Ad Hoc Reporting

Consumer goods

Atliq Hardwares

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Background

OVERVIEW

Atliq Hardwares (imaginary company), a prominent computer hardware producer in India and abroad.

PROBLEM

The management has identified the need for improved data insights to make informed decisions.

CHALLENGE

The company has 10 unexpected requests for which it requires insights.

APPROACH

Run SQL query to answer these requests, convert the data into visualizations, and present the insights to the top- level management.

TOOLS

MySQL, Microsoft Power BI

Ad Hoc requests

REQUEST 1

Provide the list of markets in which customer "**Atliq Exclusive**" operates its business in the **APAC (**Asia Pacific**)** region for Fiscal Year = 2020, 2021.

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

INSIGHTS

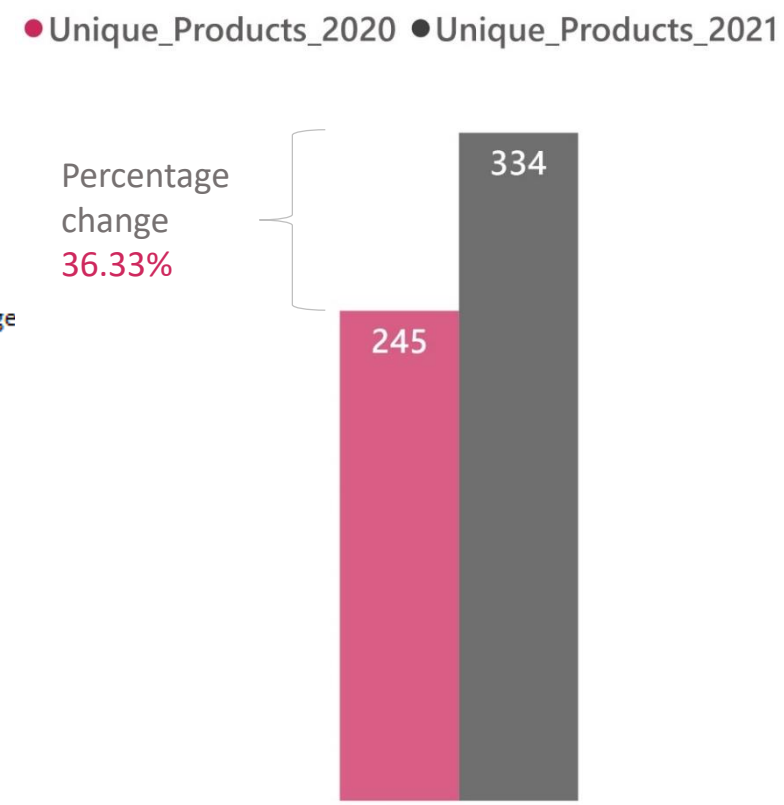
In the APAC region, our Exclusive store has solidified its position in 8 key markets.

Ad Hoc requests

REQUEST 2

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 cte1 as
(SELECT count(DISTINCT(product_code)) as Unique_Products_2020
FROM fact_sales_monthly as f
WHERE fiscal_year=2020),
cte2 as
(SELECT count(DISTINCT(product_code)) as Unique_Products_2021
FROM fact_sales_monthly as f
WHERE fiscal_year=2021)
SELECT *, round((Unique_Products_2021-Unique_Products_2020)*100/Unique_Products_2020,2) as Percentage_Change
FROM cte1
CROSS JOIN
cte2;
```



INSIGHTS

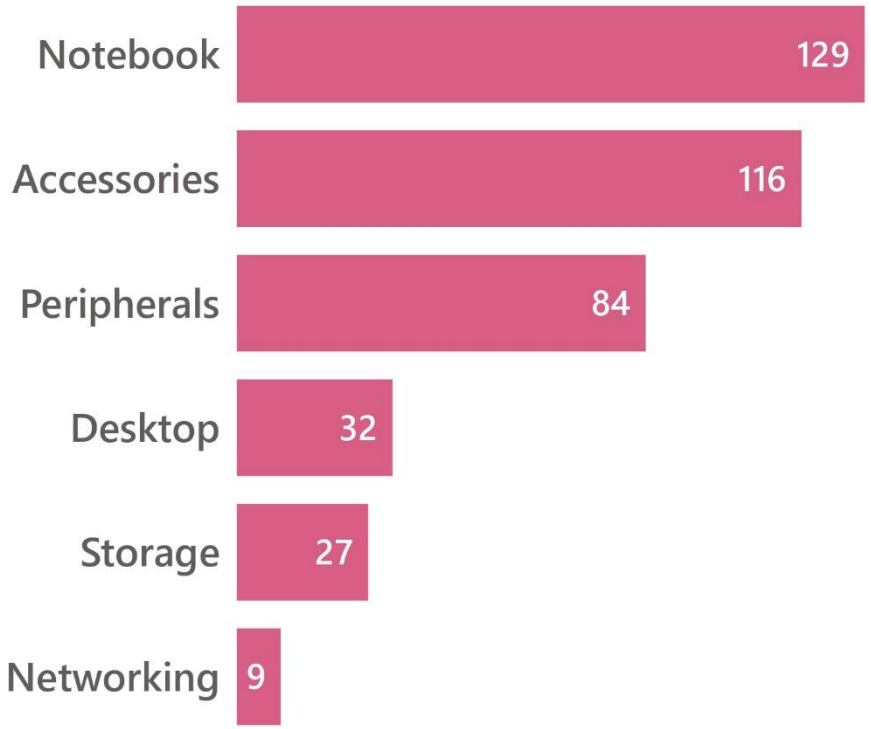
- In fiscal year 2020, our product count totaled 245.
- By FY 2021, our product count surged by 36% to reach 334, signifying a substantial increase in both demand and production.
- Additionally, the number of unique products also experiencing a significant rise of 36.33% from 2020.

Ad Hoc requests

REQUEST 3

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 two fields: segment and product_count.

```
SELECT segment,
count(DISTINCT(product_code)) as Product_Count
FROM dim_product
GROUP BY segment
ORDER BY Product_Count DESC;
```



INSIGHTS

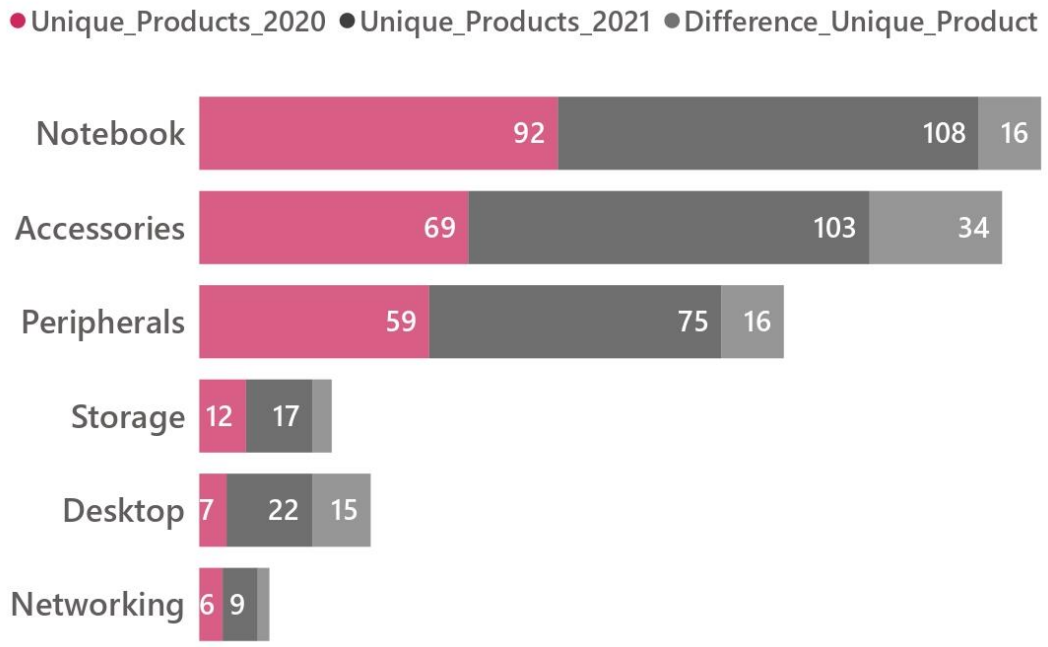
- Categories such as notebooks, accessories, and peripherals are experiencing significant growth in manufacturing.
- On the other hand, desktops, storage, and networking require exploration of current trends and demands for new product introductions.

Ad Hoc requests

REQUEST 4

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 cte1 as (SELECT p.segment,
count(DISTINCT(f.product_code)) as Product_Count_2020
FROM fact_sales_monthly as f
JOIN dim_product as p
USING(product_code)
WHERE fiscal_year=2020
GROUP BY segment
ORDER BY Product_Count_2020 DESC),
cte2 as (SELECT  p.segment,
count(DISTINCT(f.product_code)) as Product_Count_2021
FROM fact_sales_monthly as f
JOIN dim_product as p
USING(product_code)
WHERE fiscal_year=2021
GROUP BY segment
ORDER BY Product_Count_2021 DESC),
cte_table as (SELECT cte1.segment, Product_Count_2020,
Product_Count_2021,round(Product_Count_2021-Product_Count_2020) as Difference
FROM cte1 JOIN cte2 USING (segment))
SELECT segment,Product_Count_2020, Product_Count_2021, Difference
FROM cte_table ORDER BY Difference DESC;
```



INSIGHTS

- Notebooks, accessories, peripherals, and storage all experienced notable increases in product count, ranging from approximately 17% to over 49%.
- Desktops saw a substantial increase in product count, indicating potential market demand.

Ad Hoc requests

REQUEST 5

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

```
SELECT F.product_code, P.product, F.manufacturing_cost
FROM fact_manufacturing_cost F JOIN dim_product P
ON F.product_code = P.product_code
WHERE manufacturing_cost
IN (
    SELECT MAX(manufacturing_cost) FROM fact_manufacturing_cost
    UNION
    SELECT MIN(manufacturing_cost) FROM fact_manufacturing_cost
    )
ORDER BY manufacturing_cost DESC ;
```

INSIGHTS

Manufacturing cost: Low (0.89)
Product: Mouse
Product code: AQ Master wired x1 Ms
Variant: Standard 1

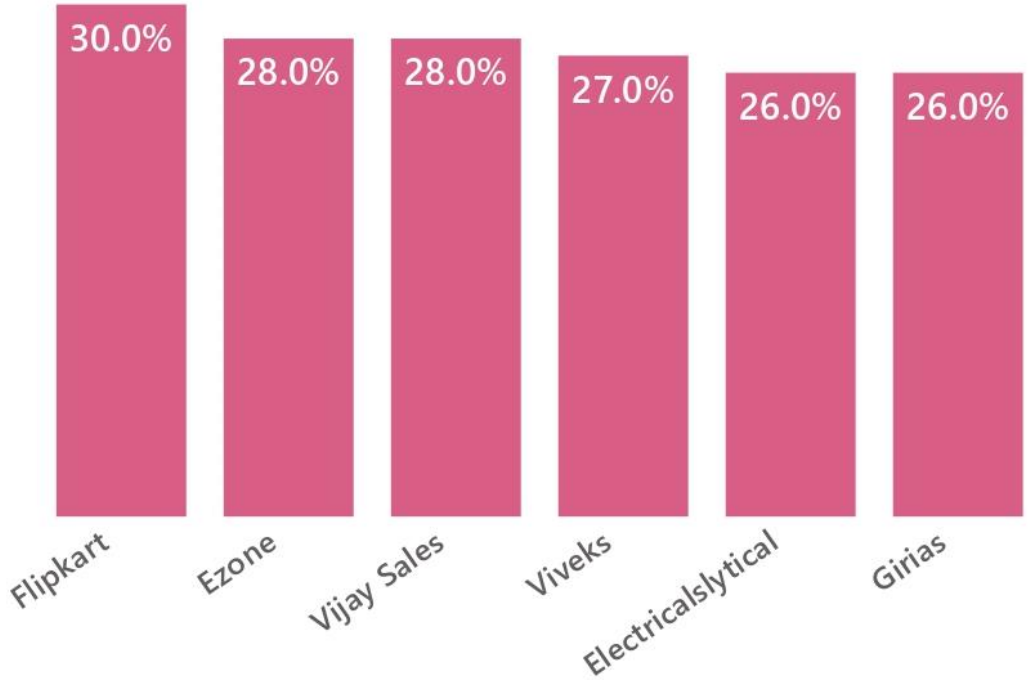
Manufacturing cost: High (240.54)
Product: Personal Desktop
Product code: AQ Home Allin1 Gen2
Variant: Plus 3

Ad Hoc requests

REQUEST 6

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 Avg_Discount_Pct
FROM dim_customer as c
JOIN fact_pre_invoice_deductions as f
USING (customer_code)
WHERE market = "India"and fiscal_year=2021
GROUP BY c.customer_code,c.customer
ORDER BY Average_Discount_Percentage DESC
LIMIT 5;
```



INSIGHTS

The top five customers in India, with FlipKart offering the highest average discount, contribute the most to sales, while Amazon contributes the least. This discount strategy seems to be effective for the company.

Ad Hoc requests

REQUEST 7

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 CONCAT(MONTHNAME(FS.date), ' (', YEAR(FS.date), ')') AS 'Month', FS.fiscal_year,
       ROUND(SUM(G.gross_price*FS.sold_quantity), 2) AS Gross_sales_Amount
FROM fact_sales_monthly FS JOIN dim_customer C ON FS.customer_code = C.customer_code
                           JOIN fact_gross_price G ON FS.product_code = G.product_code
WHERE C.customer = 'Atliq Exclusive'
GROUP BY  Month, FS.fiscal_year
ORDER BY FS.fiscal_year ;
```

Ad Hoc requests

REQUEST 7

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INSIGHTS

- Sales have shown consistent growth despite pandemic challenges. Lowest gross sales occurred in March 2020, with the highest in November 2020.
- Fiscal year 2021 accounted for 73.8% of total gross sales, indicating substantial growth during that period.
- Introduce new products to enhance summer sales at Atliq Hardware.

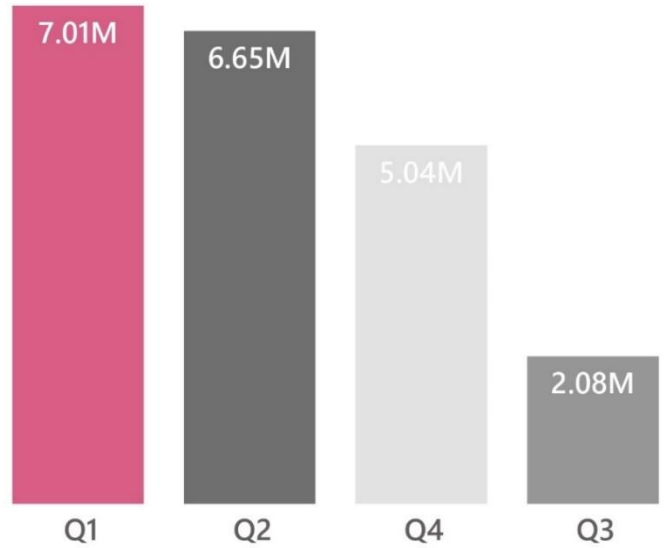
Ad Hoc requests

REQUEST 8

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.

```
WITH cte as
(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'
     ELSE 'Q4'
        END as Quarter
    FROM fact_sales_monthly
    WHERE fiscal_year = 2020)
SELECT Quarter,
ROUND(SUM(sold_quantity) / 1000000, 2) as total_sold_quantity_mln
FROM cte
GROUP BY Quarter
ORDER BY total_sold_quantity_mln DESC;
```

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



INSIGHTS

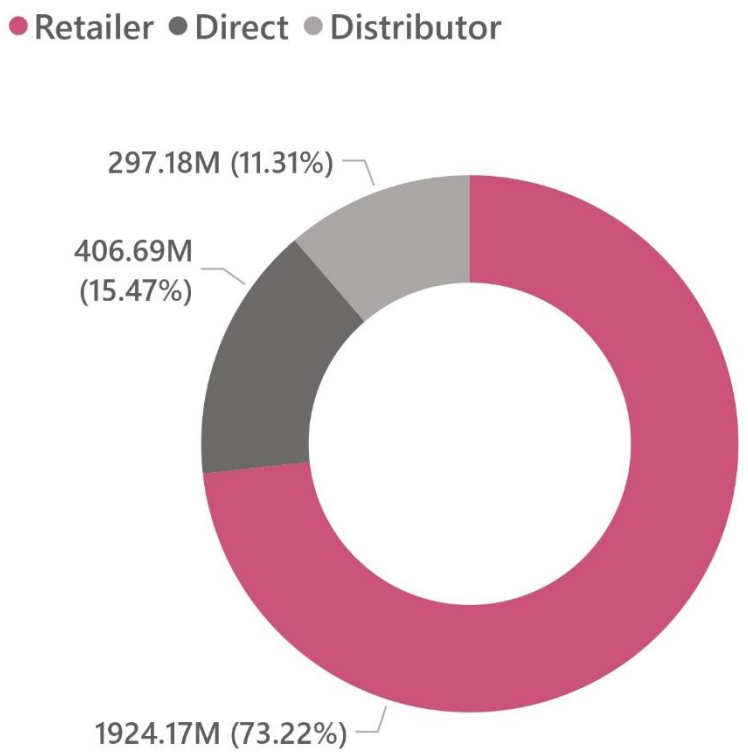
- In FY 2020, Q1 witnessed the highest units sold overall, with 7.01 million units, while Q3 had the fewest, with 2.08 million.
- The highest overall sold quantity occurred in Q1 (March), with 7.01 million, while the lowest occurred in Q3 (September), with 2.08 million.

Ad Hoc requests

REQUEST 9

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,
                Sum(s.sold_quantity * g.gross_price) AS total_sales
         FROM   fact_sales_monthly s
                JOIN fact_gross_price g using(product_code)
                JOIN dim_customer c using(customer_code)
         WHERE  s.fiscal_year = 2021
         GROUP  BY c.channel
         ORDER  BY total_sales DESC)
SELECT channel,
       CONCAT(Round(total_sales / 1000000, 2), 'M') AS
       gross_sales_in_millions,
       CONCAT(Round(total_sales / ( Sum(total_sales) OVER() ) * 100, 2), '%') AS
       percentage
FROM   CTE;
```



INSIGHTS

Retailers accounted for 75% of total sales, whereas Direct and Distributor channels contributed only a small percentage.

Ad Hoc requests

REQUEST 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.

```
WITH top_sold_products AS
(SELECT b.division AS division,
b.product_code AS product_code,
b.product AS product,
SUM(a.sold_quantity) AS total_sold_quantity
FROM fact_sales_monthly AS a
INNER JOIN dim_product AS b
ON a.product_code = b.product_code
WHERE a.fiscal_year = 2021
GROUP BY  b.division, b.product_code, b.product
ORDER BY total_sold_quantity DESC),
top_sold_per_division AS
( SELECT division,product_code,product,total_sold_quantity,
DENSE_RANK() OVER(PARTITION BY division
ORDER BY total_sold_quantity DESC) AS rank_order
 FROM top_sold_products)
 SELECT * FROM top_sold_per_division
 WHERE rank_order <= 3;
```

Ad Hoc requests

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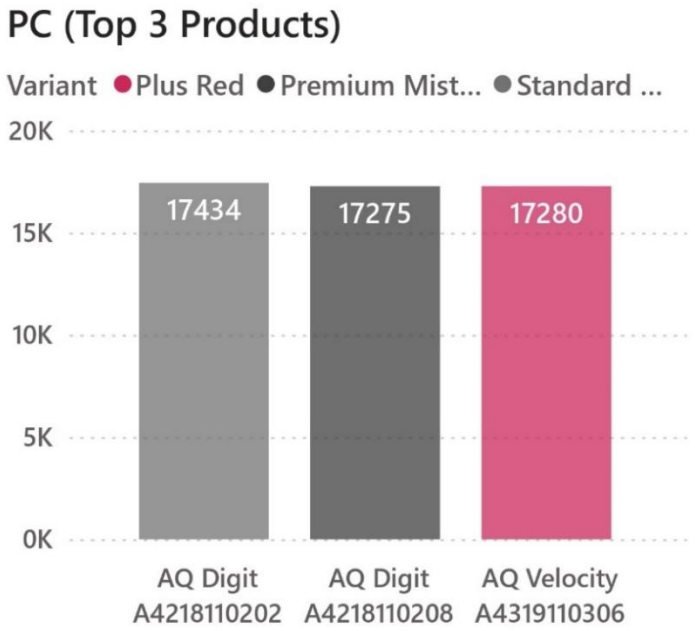
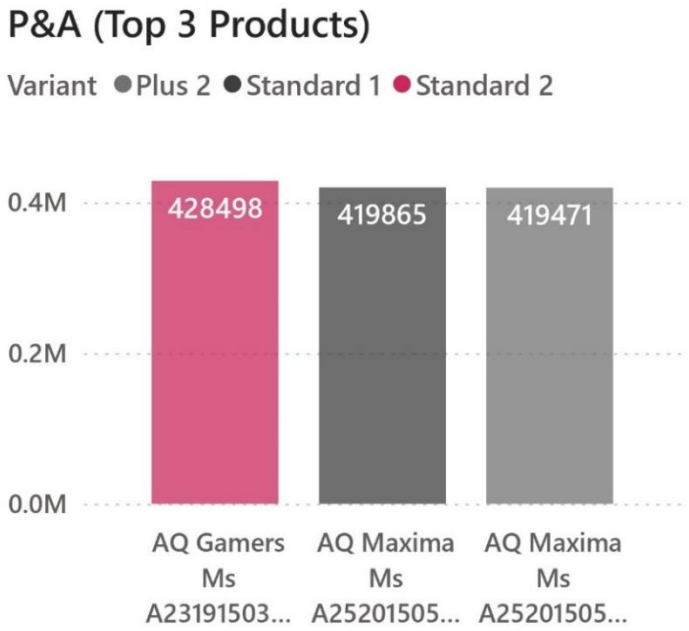
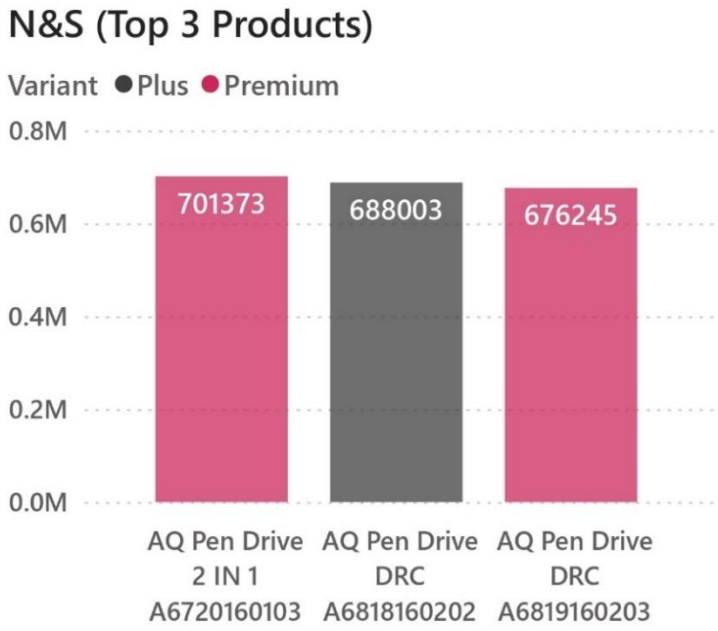
Get the Top 3 products in each division that have a high total_sold_quantity in the fiscal_year 2021? The final output contains these fields, division, product_code, product, total_sold_quantity, rank_order.







INSIGHTS

N & S represents with the highest quantities. Despite PC division having considerably lower sales quantities compared to the other two divisions.