



Consumer AD-HOC INSIGHTS



AGENDA

- Company Overview
- Objective
- Tools Used
- Company's Markets
- Ad-Hoc Request Overview
- Ad-Hoc Requests
- Visual Display



Company Overview

- AtliQ Hardware is a **Computer Hardware** and **Accessory** manufacturer.
- The company manufactures products under 3 major divisions i.e., **Networking & Storage, PC, Peripherals & Accessories**.
- AtliQ Hardware is operational in **NA, LATAM, EU** and **APAC** regions.



Objectives

- AtliQ Hardware (fictitious corporation) is one of the major computer hardware manufacturers in India, with a strong presence in other nations.

- Nevertheless, the management did note that they do not have sufficient insights to make prompt, wise, and data-informed judgments.

- Plan to expand the data analytics team by adding junior data analysts.

- To assess candidates, Data analytics director, Tony Sharma plans to conduct a **SQL Challenge** to evaluate both tech and soft skills.

- The company seeks insights for 10 ad hoc requests.



Company's Markets

- AtliQ Hardware operates across four major regions: **North America (NA)**, **Latin America (LATAM)**, **Europe (EU)**, and **Asia- Pacific (APAC)**. This global presence allows AtliQ to serve diverse customer needs with products in Networking and Storage, PCs, Peripherals and Accessories.



- In **NA** and **EU**, AtliQ benefits from strong demand for **Advanced Computing Solutions**. **LATAM** and **APAC**, with their growing economies, offer **Significant Opportunities for Expansion**. This strategic positioning ensures AtliQ's sustained growth and customer satisfaction worldwide.



Tools Used

Power BI



Power BI

For
Visualization

My SQL



For
Ad-Hoc
Queries

Python



For
DataFrame
conversion

Canva



For
presentation.



Ad-Hoc Requests Overview

- Management identified **10 key ad hoc business requests** that required data-driven analysis for better clarity.
- Each request was examined using **SQL queries** to extract and analyze the relevant data from the database.
- The results were then visualized using **Power BI** offering clear and engaging visualizations.
- Each section highlights the **specific business question, data exploration, and visual insights** derived from the analysis.

The screenshot shows a white page with a dark header. In the top right corner is a blue circular logo with the text "CODE BASICS". Below it, the text "Codebasics SQL Challenge" is displayed. A bold heading "Requests:" is followed by a numbered list of 10 items. Each item describes a specific business question and the fields required in the final output. For example, item 1 asks for markets where "AtliQ Exclusive" operates in the APAC region, and item 2 asks for the percentage of unique product increase in 2021 vs. 2020, listing fields like "unique_products_2020", "unique_products_2021", and "percentage_chg". The list continues with various requests involving segments, products, and customers, each with its own set of required fields.

This screenshot shows the continuation of the SQL challenge page. It lists items 6 through 10. Item 6 asks for the top 5 customers with the highest average pre-invoice discount percentage in the Indian market, listing fields like "customer_code", "customer", and "average_discount_percentage". Item 7 asks for a monthly report of gross sales for "AtliQ Exclusive", listing fields like "Month", "Year", and "Gross sales Amount". Item 8 asks for the quarter with the maximum total sold quantity, listing fields like "Quarter" and "total_sold_quantity". Item 9 asks for the channel that contributed most to gross sales in 2021, listing fields like "channel", "gross_sales_mln", and "percentage". Item 10 asks for the top 3 products in each division with high total sold quantity in 2021, listing fields like "division" and "product_code".

This screenshot shows the continuation of the SQL challenge page. It lists item 10, which asks for the top 3 products in each division with high total sold quantity in 2021, listing fields like "division" and "product_code".

10 Ad-Hoc Requests

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 customer = 'Atliq Exclusive'  
    AND region = 'APAC'  
ORDER BY  
    market ;
```



Market
Australia
Bangladesh
India
Indonesia
Japan
New Zealand
Philippines
South Korea

VISUAL DISPLAY



INSIGHTS

- Atliq Exclusive operates across eight major markets in the APAC region, including **India, Indonesia, Japan, Philippines, South Korea, Australia, New Zealand, and Bangladesh**, demonstrating a broad geographic presence.
- The company maintains a strong foothold in both emerging and developed markets, enabling access to a diverse customer base and significant growth opportunities in high-potential 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 and
percentage_chg

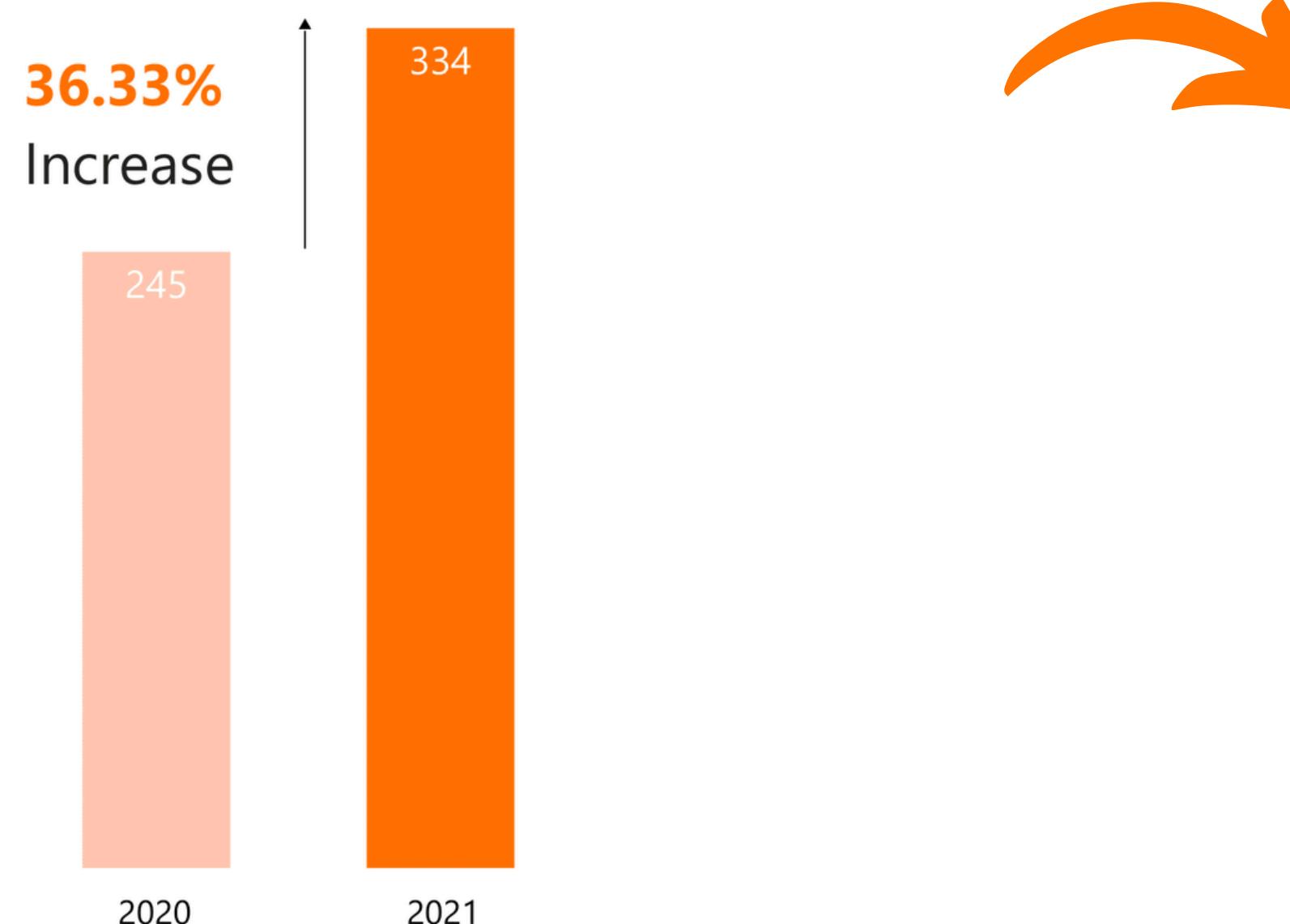


```
• • •  
  
WITH unique_products_table_2020 AS(  
    SELECT  
        COUNT(DISTINCT product_code) AS unique_products_2020  
    FROM  
        fact_sales_monthly  
    WHERE  
        fiscal_year = 2020  
,  
    unique_products_table_2021 AS (  
        SELECT  
            COUNT(DISTINCT product_code) AS unique_products_2021  
        FROM fact_sales_monthly  
        WHERE fiscal_year = 2021  
    )  
    SELECT  
        *,  
        CONCAT(ROUND(((unique_products_2021 - unique_products_2020)*100)/unique_products_2020,2),'%') as percentage_chg  
    FROM  
        unique_products_table_2020,  
        unique_products_table_2021;
```

Unique Products 2020	Unique Products 2021	Percentage Chg
245	334	36.33%



VISUAL DISPLAY



INSIGHTS

- The number of unique products rose from **245** in **2020** to **334** in **2021**, marking a **36.33% increase**.
- This reflects a significant **year-over-year growth** in product variety.
- Possible drivers for this expansion include increased **market demand**, **strategic product diversification**, and overall **business growth**.



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

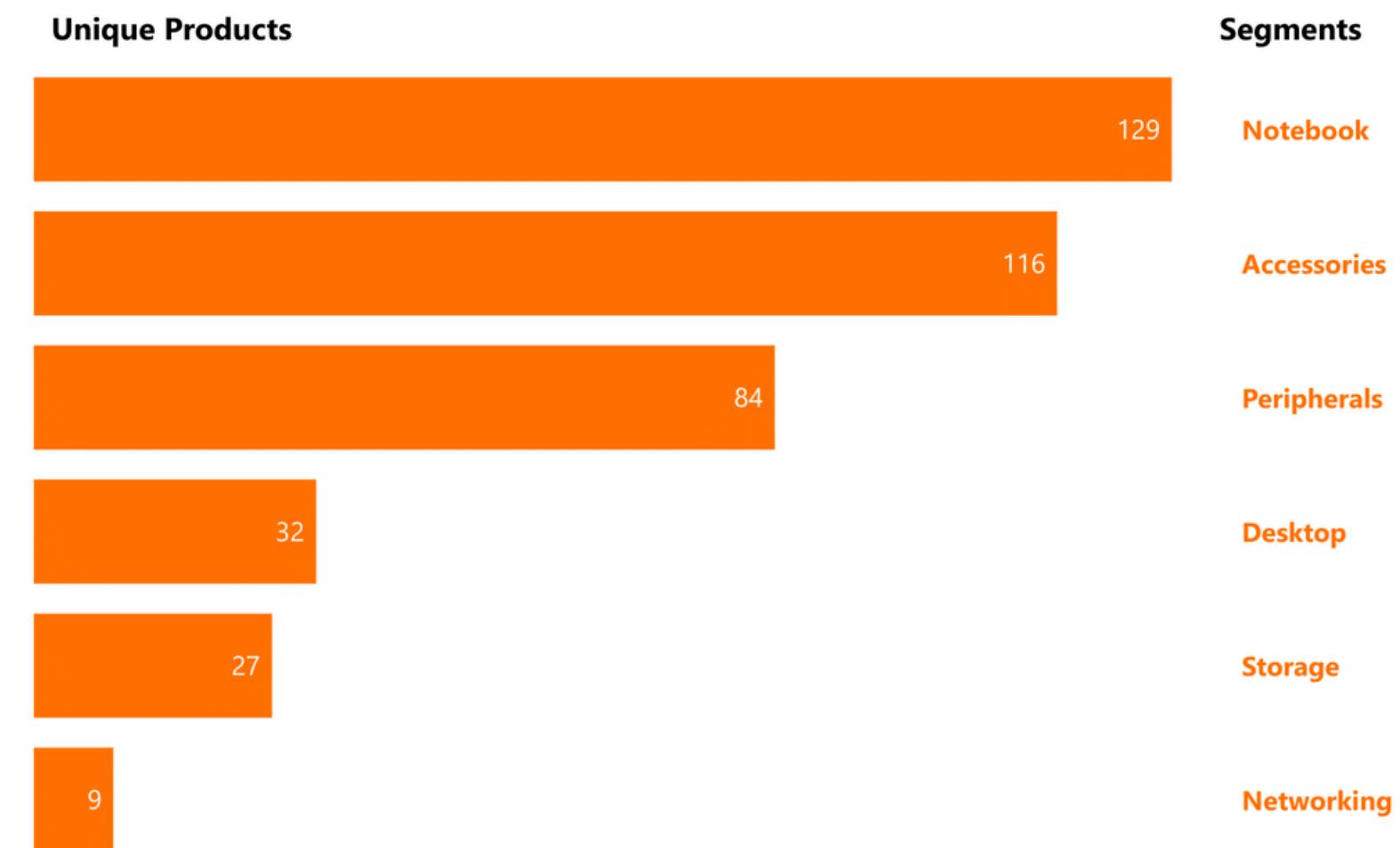
```
SELECT
    segment,
    COUNT(product_code) AS product_count
FROM
    dim_product
GROUP BY
    segment
ORDER BY
    product_count DESC;
```



Segment	Product Count
Notebook	129
Accessories	116
Peripherals	84
Desktop	32
Storage	27
Networking	9



VISUAL DISPLAY



INSIGHTS

- **Notebooks (129) and Accessories (116)** lead the product portfolio, representing the largest segments.
- **Peripherals (84)** hold a moderate position, showcasing a balanced product range.
- **Desktops (32)** and **Storage devices (27)** contribute smaller portions to the overall lineup.
- **Networking (9)** has the least number of products, indicating limited representation in this segment.



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

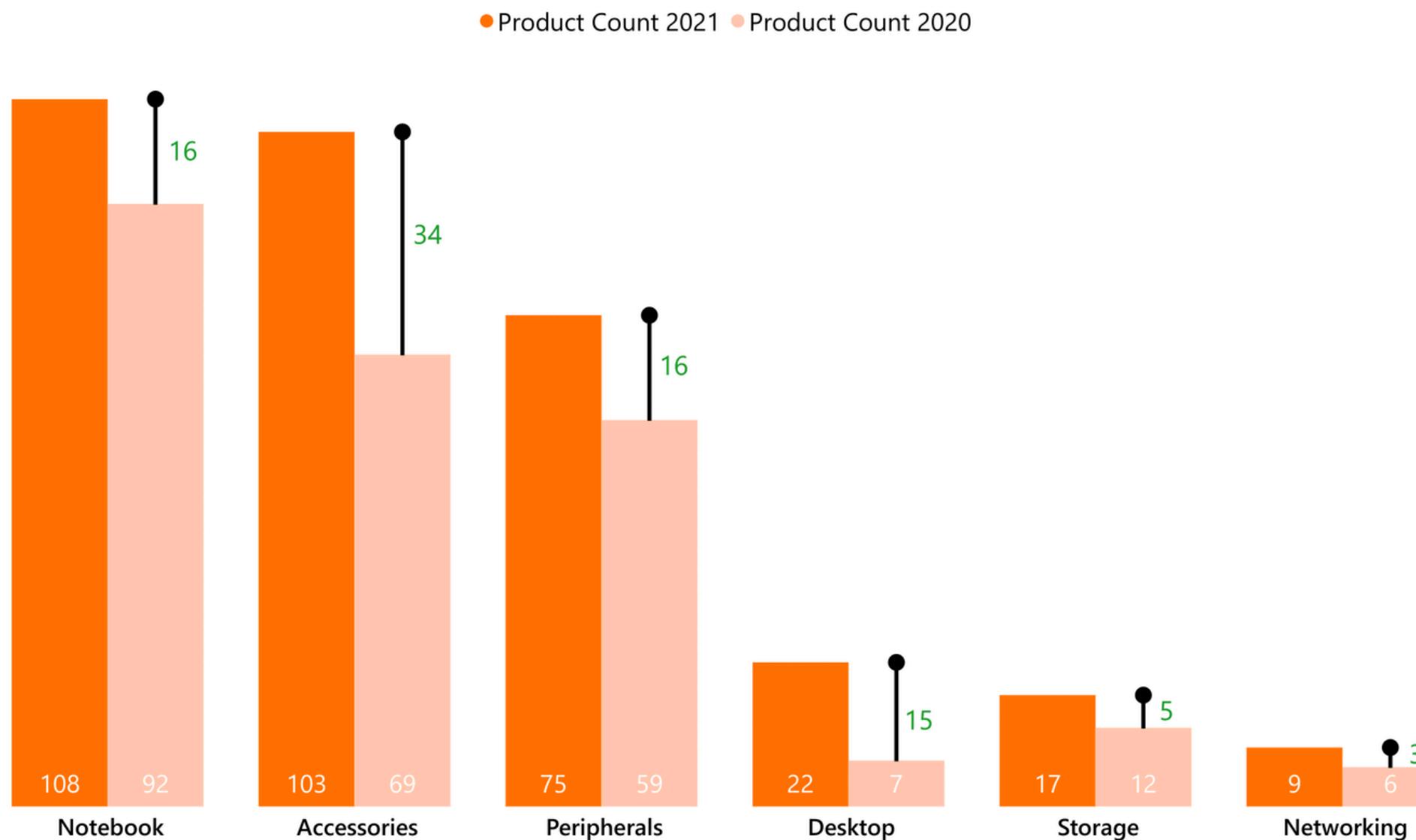


Segment	Product Count 2020	Product Count 2021	Difference
Accessories	69	103	34
Notebook	92	108	16
Peripherals	59	75	16
Desktop	7	22	15
Storage	12	17	5
Networking	6	9	3

```
WITH
  count_2020 AS(
    SELECT
      dp.segment,
      COUNT(DISTINCT dp.product_code) AS product_count_2020
    FROM
      dim_product AS dp
    JOIN
      fact_sales_monthly AS fsm
    ON
      dp.product_code = fsm.product_code
    WHERE fiscal_year = 2020
    GROUP BY
      dp.segment
  ),
  count_2021 AS(
    SELECT
      dp.segment,
      COUNT(DISTINCT dp.product_code) AS product_count_2021
    FROM
      dim_product AS dp
    JOIN
      fact_sales_monthly AS fsm
    ON
      dp.product_code = fsm.product_code
    WHERE fiscal_year = 2021
    GROUP BY
      dp.segment
  )
SELECT
  c20.segment,
  product_count_2020,
  product_count_2021,
  (product_count_2021 - product_count_2020) AS difference
FROM
  count_2020 as c20
JOIN
  count_2021 as c21
ON
  c20.segment = c21.segment
ORDER BY
  difference DESC;
```



VISUAL DISPLAY



INSIGHTS

- **Accessories** experienced the highest increase (+34), reflecting strong market expansion.
- **Notebooks (+16)** and **Peripherals (+16)** showed consistent growth in these segments.
- **Desktops (+15)** had significant relative growth, indicating a potential resurgence in demand despite a smaller base.
- **Storage (+5)** and **Networking (+3)** exhibited minimal growth, suggesting a stable or saturated market.



Q5. Get the products that have the highest and lowest manufacturing costs. The final output should contain these fields:

product_code

product

manufacturing_cost

Product Code	Product	Manufacturing Cost
A2118150101	AQ Master wired x1 Ms	0.89
A6120110206	AQ HOME Allin1 Gen 2	240.54



```
SELECT
    dp.product_code,
    product,
    ROUND(manufacturing_cost,2) As manufacturing_cost
FROM
    dim_product dp
JOIN
    fact_manufacturing_cost fmc
    ON
        dp.product_code = fmc.product_code
WHERE manufacturing_cost IN
(
    SELECT
        MIN(manufacturing_cost)
    FROM
        fact_manufacturing_cost
    UNION
    SELECT
        MAX(manufacturing_cost)
    FROM
        fact_manufacturing_cost
)
ORDER BY fmc.manufacturing_cost DESC;
```



VISUAL DISPLAY

Products having the **Highest** and **Lowest** manufacturing costs



240.54

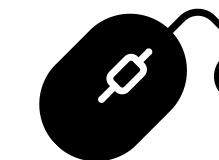


A6120110206

AQ Master wired x1 MS



0.89



A2119150101

AQ HOME Allin1 Gen 2



INSIGHTS

- AQ HOME Allin1 Gen 2 has the **highest** manufacturing cost (**240.53**), indicating it is a premium or complex product.
- AQ Master wired x1 MS has the **lowest** manufacturing cost (**0.89**), suggesting it is a low-cost accessory or component.
- The **significant cost difference** highlights a **diverse product pricing strategy** within the company.



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

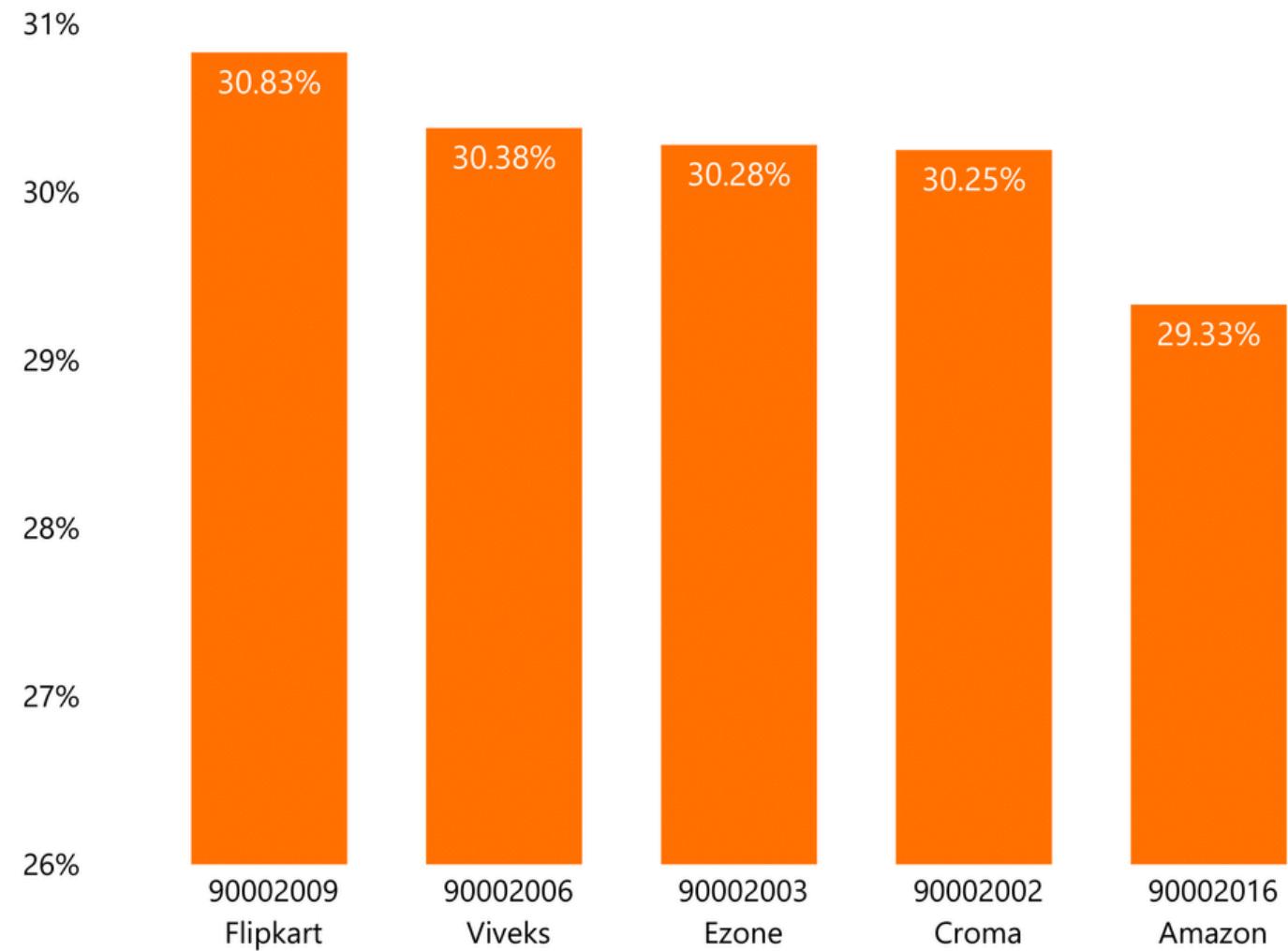
Customer Code	Customer	Avg Discount Percentage
90002009	Flipkart	30.83%
90002006	Viveks	30.38%
90002003	Ezone	30.28%
90002002	Croma	30.25%
90002016	Amazon	29.33%



```
SELECT
    dc.customer_code,
    customer,
    CONCAT(ROUND(AVG(pre_invoice_discount_pct *100),2),'%') AS average_discount_percentage
FROM
    dim_customer AS dc
JOIN
    fact_pre_invoice_deductions AS fpd
    ON
        dc.customer_code = fpd.customer_code
WHERE
    pre_invoice_discount_pct > (
        SELECT
            AVG(pre_invoice_discount_pct)
        FROM fact_pre_invoice_deductions
    )
    AND
        fiscal_year = 2021 and market = "India"
GROUP BY
    dc.customer_code,
    customer
ORDER BY
    average_discount_percentage DESC
LIMIT
    5;
```



VISUAL DISPLAY



INSIGHTS

- **Flipkart** received the **highest** average pre-invoice discount (**30.83%**), likely due to its high-volume purchasing and strong supplier partnerships.
- **Amazon**, despite its market size, obtained the **lowest discount (29.33%)** among the top five, indicating different **negotiation strategies**.
- The discount rates among the top five retailers are closely clustered within approximately **1.5%**, pointing to a **competitive** and **standardized discount structure** in the Indian 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 and Gross sales Amount

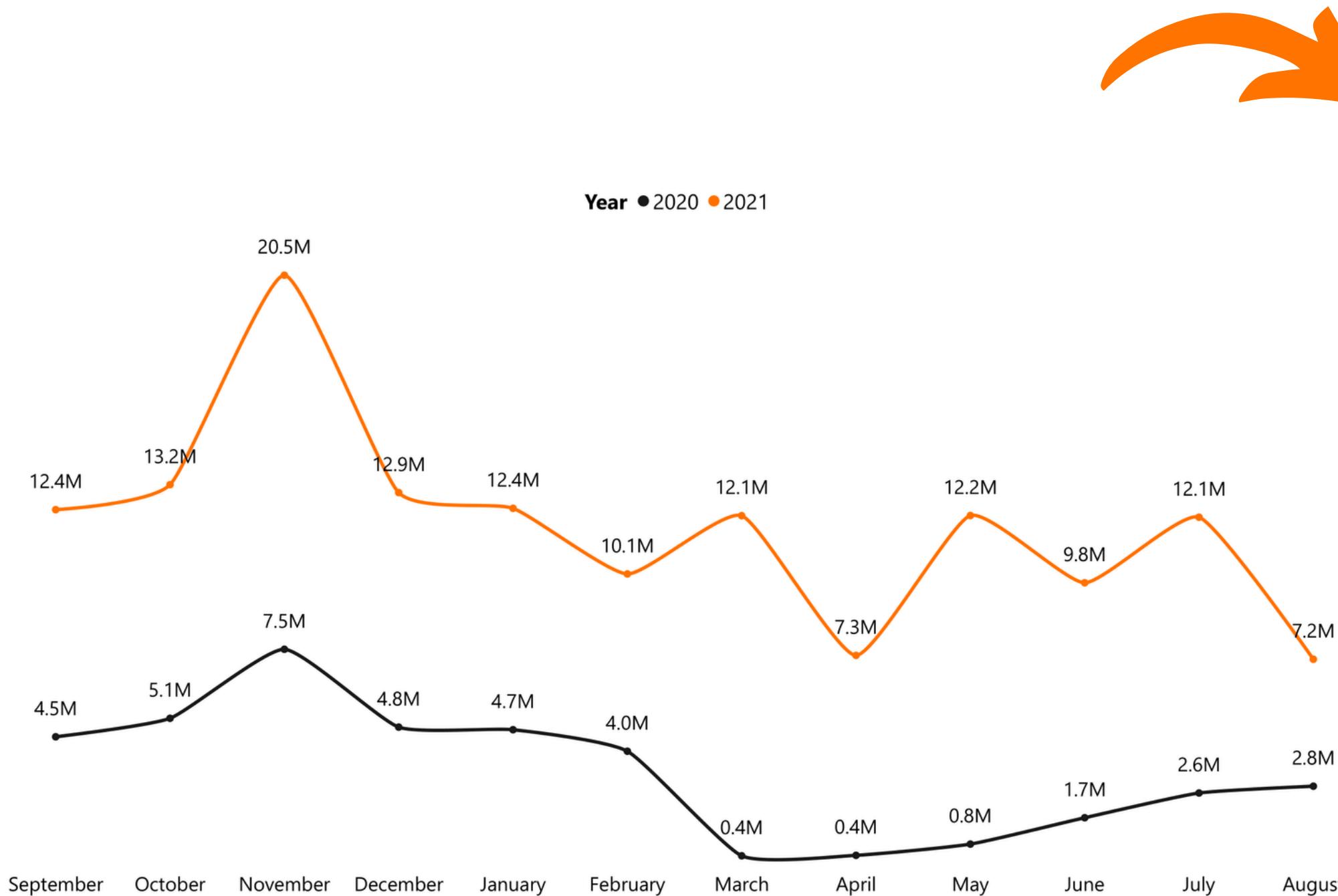


```
SELECT
    DATE_FORMAT(fsm.DATE, '%M') AS Month,
    (fsm.fiscal_year) AS Year ,
    CONCAT(ROUND(SUM(gross_price * sold_quantity)/1000000,2), 'M') as Gross_Sales_Amount
FROM
    fact_sales_monthly AS fsm
JOIN
    fact_gross_price AS fgp
    ON
        fgp.product_code = fsm.product_code AND fgp.fiscal_year = fsm.fiscal_year
JOIN
    dim_customer AS dc
    ON
        dc.customer_code = fsm.customer_code
WHERE customer = 'Atliq Exclusive'
GROUP BY
    MONTH,
    YEAR
ORDER BY
    YEAR ;
```

Month 2021	Gross Sales Amount
September	12.35M
October	13.22M
November	20.46M
December	12.94M
January	12.40M
February	10.13M
March	12.14M
April	7.31M
May	12.15M
June	9.82M
July	12.09M
August	7.18M



VISUAL DISPLAY



INSIGHTS

- Sales in FY 2021 consistently outperformed FY 2020, indicating a strong upward trend.
- November 2021 recorded the highest sales (20.46M), followed by October (13.22M) and December (12.94M).
- April (7.31M) and August (7.18M) saw the lowest sales in FY 2021.
- Q1 showed stability, while mid-year (Apr-Aug) experienced dips. September to November marked a strong recovery with high sales.



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
total_sold_quantity

```
CREATE DEFINER='root'@'localhost' FUNCTION `get_fiscal_quarter`(
    calender_date DATE
) RETURNS CHAR(2) CHARSET utf8mb4
DETERMINISTIC
BEGIN
    DECLARE m TINYINT;
    DECLARE qtr CHAR(2);
    SET m = MONTH(calender_date);
CASE
    WHEN m in (9,10,11) THEN SET qtr = "Q1";
    WHEN m in (12,1,2) THEN SET qtr = "Q2";
    WHEN m in (3,4,5) THEN SET qtr = "Q3";
    WHEN m in (6,7,8) THEN SET qtr = "Q4";
END CASE ;
    RETURN qtr;
END
```

Quarter	Total Sold Quantity
Q1	7.01M
Q2	6.65M
Q3	2.08M
Q4	5.04M

```
SELECT
    get_fiscal_quarter (date) as Quarter ,
    CONCAT(ROUND(SUM(sold_quantity)/1000000,2),'M') AS total_sold_quantity
FROM
    fact_sales_monthly AS f
WHERE
    fiscal_year = 2020
GROUP BY
    Quarter
ORDER BY
    total_sold_quantity DESC;
```

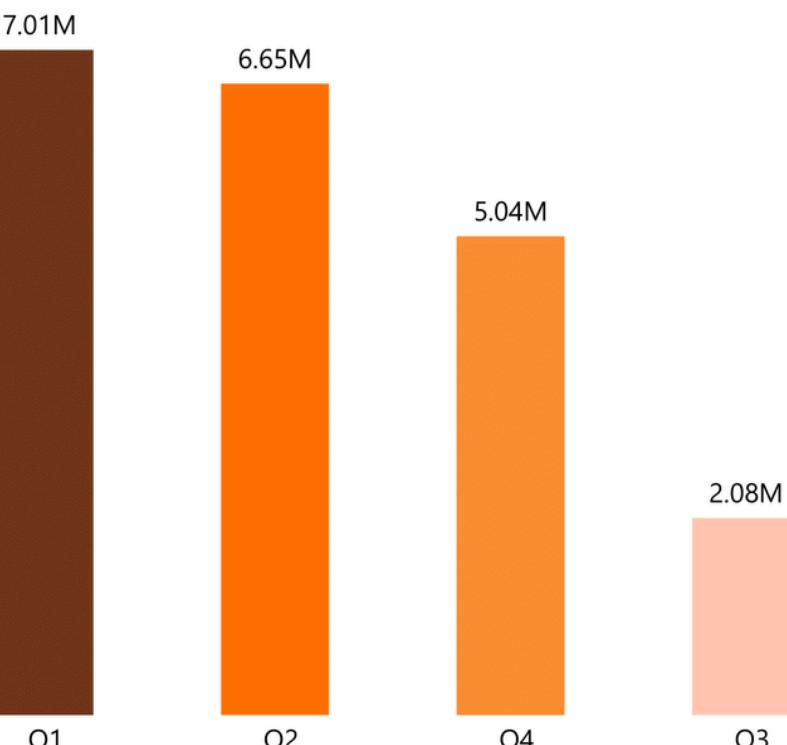




VISUAL DISPLAY

INSIGHTS

Month	Quarter	Total Sold Quantity
September	Q1	1.76M
October	Q1	2.19M
November	Q1	3.05M
February	Q2	1.70M
January	Q2	1.76M
December	Q2	3.18M
March	Q3	0.24M
April	Q3	0.82M
May	Q3	1.02M
June	Q4	1.56M
July	Q4	1.69M
August	Q4	1.79M



- **Q1 (Sep–Nov)** recorded the **highest sales** at **7.01M (33.72%)**, showing strong market performance.
- **Q3 (Mar–May)** had the **lowest sales** at **2.08M (9.99%)**, indicating a significant drop.
- Sales **declined from Q1 to Q3**, reflecting mid-year challenges.
- A **slight recovery** was observed in **Q4 (5.04M, 24.27%)**, signaling a rebound in demand.





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

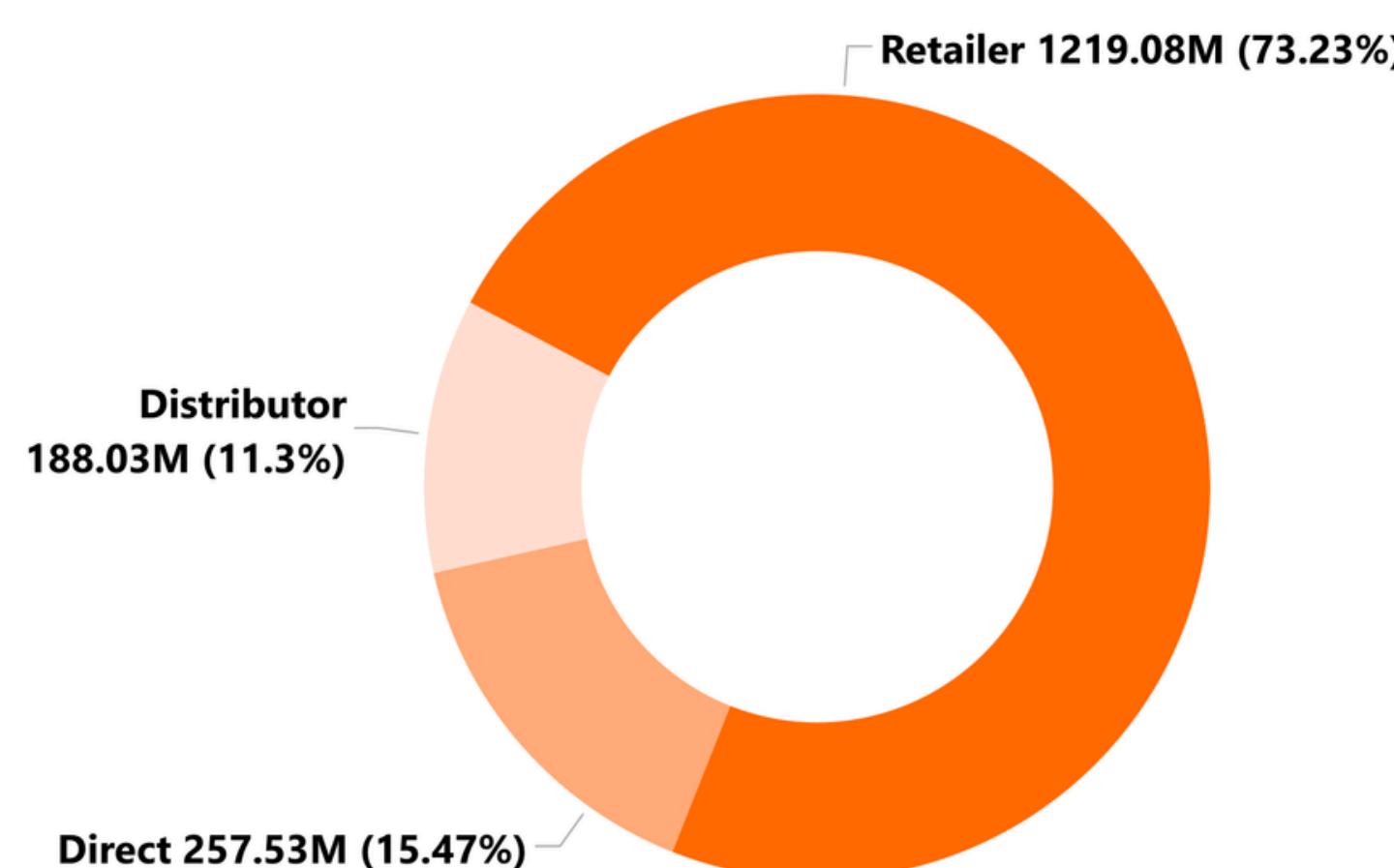
Channel	Gross Sales	Percentage
Direct	257.53M	15.47
Distributor	188.03M	11.30
Retailer	1,219.08M	73.23



```
WITH
    channel_sales_2021 AS(
        SELECT
            channel ,
            ROUND(SUM(gross_price * sold_quantity)/1000000,2) AS gross_sales_mln
        FROM
            fact_sales_monthly AS fsm
        JOIN
            fact_gross_price AS fgp
        ON
            fgp.product_code = fsm.product_code
            AND
            fgp.fiscal_year = fsm.fiscal_year
        JOIN
            dim_customer AS dc
        ON
            dc.customer_code = fsm.customer_code
    WHERE
        fgp.fiscal_year = 2021
    GROUP BY
        channel
    ORDER BY
        gross_sales_mln DESC
),
total_sales_2021 AS (
    SELECT
        SUM(gross_sales_mln) AS total_gross_sales
    FROM
        channel_sales_2021
)
SELECT
    channel,
    CONCAT(gross_sales_mln, 'M') AS gross_sales_mln,
    CONCAT(ROUND(((gross_sales_mln * 100)/total_gross_sales),2), '%') AS percentage
FROM
    channel_sales_2021,
    total_sales_2021;
```



VISUAL DISPLAY



INSIGHTS

- The **Retailer channel** generated the **highest gross sales** of **1,219.08M (73.23%)**, making it the **dominant revenue source**.
- The **Direct channel** contributed **257.53M (15.47%)**, indicating a **moderate but significant** share of total sales.
- The **Distributor channel** had the **lowest** contribution with **188.03M (11.30%)**, showing a **smaller yet notable role** in overall sales.



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 and rank_order

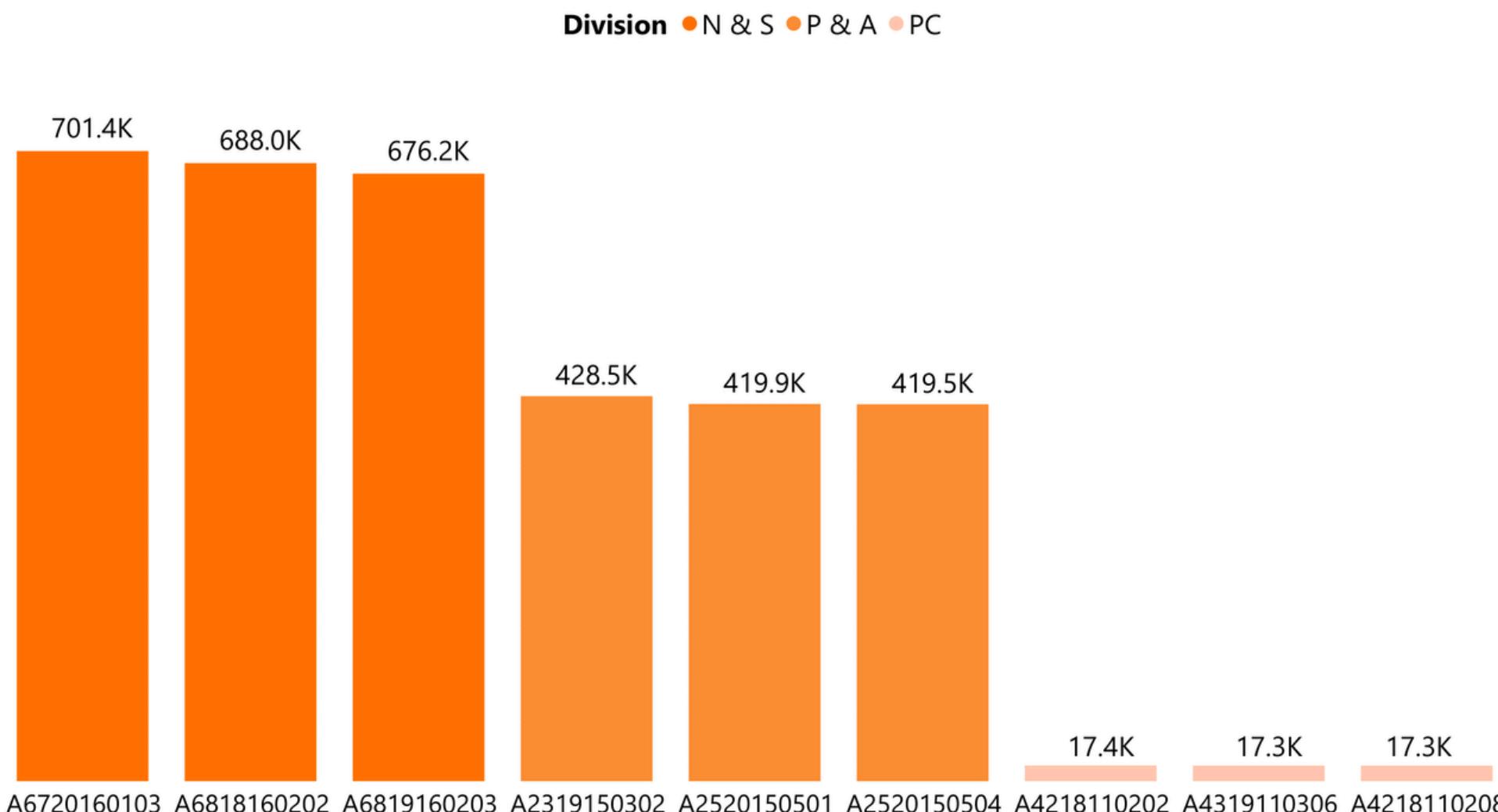
```
WITH
    division_sales_2021 AS(
        SELECT
            division,
            dp.product_code,
            CONCAT(dp.product, ' (' , dp.variant, ')') AS product,
            CONCAT(ROUND(SUM(sold_quantity)/1000,2),'K') AS total_sold_quantity
        FROM
            dim_product AS dp
        JOIN
            fact_sales_monthly AS fsm
            ON dp.product_code = fsm.product_code
        WHERE
            fiscal_year = 2021
        GROUP BY
            division,
            dp.product_code,
            CONCAT(dp.product, ' (' , dp.variant, ')')
    ),
    sales_rank_2021 AS (
        SELECT
            *,
            DENSE_RANK() OVER(PARTITION BY division ORDER BY total_sold_quantity DESC) AS rank_order
        FROM division_sales_2021
    )
SELECT
    *
FROM
    sales_rank_2021
WHERE
    rank_order <= 3;
```



Division	Product Code	Product	Total Sold Qty	Rank
N & S	A6720160103	AQ Pen Drive 2 IN 1 (Premium)	701.4K	1
N & S	A6818160202	AQ Pen Drive DRC (Plus)	688.0K	2
N & S	A6819160203	AQ Pen Drive DRC (Premium)	676.2K	3
P & A	A2319150302	AQ Gamers Ms (Standard 2)	428.5K	1
P & A	A2520150501	AQ Maxima Ms (Standard 1)	419.9K	2
P & A	A2520150504	AQ Maxima Ms (Plus 2)	419.5K	3
PC	A4218110202	AQ Digit (Standard Blue)	17.4K	1
PC	A4319110306	AQ Velocity (Plus Red)	17.3K	2
PC	A4218110208	AQ Digit (Premium Misty Green)	17.3K	3



VISUAL DISPLAY



INSIGHTS

- **N & S Division** recorded the **highest sales volume**; **AQ Pen Drive 2 IN 1** led with **701K** units sold.
- **P & A Division** showed **strong performance**; **AQ Gamers Ms** was the top product with **428K** units.
- **PC Division** had the **lowest sales**; **AQ Digit** led the category but sold only **17K** units.
- **N & S** and **P & A** divisions **dominated** overall sales, while the **PC Division** saw significantly **lower performance**.



THANK YOU



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<https://github.com/pragatiagrawal>