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AD-HOC INSIGHTS

Domain : Consumer Goods



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AGENDA

- > Company Overview
- > Objective
- > Dataset Overview
- > Ad-Hoc Requests Overview
- > Ad-Hoc Requests
- > Visual Representations



COMPANY OVERVIEW

- Atliq Hardwares is a computer hardware manufacturer based in India with a solid international footprint.
- The company is looking to expand its data analytics team to enhance insights and strengthen strategic decision-making.
- This initiative is part of a broader effort to become a data-driven organization across all business functions.

Fiscal Year: The company follows a fiscal year from **September to August** instead of the calendar year.

OBJECTIVE



Lack of Insights

Management faces challenges in accessing meaningful data to support informed decision-making.

Talent Gap

There is a need for skilled analysts who possess strong technical and analytical capabilities.

SQL Challenge

A structured SQL challenge has been introduced to evaluate candidates' problem-solving skills effectively.



DATASET OVERVIEW



Table Name	Description
dim_customer	Customer-related data, including platform and region.
dim_product	Product details like category, segment, and variant.
fact_gross_price	Gross price information for each product
fact_manufacturing_cost	Cost incurred in the production of each product.
fact_pre_invoice_deductions	Pre-invoice deductions for each product.
fact_sales_monthly	Product details like category, segment, and variant.



Ad-Hoc Requests

Overview

- The management has highlighted 10 key ad-hoc requests that require data-driven insights.
- Each request is addressed using SQL for analysis, visualized in Power BI, and supported with actionable insights.
- We'll walk through each request individually, presenting the corresponding answers and findings.

Fiscal Year: The company follows a fiscal year from **September to August** instead of the calendar year.

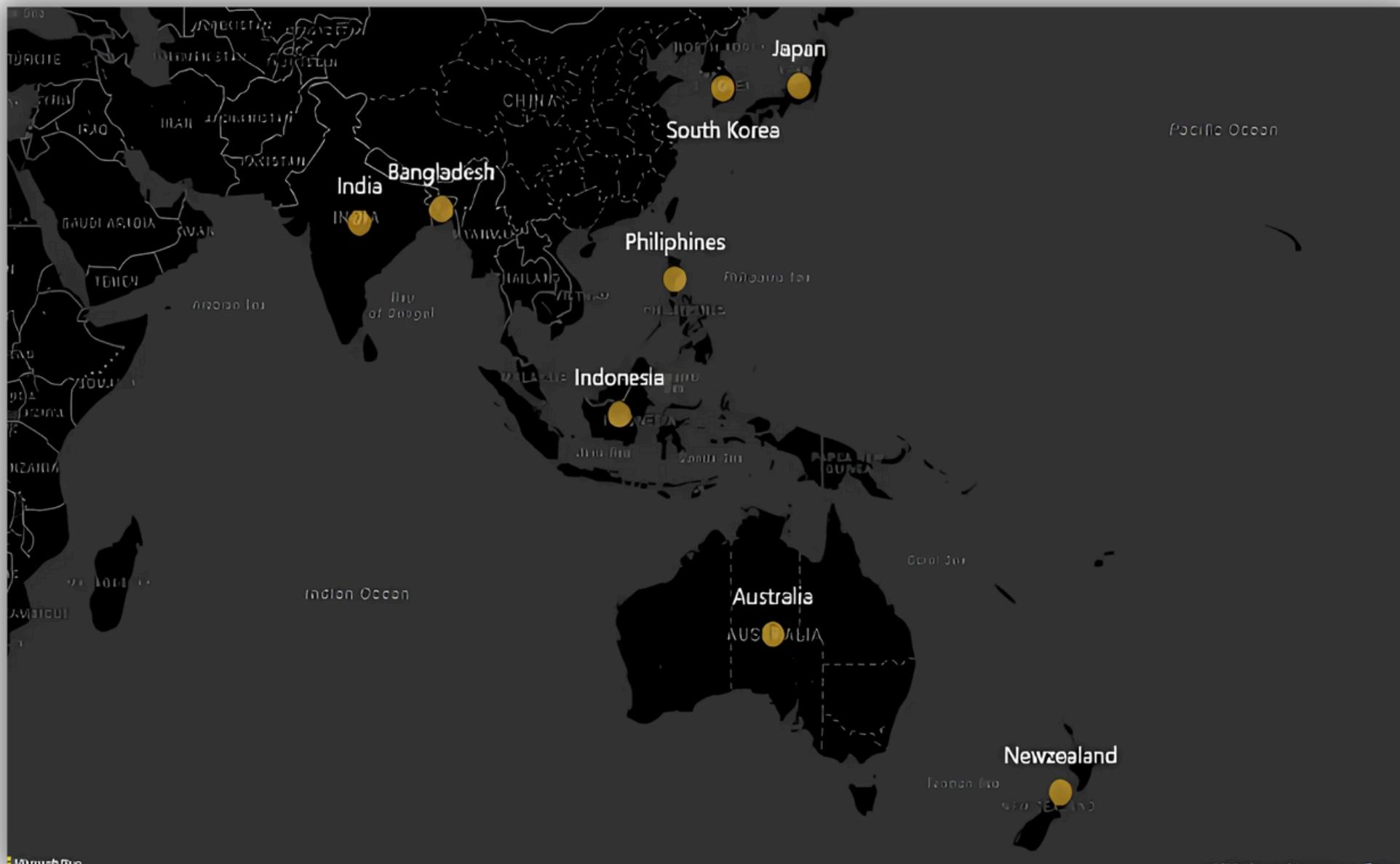
Q1. Provide the list of markets in which customer "Atliq Exclusive" operates its business in the APAC region.

```
● ● ●  
SELECT  
DISTINCT market  
FROM dim_customer  
WHERE region = "APAC"  
AND customer = "Atliq Exclusive"  
ORDER BY market;
```



market
Australia
Bangladesh
India
Indonesia
Japan
Newzealand
Philiphines
South Korea

DATASET OVERVIEW



INSIGHTS

- "Atliq Exclusive" has a presence in eight major markets within the APAC region, such as India, Indonesia, Japan, the Philippines, South Korea, Australia, New Zealand, and Bangladesh. This highlights the company's extensive market coverage.
- The organization operates across both emerging and mature economies, which allows it to serve a varied customer base and tap into growth potential in rapidly developing areas.

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.



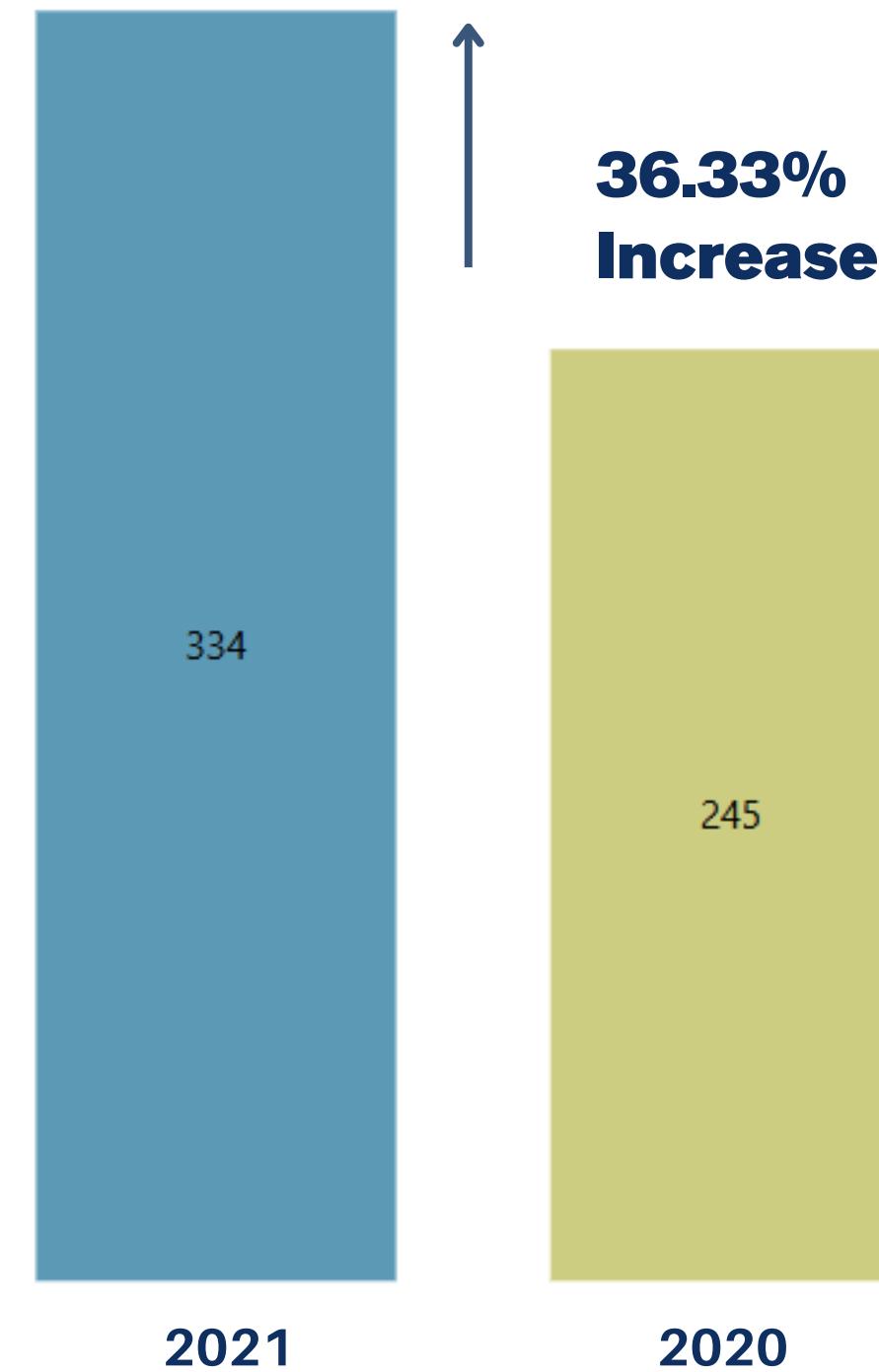
```
WITH unique_products AS (
  SELECT
    COUNT(DISTINCT CASE WHEN fiscal_year = 2020
THEN product_code END) AS unique_product_2020,
    COUNT(DISTINCT CASE WHEN fiscal_year = 2021
THEN product_code END) AS unique_product_2021
  FROM fact_sales_monthly
)
```

```
SELECT
  unique_product_2020,
  unique_product_2021,
  ROUND(
    (unique_product_2021 - unique_product_2020) *
    100.0 / unique_product_2020, 2
  ) AS percentage_change
FROM unique_products;
```



unique_product_2020	unique_product_2021	percentage_change
245	334	36.33

VISUAL REPRESENTATION



INSIGHTS

- The number of unique products rose from 245 in 2020 to 334 in 2021, reflecting a 36.33% increase.
- This indicates a strong year-over-year growth in the range of products offered.
- Possible reasons could be increased market demand, broader product range, or expansion of business operations.

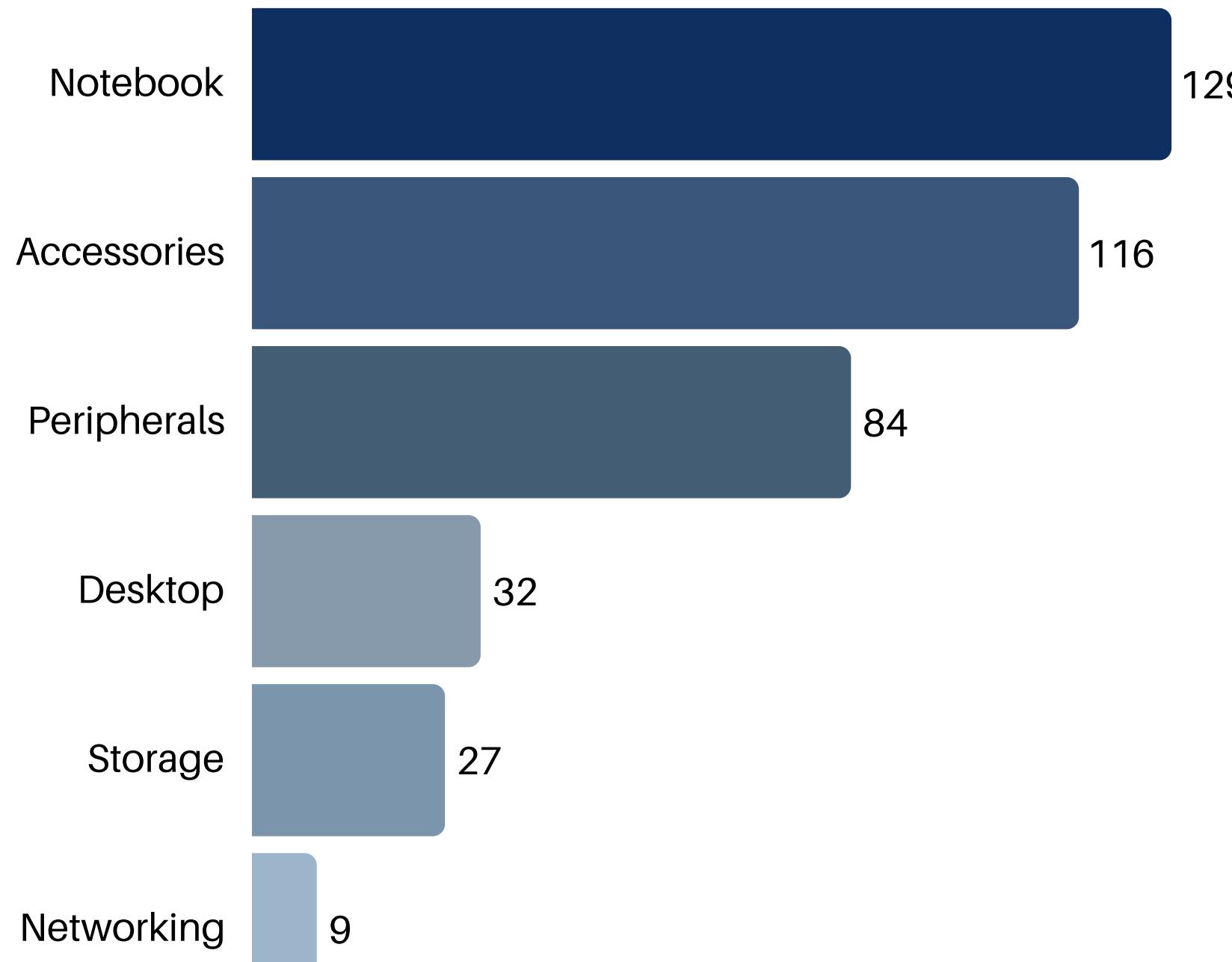
Q3. Provide a report with all the unique product counts for each segment and sort them in descending order of product counts. The final output contains 2 fields - segment, product_count.

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



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

VISUAL REPRESENTATION



INSIGHTS

- Notebook (129) and Accessories (116) lead in terms of product count, representing the most prominent segments.
- Peripherals (84) occupy a middle position, whereas Desktop (32) and Storage (27) reflect lower product numbers.
- Networking (9) has the least number of products, suggesting limited focus or offerings in that category.

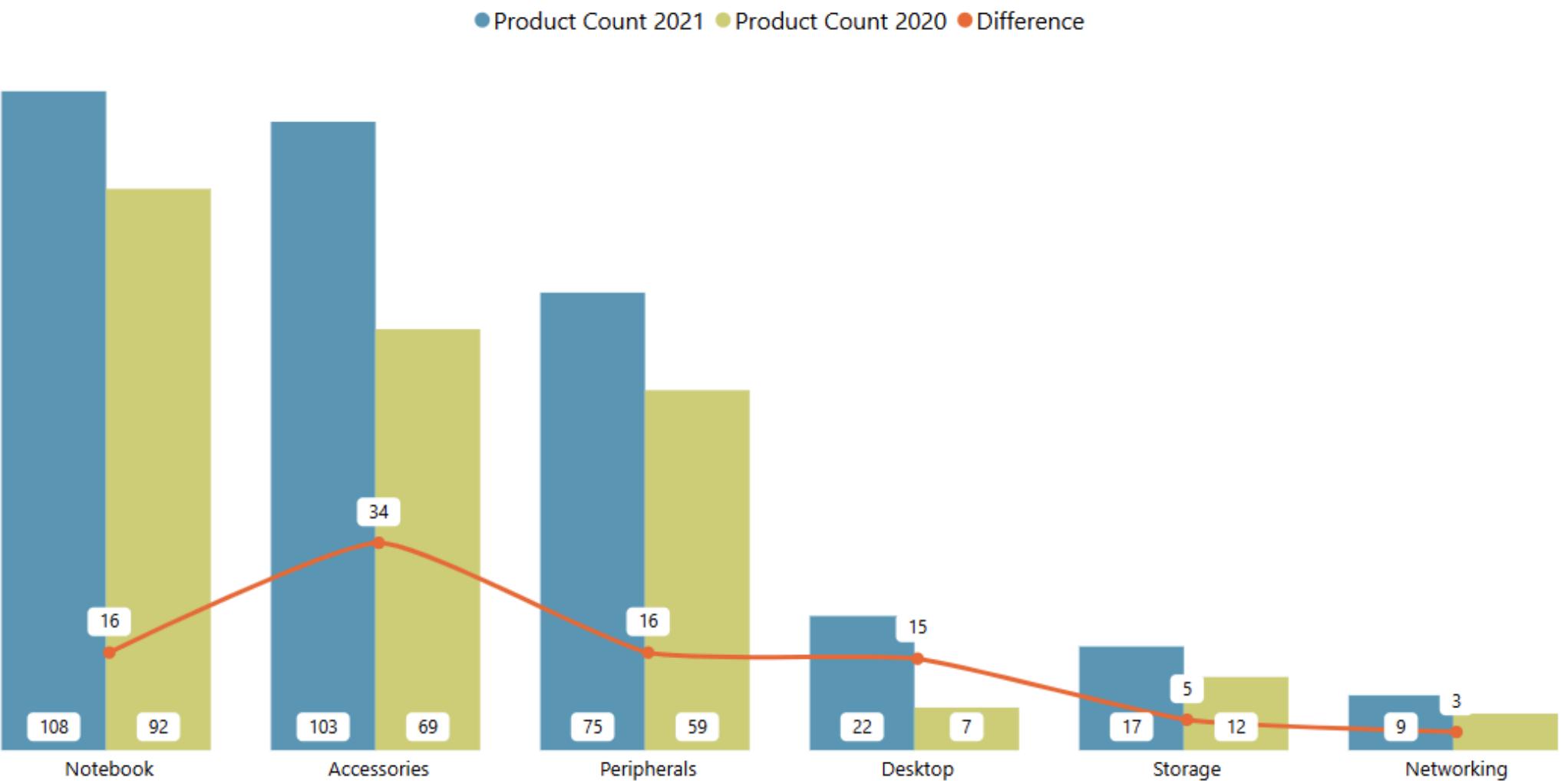
Q4. Follow-up: Which segment had the most increase in unique products in 2021 vs 2020? The final output contains these fields – segment, product_count_2020 product_count_2021, difference.

```
● ● ●  
WITH unique_product AS (  
    SELECT  
        segment,  
        COUNT(DISTINCT CASE WHEN fiscal_year = 2021 THEN  
            dp.product_code END) AS unique_product_2021,  
        COUNT(DISTINCT CASE WHEN fiscal_year = 2020 THEN  
            dp.product_code END) AS unique_product_2020  
    FROM  
        dim_product dp  
    JOIN  
        fact_sales_monthly fsm  
    ON fsm.product_code = dp.product_code  
    GROUP BY  
        segment  
)  
  
SELECT  
    *,  
    unique_product_2021 - unique_product_2020 AS difference  
FROM  
    unique_product  
ORDER BY  
    difference DESC;
```



segment	unique_product_2021	unique_product_2020	difference
Accessories	103	69	34
Notebook	108	92	16
Peripherals	75	59	16
Desktop	22	7	15
Storage	17	12	5
Networking	9	6	3

VISUAL REPRESENTATION



INSIGHTS

- Accessories showed the largest growth with an increase of +34, while Notebooks and Peripherals followed closely with +16 each, reflecting notable market expansion.
- Despite having fewer products overall, Desktops registered a significant rise of +15, which may signal a renewed interest in this category.
- Storage (+5) and Networking (+3) experienced only slight increases, possibly indicating a steady or saturated segment.

Q5. Get the products that have the highest and lowest manufacturing costs. The final output should contain these fields - product_code, product, manufacturing_cost.

```
● ● ●  
WITH cte1 AS (  
    SELECT  
        product_code,  
        product,  
        manufacturing_cost  
    FROM  
        fact_manufacturing_cost fmc  
    JOIN  
        dim_product dp  
    USING (product_code)  
)  
  
SELECT  
    *  
FROM  
    cte1  
WHERE  
    manufacturing_cost = (SELECT MAX(manufacturing_cost) FROM  
    cte1)  
    OR manufacturing_cost = (SELECT MIN(manufacturing_cost)  
    FROM cte1);
```



product_code	product	manufacturing_cost
A2118150101	AQ Master wired x1 Ms	0.892
A6120110206	AQ HOME Allin1 Gen 2	240.5364

VISUAL REPRESENTATION

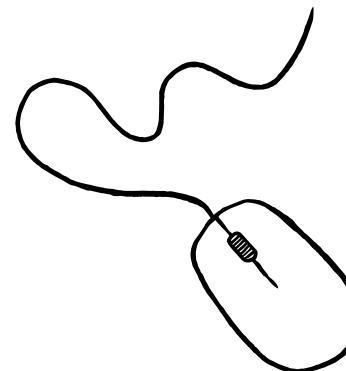
Highest Manufacturing Cost



\$ 240.53

AQ HOME Allin 1 Gen 2

Lowest Manufacturing Cost



\$ 0.89

AQ Master Wired x1 Ms

INSIGHTS

- AQ HOME Allin 1 Gen 2 has the highest manufacturing cost at 240.53, showing it is a high-end or advanced product.
- AQ Master Wired x1 Ms has the lowest manufacturing cost at 0.89, meaning it is a basic or low-cost item.
- The big cost difference shows that the company makes both expensive and affordable products.

Q6. 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.



```
SELECT
    c.customer_code,
    c.customer,
    ROUND(AVG(f.pre_invoice_discount_pct) * 100, 2) AS
    average_discount_pct
FROM
    fact_pre_invoice_deductions f
JOIN
    dim_customer c
    USING (customer_code)
WHERE
    market = 'India'
    AND fiscal_year = 2021
GROUP BY
    c.customer_code,
    c.customer
ORDER BY
    average_discount_pct DESC
LIMIT 5;
```



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

VISUAL REPRESENTATION

Customer	Average Discount %
Flipkart	30.83
Viveks	30.38
Ezone	30.28
Croma	30.25
Amazon	29.33

INSIGHTS

- Flipkart received the highest average pre-invoice discount at 30.83%, likely due to strong buying power or key partnerships.
- Amazon, though a major e-commerce leader, had the lowest discount among the top five at 29.33%, which may reflect different negotiation tactics.
- The top 5 discounts are very close (within about 1.5%), suggesting a competitive and fairly uniform discount strategy in India's market for FY 2021.
-

Q7. 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.

```

● ● ●

SELECT
    MONTHNAME(s.date) AS month,
    s.fiscal_year,
    ROUND(SUM(g.gross_price * s.sold_quantity) / 1000000, 2)
AS gross_sales_amount
FROM
    fact_gross_price g
JOIN
    fact_sales_monthly s
    ON g.product_code = s.product_code
    AND g.fiscal_year = s.fiscal_year
JOIN
    dim_customer c
    ON s.customer_code = c.customer_code
WHERE
    c.customer = 'Atliq Exclusive'
    AND s.fiscal_year = 2020
GROUP BY
    MONTHNAME(s.date), s.date, s.fiscal_year
ORDER BY
    s.date;

```



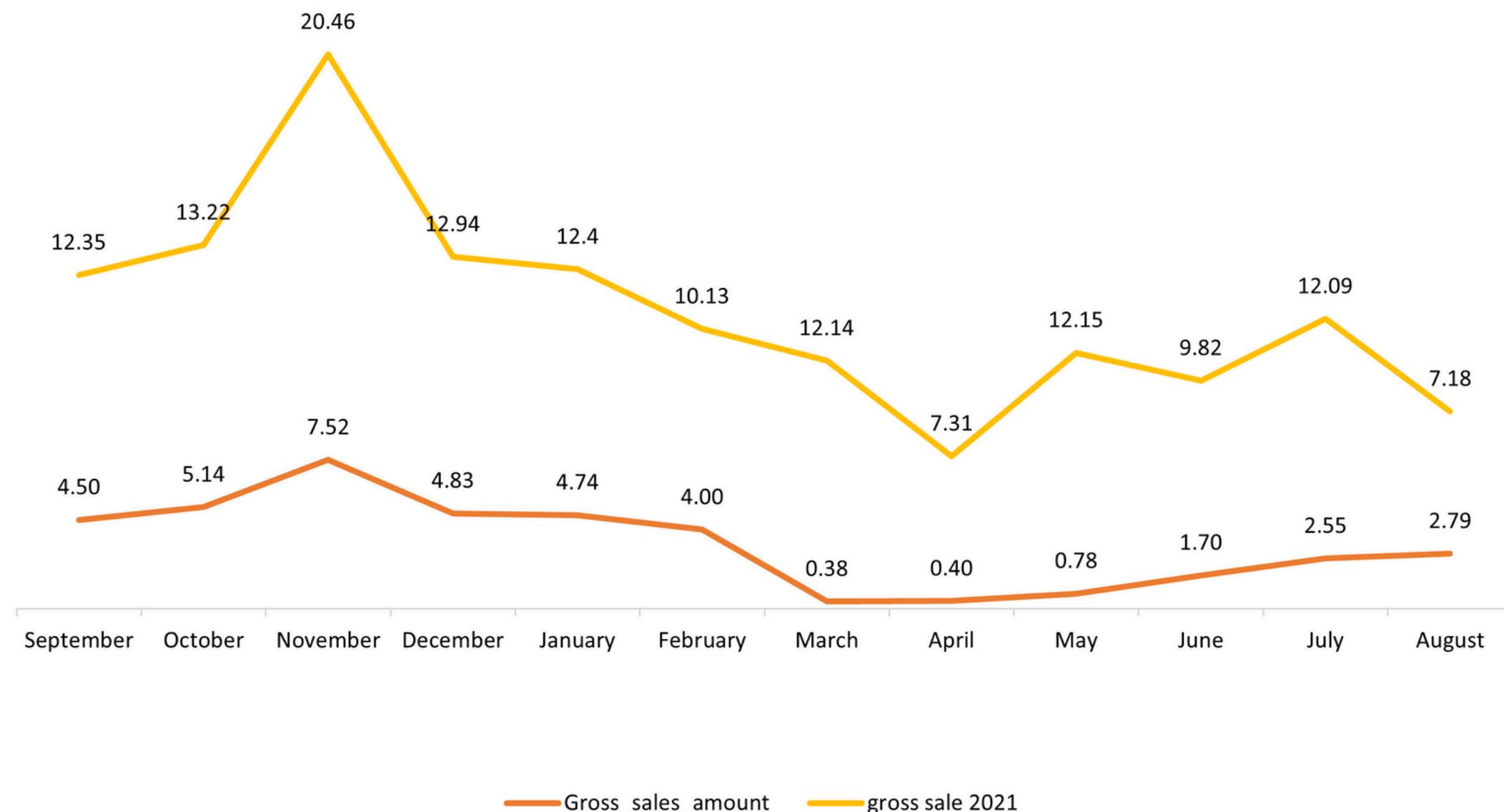
2020

month	Gross Sales Amount
September	4.50M
October	5.14M
November	7.52M
December	4.83M
January	4.74M
February	4.00M
March	0.38M
April	0.40M
May	0.78M
June	1.70M
July	2.55M
August	2.79M

2021

month	Gross_sales_amount
September	12.35 M
October	13.22 M
November	20.46 M
December	12.94 M
January	12.40 M
February	10.13 M
March	12.14 M
April	7.31 M
May	12.15 M
June	9.82 M
July	12.09 M
August	7.18 M

VISUAL REPRESENTATION



INSIGHTS

- Sales in FY 2021 consistently outperformed FY 2020, indicating a clear upward trend.
- November 2021 recorded the highest sales at \$20.46M, followed by October (\$13.22M) and December (\$12.94M).
- The lowest sales were seen in April 2021 (\$7.31M) and August 2021 (\$7.18M).
- Q1 remained stable, while the mid-year period showed more fluctuation — with strong performance from September to November and noticeable dips from April through August.

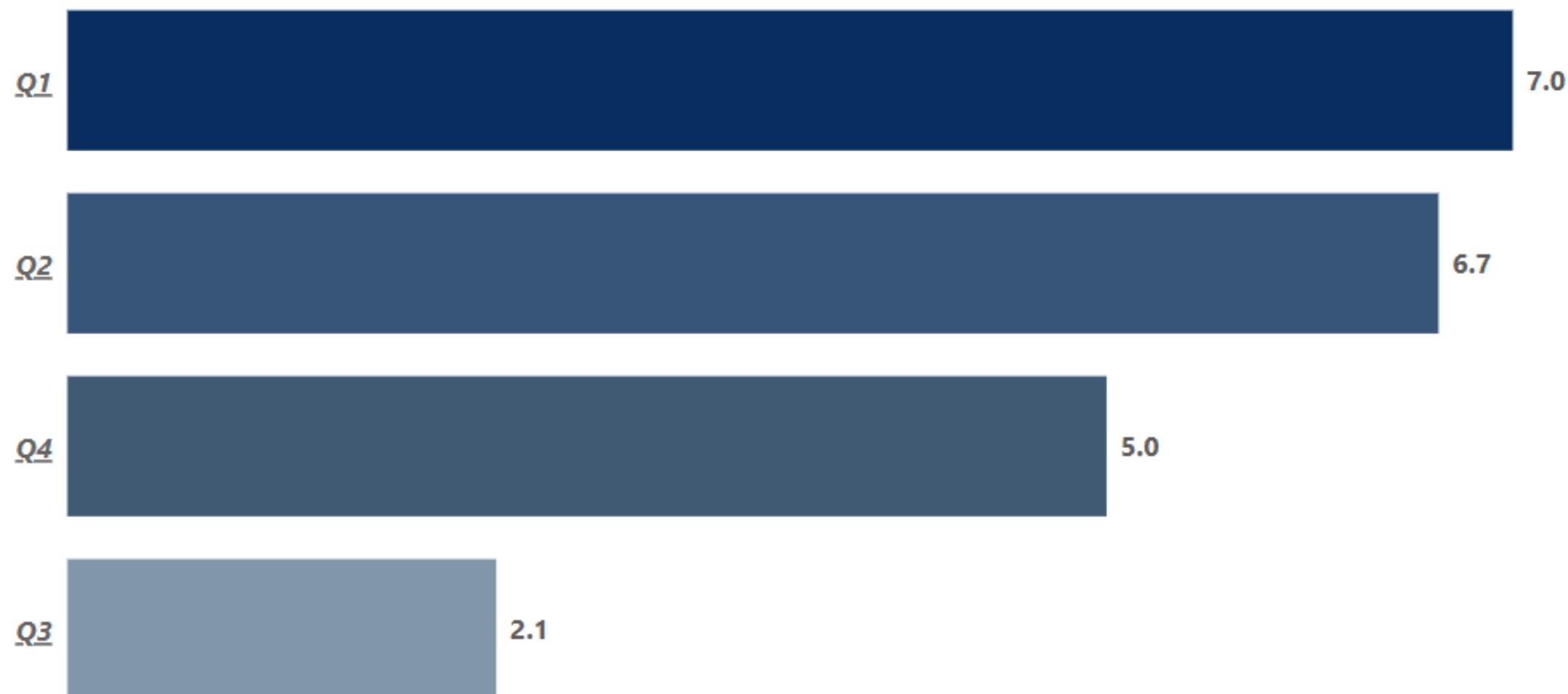
Q8. In which quarter of 2020, got the maximum total_sold_quantity? The final output contains these fields sorted by the total_sold_quantity, Quarter.

```
● ● ●  
SELECT  
CASE  
    WHEN MONTH(date) IN (9, 10, 11) THEN 'Q1'  
    WHEN MONTH(date) IN (12, 1, 2) THEN 'Q2'  
    WHEN MONTH(date) IN (3, 4, 5) THEN 'Q3'  
    WHEN MONTH(date) IN (6, 7, 8) THEN 'Q4'  
END AS quarter,  
CONCAT(ROUND(SUM(sold_quantity) / 1000000, 2),  
'M') AS total_sold_quantity  
FROM  
    fact_sales_monthly  
WHERE  
    fiscal_year = 2020  
GROUP BY  
    quarter;
```



Quarter	total_sold_quantity
Q1	7.01M
Q2	6.65M
Q3	2.08M
Q4	5.04M

VISUAL REPRESENTATION



INSIGHTS

- Q1 recorded the highest sales at 7.0M, leading all other quarters.
- Q2 followed closely with sales of 6.7M, showing strong performance.
- Q3 had the lowest sales, dropping to just 2.1M.
- Q4 saw some recovery with total sales reaching 5.0M.

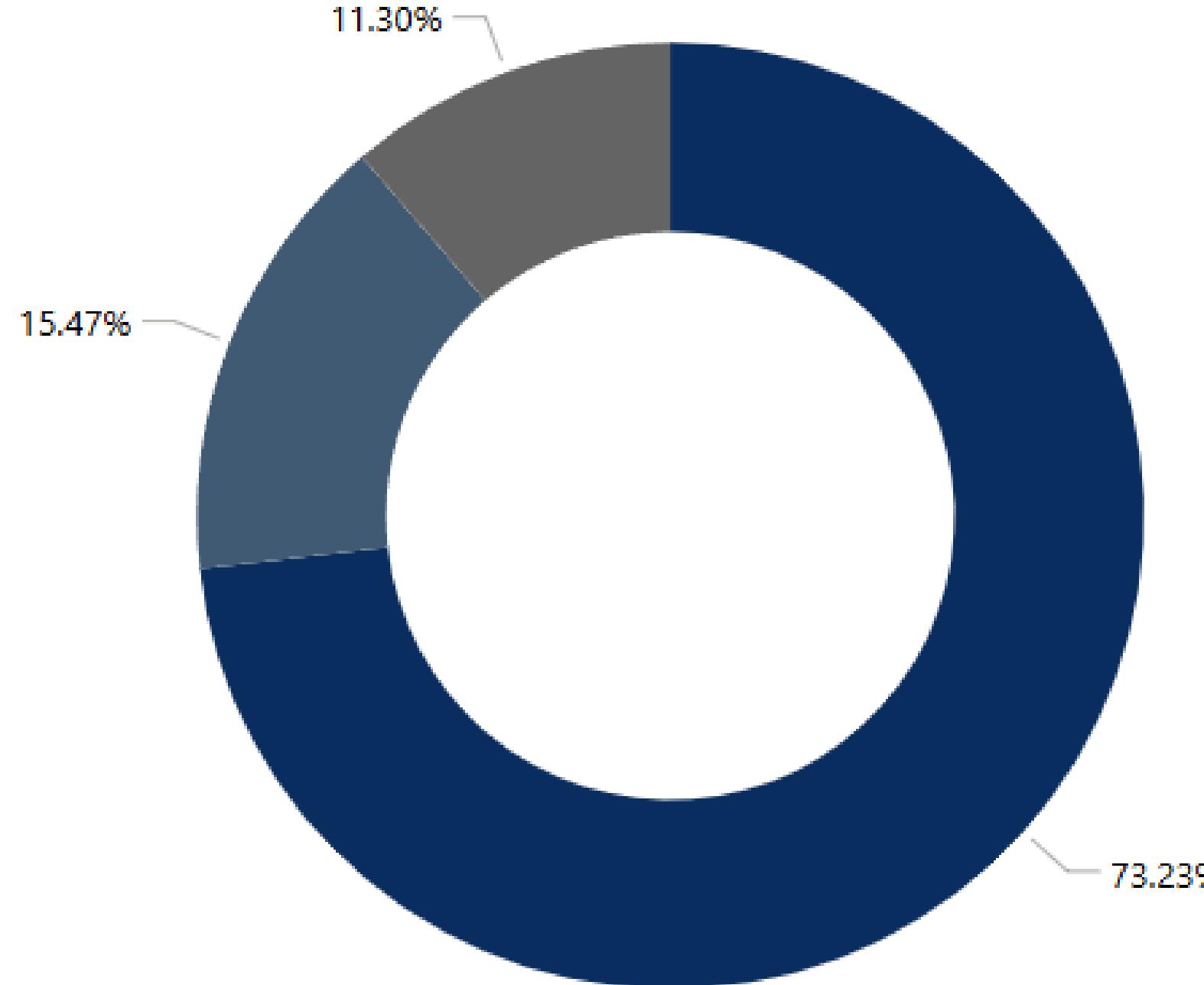
Q9. Which channel helped to bring more gross sales in the fiscal year 2021 and the percentage of contribution? The final output contains these fields – channel, gross_sales_mln, percentage.

```
● ● ●  
WITH cte AS (  
    SELECT  
        c.channel,  
        ROUND(SUM(s.sold_quantity * g.gross_price) / 1000000, 2) AS  
        gross_sales_mln  
    FROM  
        dim_customer c  
    JOIN fact_sales_monthly s ON c.customer_code = s.customer_code  
    JOIN fact_gross_price g ON s.product_code = g.product_code  
        AND s.fiscal_year = g.fiscal_year  
    WHERE  
        s.fiscal_year = 2021  
    GROUP BY  
        c.channel  
)  
  
SELECT  
    *,  
    ROUND((gross_sales_mln / SUM(gross_sales_mln) OVER () * 100, 2) AS  
    percentage  
FROM  
    cte  
ORDER BY  
    gross_sales_mln DESC;
```



channel	gross_sales_mln	percentage
Retailer	1219.08	73.23
Direct	257.53	15.47
Distributor	188.03	11.3

VISUAL REPRESENTATION



INSIGHTS

- The Retailer channel achieved the highest gross sales at 1,219.08 million, accounting for the largest share of total sales at 73.23%.
- The Direct channel recorded 257.53 million in sales, making up 15.47%, showing a solid secondary contribution.
- The Distributor channel had the lowest sales at 188.03 million, representing 11.30% of the total—still a meaningful part of the overall revenue.

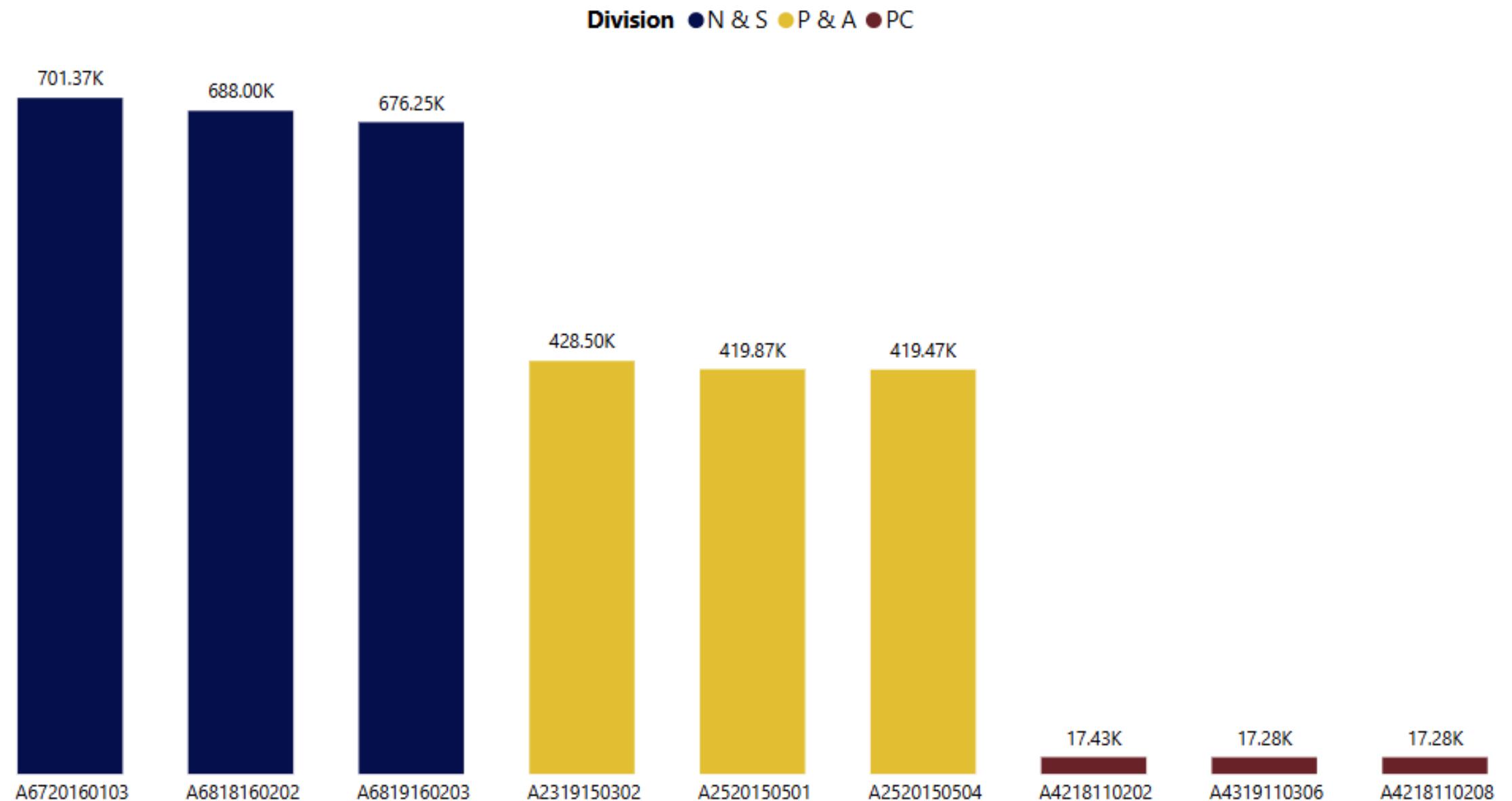
Q10. Get the Top 3 products in each division that have a high total_sold_quantity in the fiscal_year 2021? The final output contains these fields - division, product_code. Product, total_sold_quantity, rank_order.

```
● ● ●  
WITH cte1 AS (  
    SELECT  
        p.product,  
        p.division,  
        p.product_code,  
        SUM(s.sold_quantity) AS total_sold_quantity  
    FROM dim_product p  
    JOIN fact_sales_monthly s  
        ON s.product_code = p.product_code  
    WHERE s.fiscal_year = 2021  
    GROUP BY p.product_code, p.product, p.division  
,  
    cte2 AS (  
        SELECT *,  
            DENSE_RANK() OVER(  
                PARTITION BY division  
                ORDER BY total_sold_quantity DESC  
            ) AS rank_order  
        FROM cte1  
)  
SELECT *  
FROM cte2  
WHERE rank_order <= 3;
```



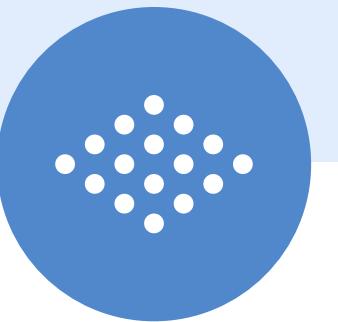
product	division	product_code	total_sold_quantity	rank_order
AQ Pen Drive 2 IN 1	N & S	A6720160103	701373	1
AQ Pen Drive DRC	N & S	A6818160202	688003	2
AQ Pen Drive DRC	N & S	A6819160203	676245	3
AQ Gamers Ms	P & A	A2319150302	428498	1
AQ Maxima Ms	P & A	A2520150501	419865	2
AQ Maxima Ms	P & A	A2520150504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

VISUAL REPRESENTATION



INSIGHTS

- N & S Division recorded the highest sales volume, led by AQ Pen Drive 2 IN 1 with 701K units sold.
- P & A Division also showed strong performance, with AQ Gamers Ms topping at 428K units.
- PC Division had the lowest sales, where AQ Digit led with just 17K units sold.
- While N & S and P & A dominated overall performance, the PC Division contributed far less in comparison.



THANK YOU!



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