



ATLIQ

HARDWARES

# Ad-Hoc Analysis using SQL

Domain - Consumer goods

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# About Company

Atliq Hardwares (imaginary company) is one of the leading computer hardware producers in India and well expanded in other countries too.

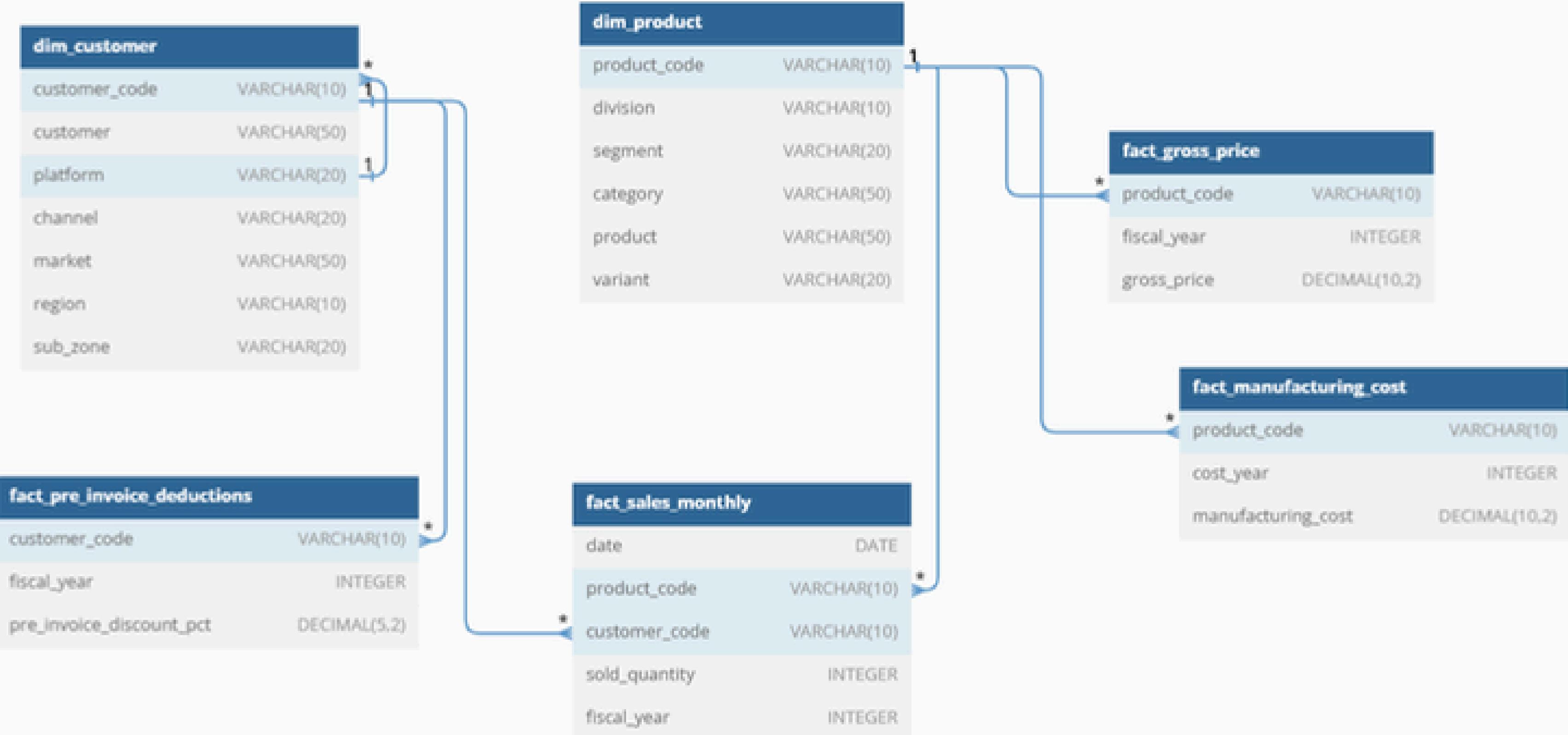


# Why this Project?

The management noticed that they do not get enough insights to make quick and smart data-informed decisions. They want to expand their data analytics team by adding several junior data analysts. so, they decided to conduct a SQL challenge which will help him understand the skills.

## **My Task:**

As a Data Analyst , i have provided with 10 ad hoc requests which i need to answer using sql queries and present the output through visualization.



Q1. Provide the list of markets in which customer "Atliq Exclusive" operates its business in the APAC region.

Query

```
SELECT DISTINCT
    market
FROM
    dim_customer
WHERE
    customer = 'Atliq Exclusive'
    AND region = 'APAC';
```

Output

market

India

Indonesia

Japan

Philippines

South Korea

Australia

Newzealand

Bangladesh

Q2.What is the percentage of unique product increase in 2021 vs. 2020?

The final output contains these fields: unique\_products\_2020, unique\_products\_2021 ,percentage\_chg.

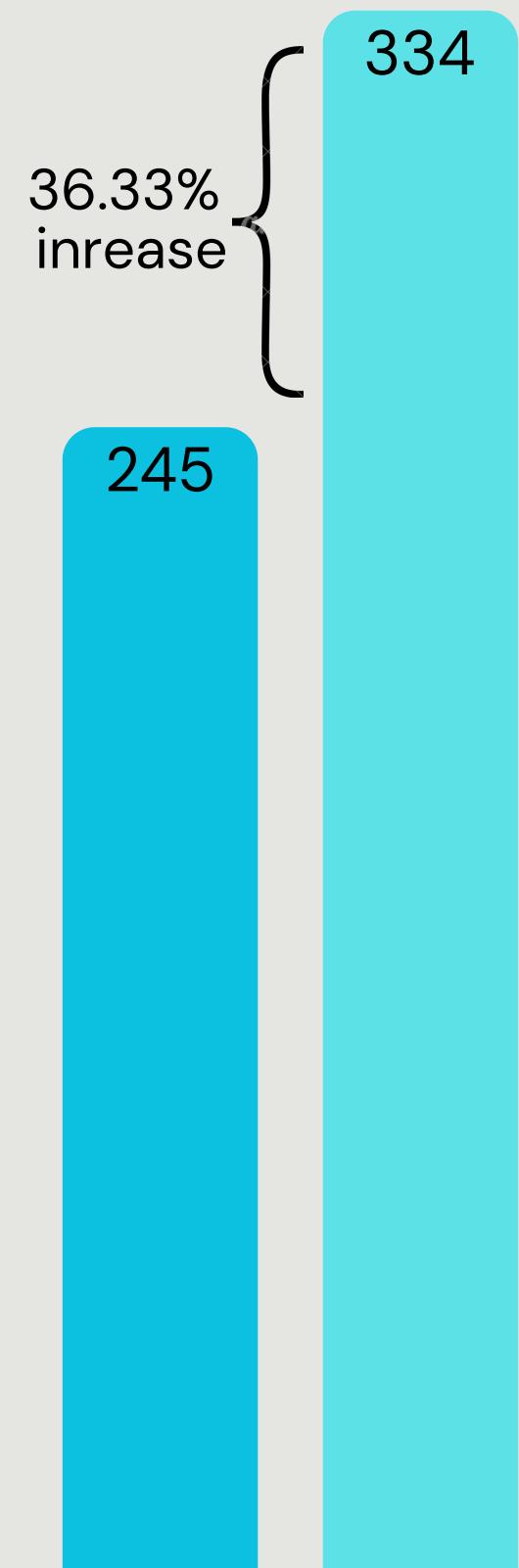
## Query

```
with cte as(SELECT
    COUNT(DISTINCT (CASE
        WHEN fs.fiscal_year = 2020 THEN p.product_code
    END)) AS unique_products_2020,
    COUNT(DISTINCT (CASE
        WHEN fs.fiscal_year = 2021 THEN p.product_code
    END)) AS unique_products_2021 FROM
dim_product p
JOIN
fact_sales_monthly fs ON p.product_code = fs.product_code)
select *,
concat(round(((unique_products_2021 - unique_products_2020)*100/unique_products_2020),2),"%") AS percent_change from cte;
```

# Output

Unique\_product\_2020  
Unique\_product\_2021

unique_products_2020	unique_products_2021	percent_change
245	334	36.33%



Q3. Provide a report with all the unique product counts for each segment and sort them in descending order of product counts.

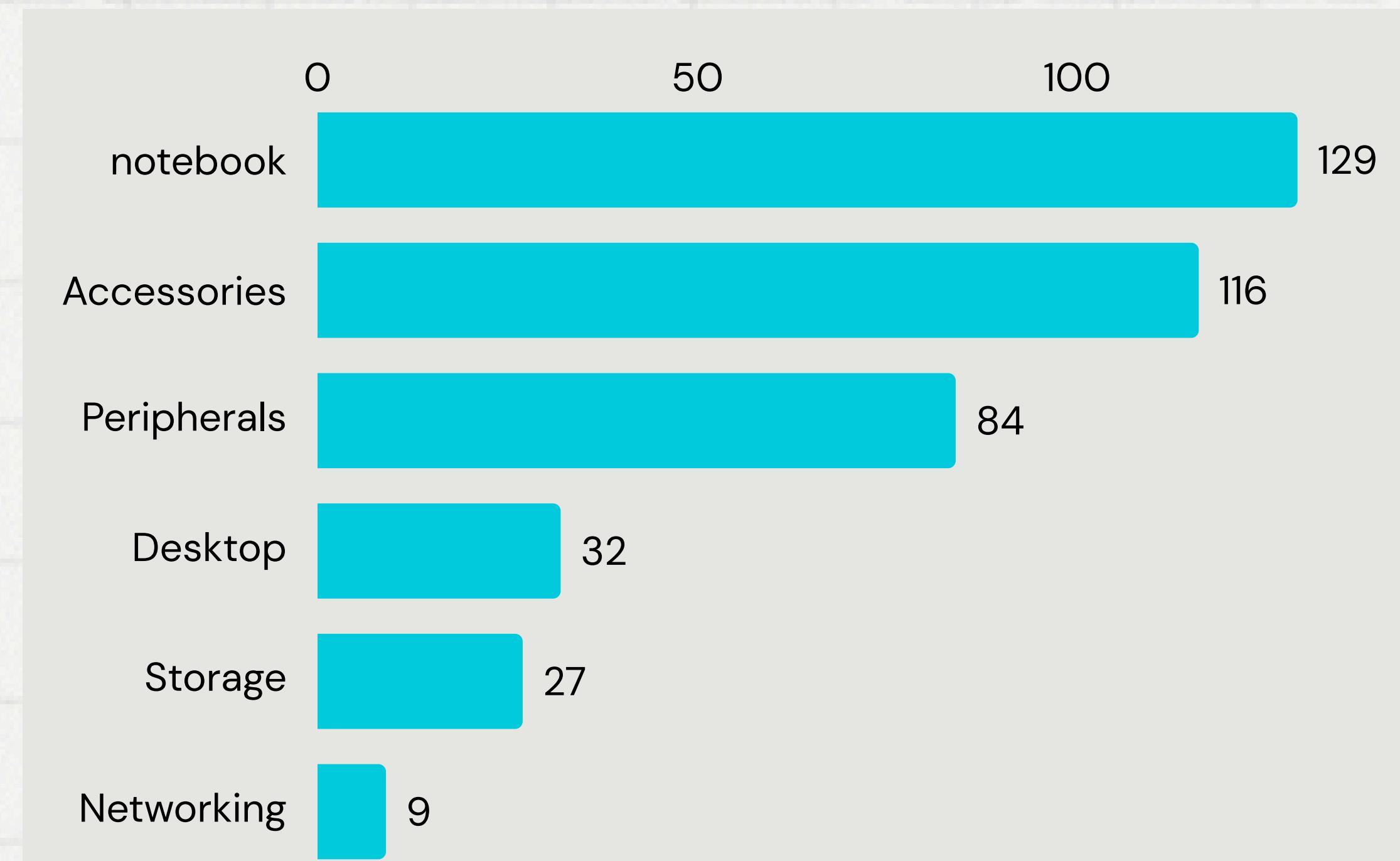
The final output contains: segment, product\_count.

Query

```
SELECT
    segment, COUNT(DISTINCT (product_code)) AS product_count
FROM
    dim_product
GROUP BY segment
ORDER BY product_count DESC;
```

# Output

segment	product_count
Notebook	129
Accessories	116
Peripherals	84
Desktop	32
Storage	27
Networking	9



#### 04. Which segment had the most increase in unique products in 2021 vs 2020?

The final output contains these fields: segment, product\_count\_2020, product\_count\_2021,difference.

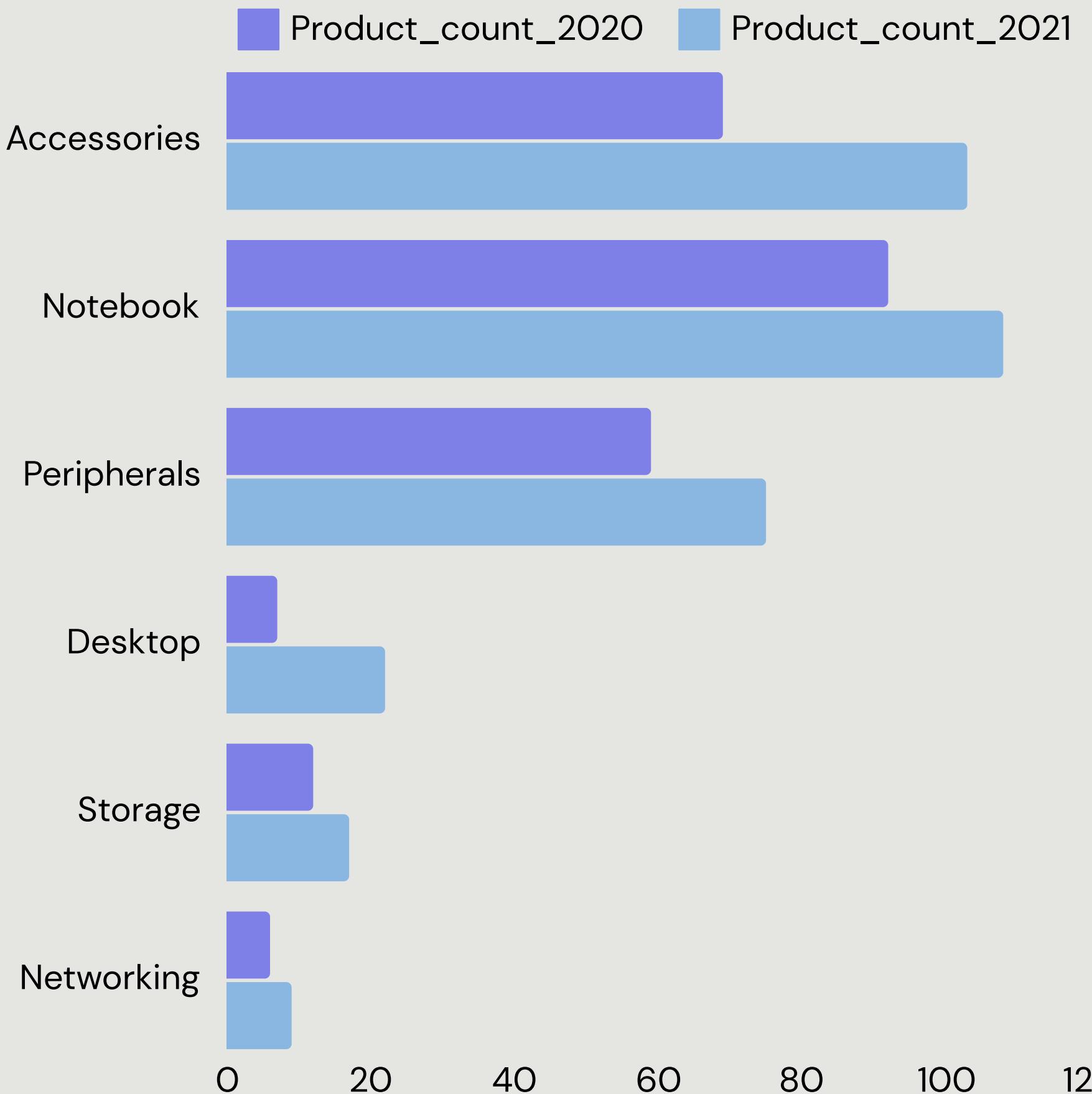
### Query



```
WITH product_count
      AS (SELECT p.segment,
                 Count(DISTINCT( CASE
                                         WHEN fiscal_year = "2020" THEN p.product_code
                                         END )) AS product_count_2020,
                 Count(DISTINCT( CASE
                                         WHEN fiscal_year = "2021" THEN p.product_code
                                         END )) AS product_count_2021
            FROM fact_sales_monthly s
              JOIN dim_product p
                ON s.product_code = p.product_code
           GROUP BY p.segment)
SELECT *, product_count_2021 - product_count_2020 AS difference
FROM product_count
ORDER BY difference DESC;
```

# Output

segment	product_count_2020	product_count_2021	difference
Accessories	69	103	34
Notebook	92	108	16
Peripherals	59	75	16
Desktop	7	22	15
Storage	12	17	5
Networking	6	9	3



05. Get the products that have the highest and lowest manufacturing costs. The final output should contain these fields: product\_code, product, manufacturing\_cost.

Query

```
WITH CTE AS (
    SELECT
        f.product_code,
        p.product,
        f.manufacturing_cost
    FROM
        dim_product p
    JOIN
        fact_manufacturing_cost f
    ON
        p.product_code = f.product_code
)
SELECT
    *
FROM
    CTE
WHERE
    manufacturing_cost = (SELECT MAX(manufacturing_cost) FROM CTE)
    OR
    manufacturing_cost = (SELECT MIN(manufacturing_cost) FROM CTE);
```

Output

product_code	product	manufacturing_cost
A2118150101	AQ Master wired x1 Ms	0.8920
A6120110206	AQ HOME Allin1 Gen 2	240.5364

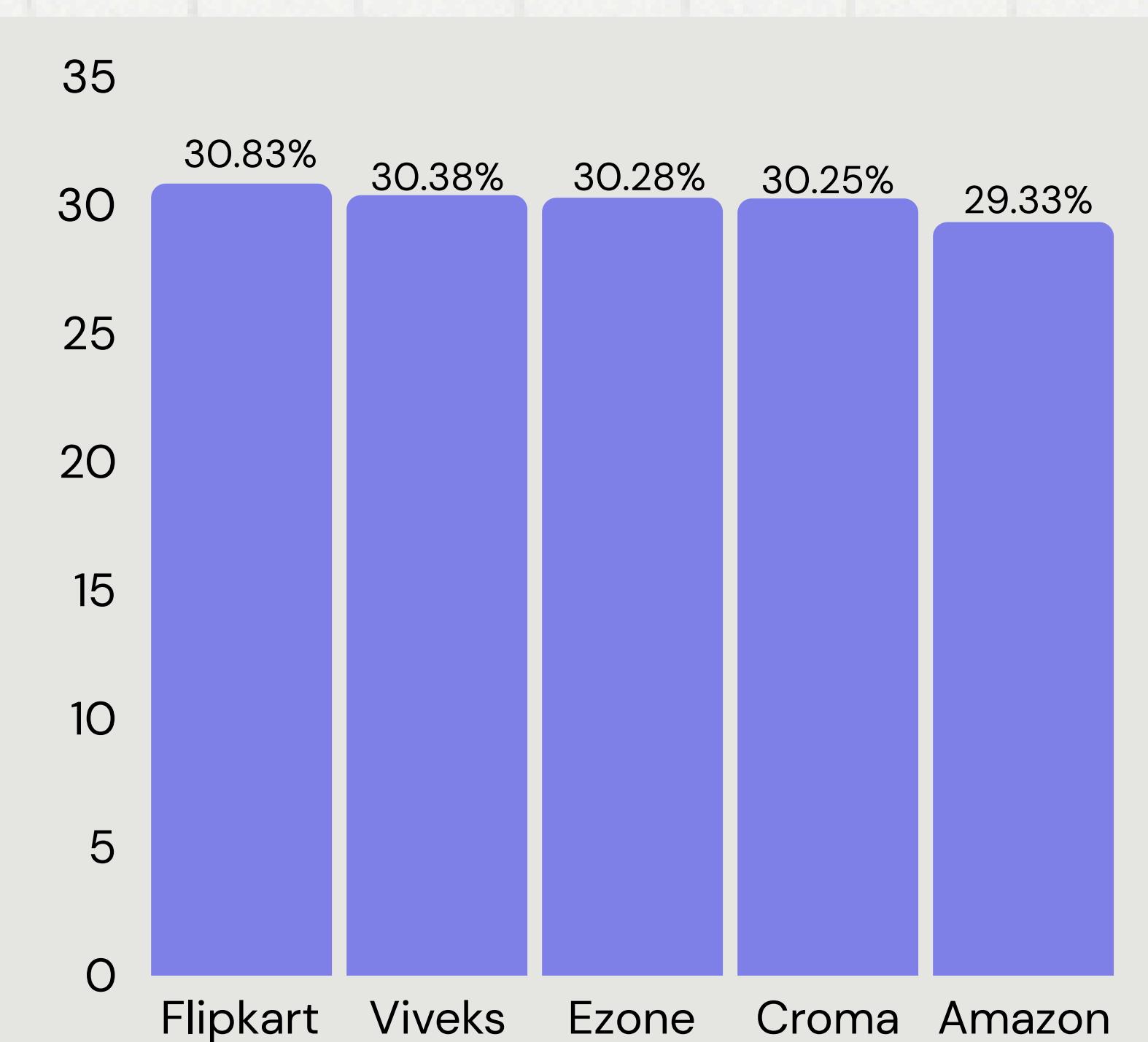
06. Generate a report which contains the top 5 customers who received an average high pre\_invoice\_discount\_pct for the fiscal year 2021 and in the Indian market. The final output contains these fields: customer\_code, customer average\_discount\_percentage.

### Query

```
SELECT
    pd.customer_code,
    customer,
    CONCAT(ROUND(AVG(pre_invoice_discount_pct) * 100, 2), '%') AS average_discount_percentage
FROM
    dim_customer c
JOIN
    fact_pre_invoice_deductions pd
ON
    c.customer_code = pd.customer_code
WHERE
    fiscal_year = 2021
    AND market = 'India'
GROUP BY
    pd.customer_code,
    customer
ORDER BY
    AVG(pre_invoice_discount_pct) DESC
```

# Output

customer_code	customer	average_discount_percentage
90002009	Flipkart	30.83%
90002006	Viveks	30.38%
90002003	Ezone	30.28%
90002002	Croma	30.25%
90002016	Amazon	29.33%



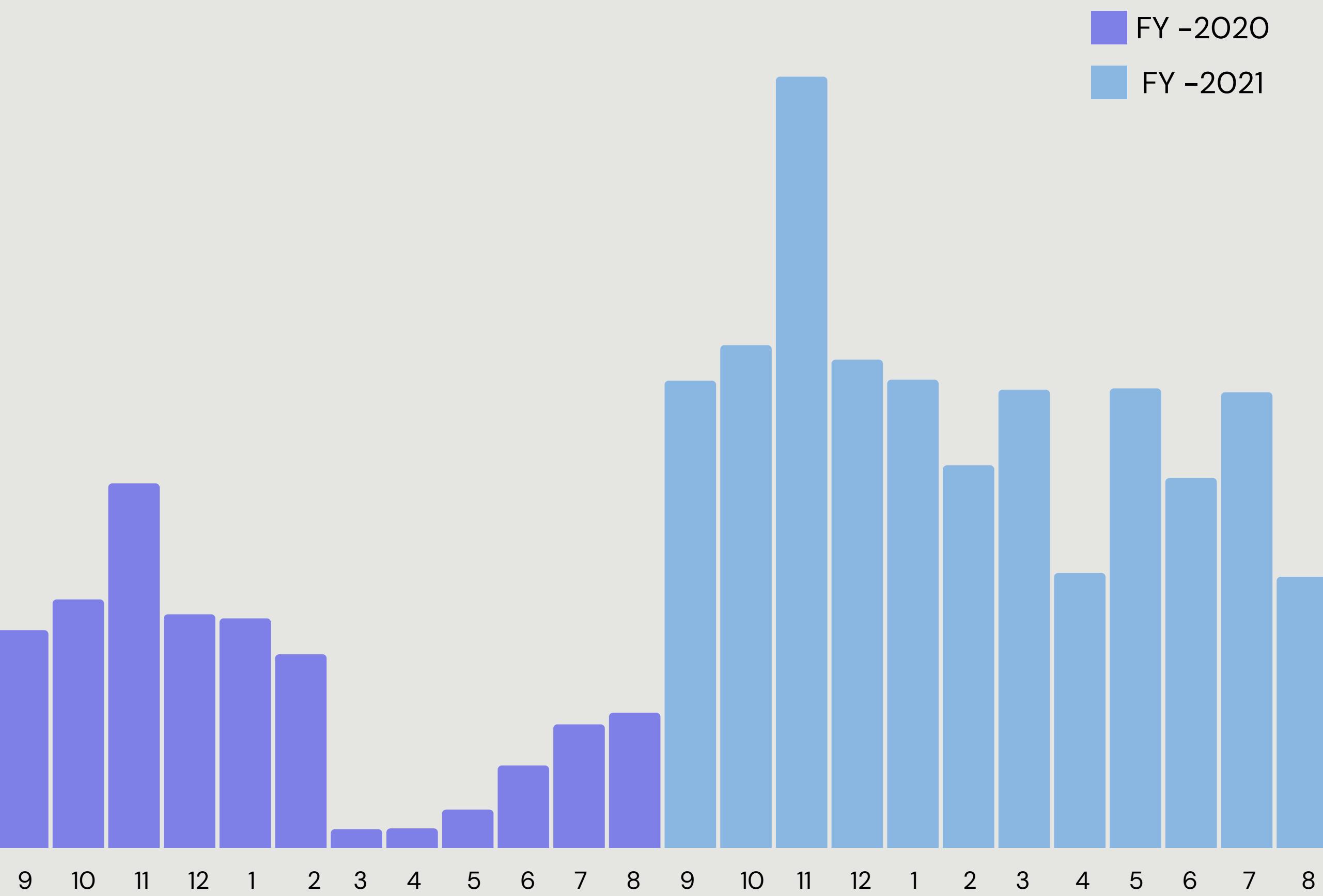
07. Get the complete report of the Gross sales amount for the customer "Atliq Exclusive" for each month. This analysis helps to get an idea of low and high-performing months and take strategic decisions.  
The final report contains these columns: Month, Year, Gross sales Amount.

### Query

```
SELECT  
    MONTH(fs.date) AS month,  
    YEAR(fs.date) AS year,  
    ROUND(SUM(sold_quantity * gross_price), 2) AS gross_sales_amt  
FROM  
    fact_Sales_monthly fs  
        JOIN  
    fact_gross_price g ON fs.product_code = g.product_code  
        JOIN  
    dim_customer c ON fs.customer_code = c.customer_code  
WHERE  
    c.customer = 'Atliq Exclusive'  
GROUP BY 1 , date  
ORDER BY 2 , 1;
```

# Output

month	year	gross_sales_amt
2	2020	8083995.55
3	2020	766976.45
4	2020	800071.95
5	2020	1586964.48
6	2020	3429736.57
7	2020	5151815.40
8	2020	5638281.83
9	2020	19530271.30
10	2020	21016218.21
11	2020	32247289.79
12	2020	20409063.18
1	2021	19570701.71
2	2021	15986603.89
3	2021	19149624.92
4	2021	11483530.30
5	2021	19204309.41
6	2021	15457579.66
7	2021	19044968.82
8	2021	11324548.34



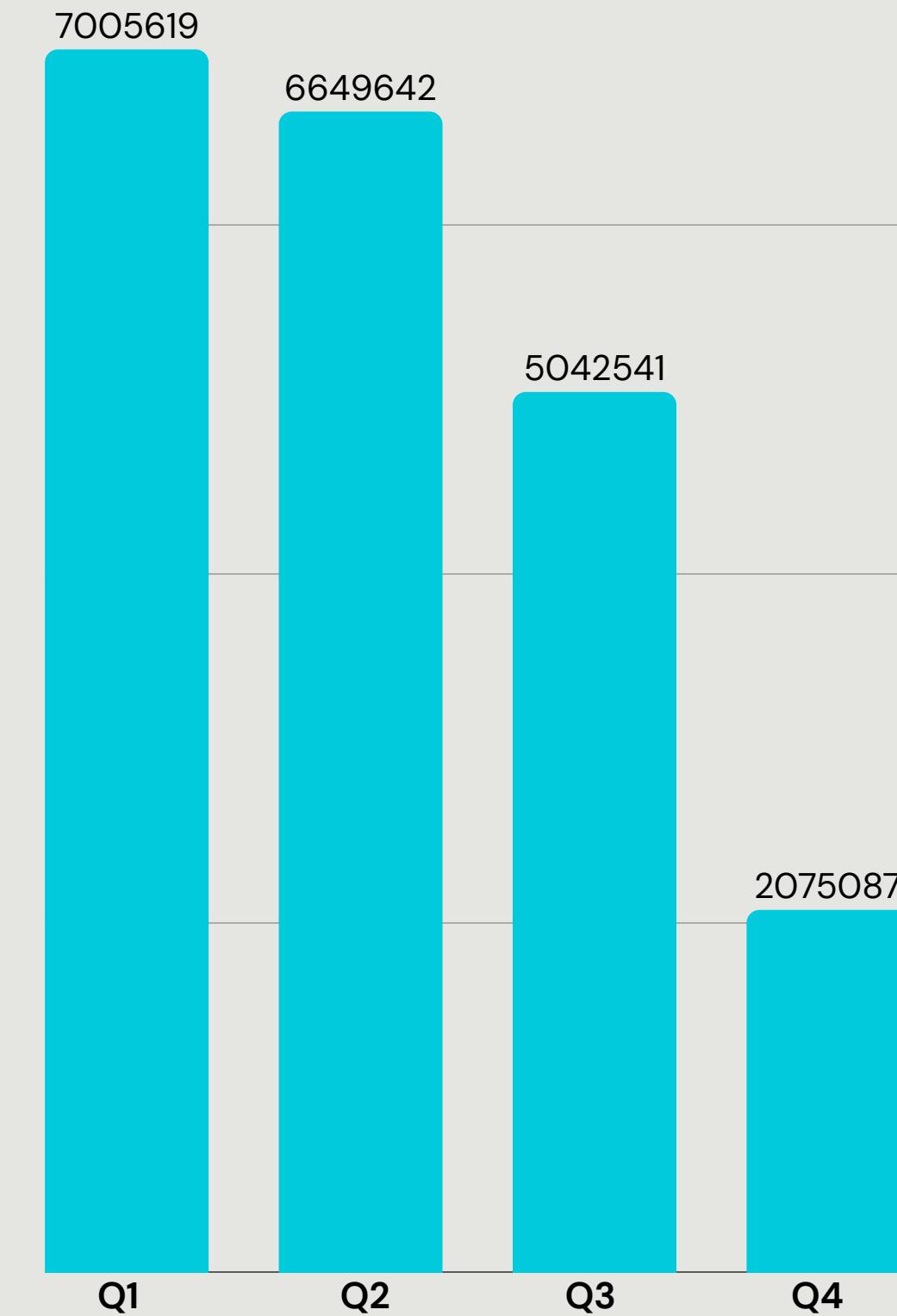
08. In which quarter of 2020, got the maximum total\_sold\_quantity?  
The final output contains these fields sorted by the total\_sold\_quantity,  
Quarter, total\_sold\_quantity.

## Query

```
SELECT
  (CASE
    WHEN EXTRACT(MONTH FROM date) IN (9 , 10, 11) THEN 'Q1'
    WHEN EXTRACT(MONTH FROM date) IN (12 , 1, 2) THEN 'Q2'
    WHEN EXTRACT(MONTH FROM date) IN (3 , 4, 5) THEN 'Q3'
    WHEN EXTRACT(MONTH FROM date) IN (6 , 7, 8) THEN 'Q4'
  END) AS Q,
  SUM(sold_quantity) AS total_sold_quantity
FROM
  fact_sales_monthly
WHERE
  fiscal_year = 2020
GROUP BY Q
ORDER BY total_sold_quantity DESC;
```

# Output

Q	total_sold_quantity
Q1	7005619
Q2	6649642
Q4	5042541
Q3	2075087



09. Which channel helped to bring more gross sales in the fiscal year 2021 and the percentage of contribution?

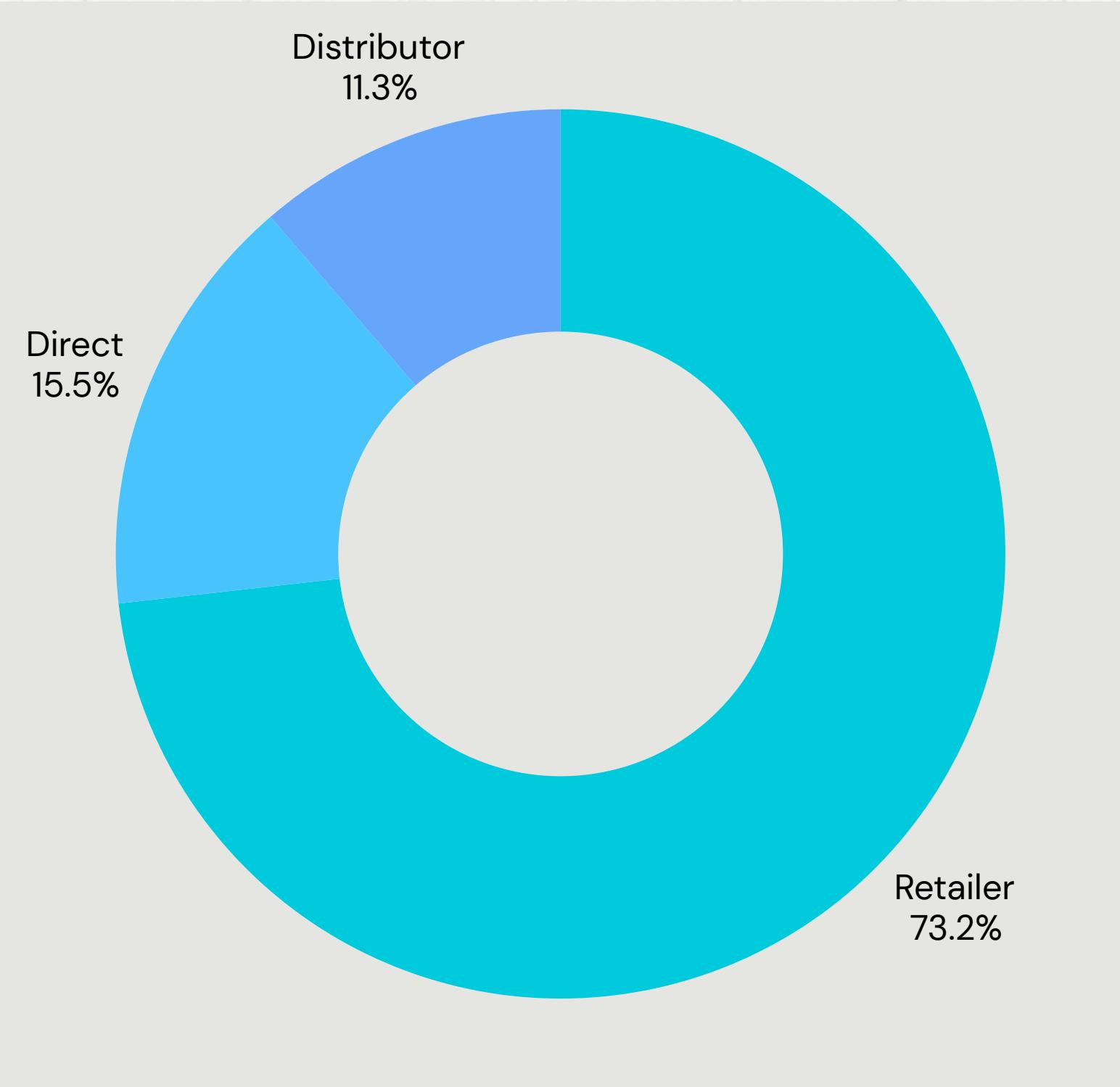
The final output contains these fields: channel, gross\_sales\_mln, percentage

Query ↗

```
with cte as (SELECT
    c.channel,
    round(SUM(sold_quantity * gross_price),2) AS gross_sales_mln
FROM
    dim_customer c
        JOIN
    fact_sales_monthly fs ON c.customer_code = fs.customer_code
        JOIN
    fact_gross_price g ON fs.product_code=g.product_code
WHERE
    fs.fiscal_year = 2021
GROUP BY 1
ORDER BY 2 DESC)
select *, concat(round(gross_sales_mln * 100/(select sum(gross_sales_mln) from cte) ,2),"%) as percentage from cte group by channel;
```

# Output

channel	gross_sales	percentage
Retailer	1924170397.91	73.22%
Direct	406686873.90	15.47%
Distributor	297175879.72	11.31%



10. Get the Top 3 products in each division that have a high total\_sold\_quantity in the fiscal\_year 2021? The final output contains these fields: division, product\_code, product, total\_sold\_quantity, rank\_order.

## Query

```
with cte as(select p.division,
p.product_code,
p.product,
sum(sold_quantity) as total_quantity_Sold
from dim_product p
join fact_sales_monthly s
on p.product_code= s.product_code
where fiscal_year=2021
group by 1,2,3),
cte2 as (select *,rank() over(partition by division order by total_quantity_sold desc) as rn from cte)
select * from cte2 where rn<=3;
```

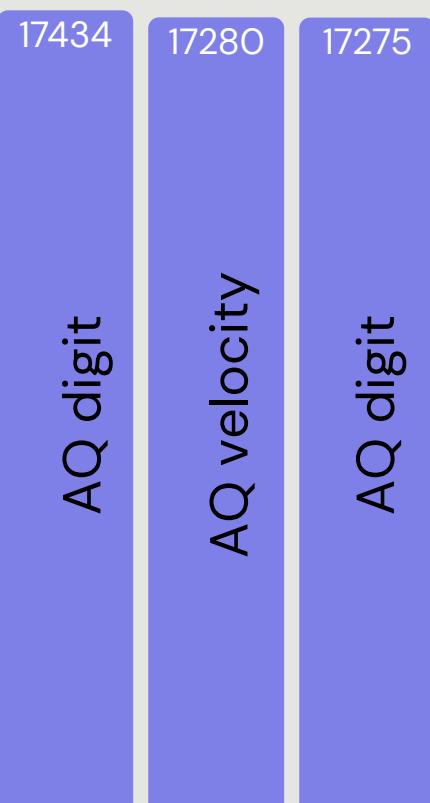
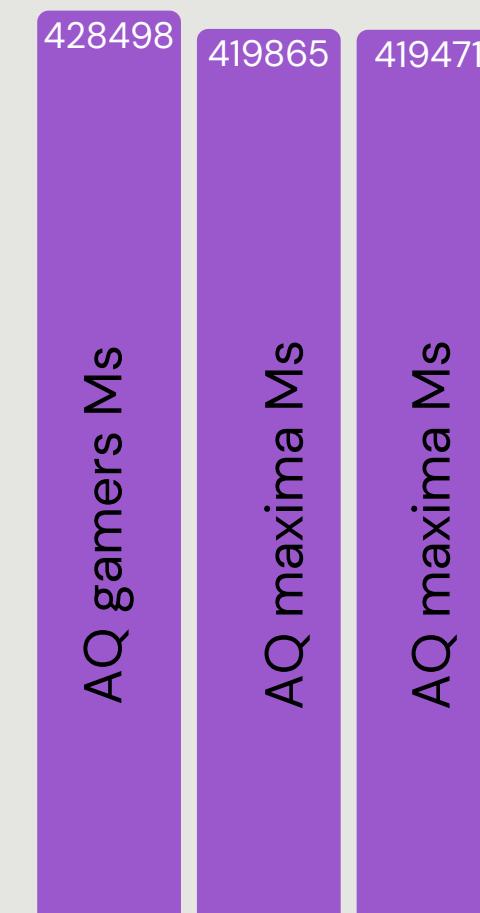
# Output

division	product_code	product	total_quantity_Sold	rn
N & S	A6720160103	AQ Pen Drive 2 IN 1	701373	1
N & S	A6818160202	AQ Pen Drive DRC	688003	2
N & S	A6819160203	AQ Pen Drive DRC	676245	3
P & A	A2319150302	AQ Gamers Ms	428498	1
P & A	A2520150501	AQ Maxima Ms	419865	2
P & A	A2520150504	AQ Maxima Ms	419471	3
PC	A4218110202	AQ Digit	17434	1
PC	A4319110306	AQ Velocity	17280	2
PC	A4218110208	AQ Digit	17275	3

N & S

P & A

PC



# Insights

- 1.The number of products increase to 36.33% from 2020 to 2021 shows introduction of new products overall leading to significant growth in production year over year.
2. Segments like notebook , peripherals have greater number of market products showing more customer demand for these whereas categories like storage and networking needs diversification of products.
3. Accessories have the largest increase in unique products from 2020 to 2021 which indicates an area of significant growth.
4. Analyzing discounts can help identify opportunities for better margin management.
- 5.Identifying high-performing and low-performing months ,can guide marketing or promotional strategies during slower months.
- 6.1st quarter has the highest sold quantity whereas 4th quarter has lowest, low sales indicates low customer demand during this quarter.
- 7.Retail channel with the highest gross sales represents largest revenue generation from this channel, wheras, Channels like distributors and direct contributes 15% and 11% respectively in revenue.

# Recommendations

1. loyalty programs for top-performing customers.
2. Implementing strategies to improve the undergoing performance of distributor and direct channel.
3. For low-performing products, need to improve their features or discounting them.
4. Promoting products during low sales .
5. product diversification of networking and storage segment.

**Thank you!**