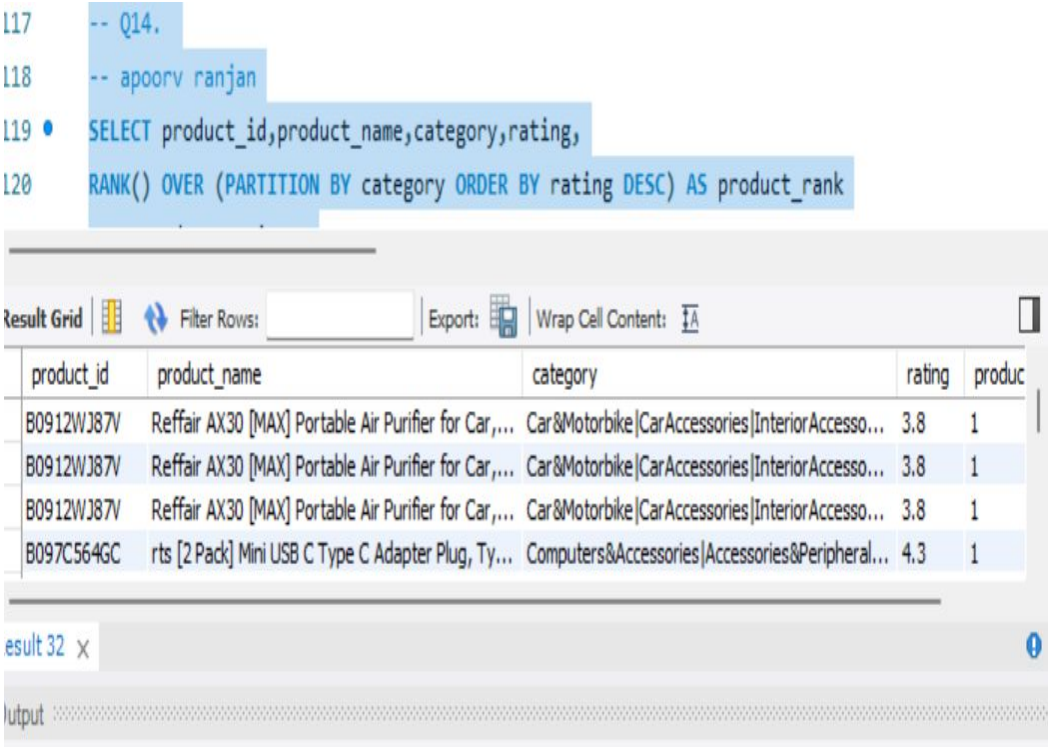


Question 13 - Create a view `HighRatingProducts`.

```
CREATE VIEW HighRatingProducts AS

SELECT *

FROM product_reviews

WHERE rating >= 4.5;
```

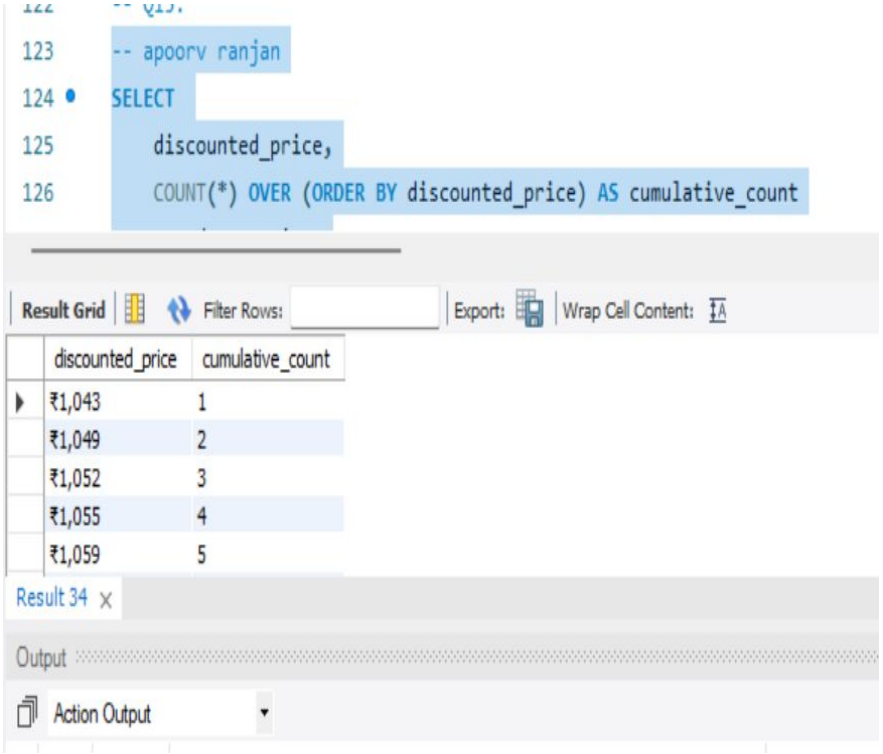
Question 14 - Rank products by rating within each category using window functions.

```
SELECT
product_id,product_name,c
ategory,rating,
RANK() OVER (PARTITION
BY category ORDER BY
rating DESC) AS
product_rank
FROM product_reviews;
```



Question 15 - Cumulative count of products added each month sorted by discounted price.

```
SELECT
    discounted_price,
    COUNT(*) OVER (ORDER
BY discounted_price) AS
cumulative_count
FROM product_reviews
GROUP BY discounted_price
ORDER BY discounted_price;
```

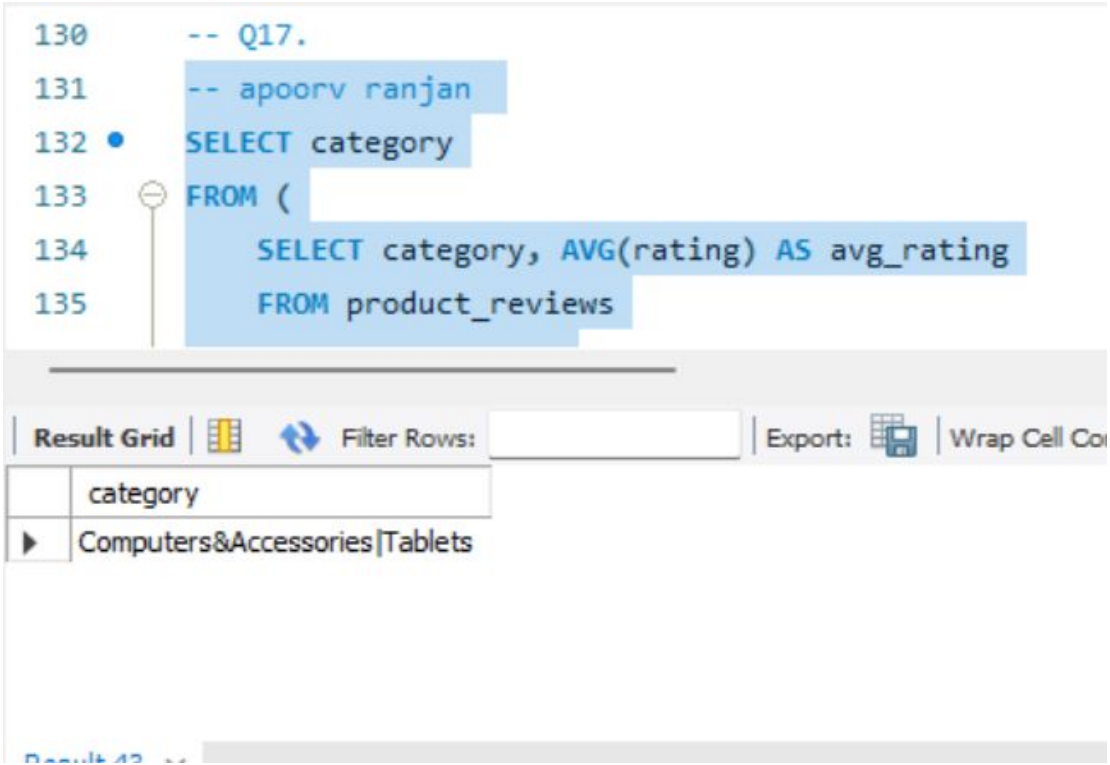


Question 16 - Stored procedure to update product rating.

```
DELIMITER //

CREATE PROCEDURE UpdateProductRating(IN prod_id INT, IN new_rating
DECIMAL(3,2))

BEGIN

    UPDATE product_reviews

    SET rating = new_rating

    WHERE product_id = prod_id;

END //

DELIMITER ;
```

Question 17 - Highest average rating by category.

```
SELECT category
FROM (
    SELECT category, AVG(rating) AS avg_rating
    FROM product_reviews
    GROUP BY category
    ORDER BY avg_rating DESC
    LIMIT 1
) AS subquery;
```



Question 18 - Pair comparisons with higher rating

```
SELECT p1.product_id,
p1.product_name, p1.rating,
p2.product_id, p2.product_name,
p2.rating

FROM product_reviews p1

JOIN product_reviews p2

ON p1.category = p2.category AND
p1.product_id <> p2.product_id

WHERE p1.rating > p2.rating;
```