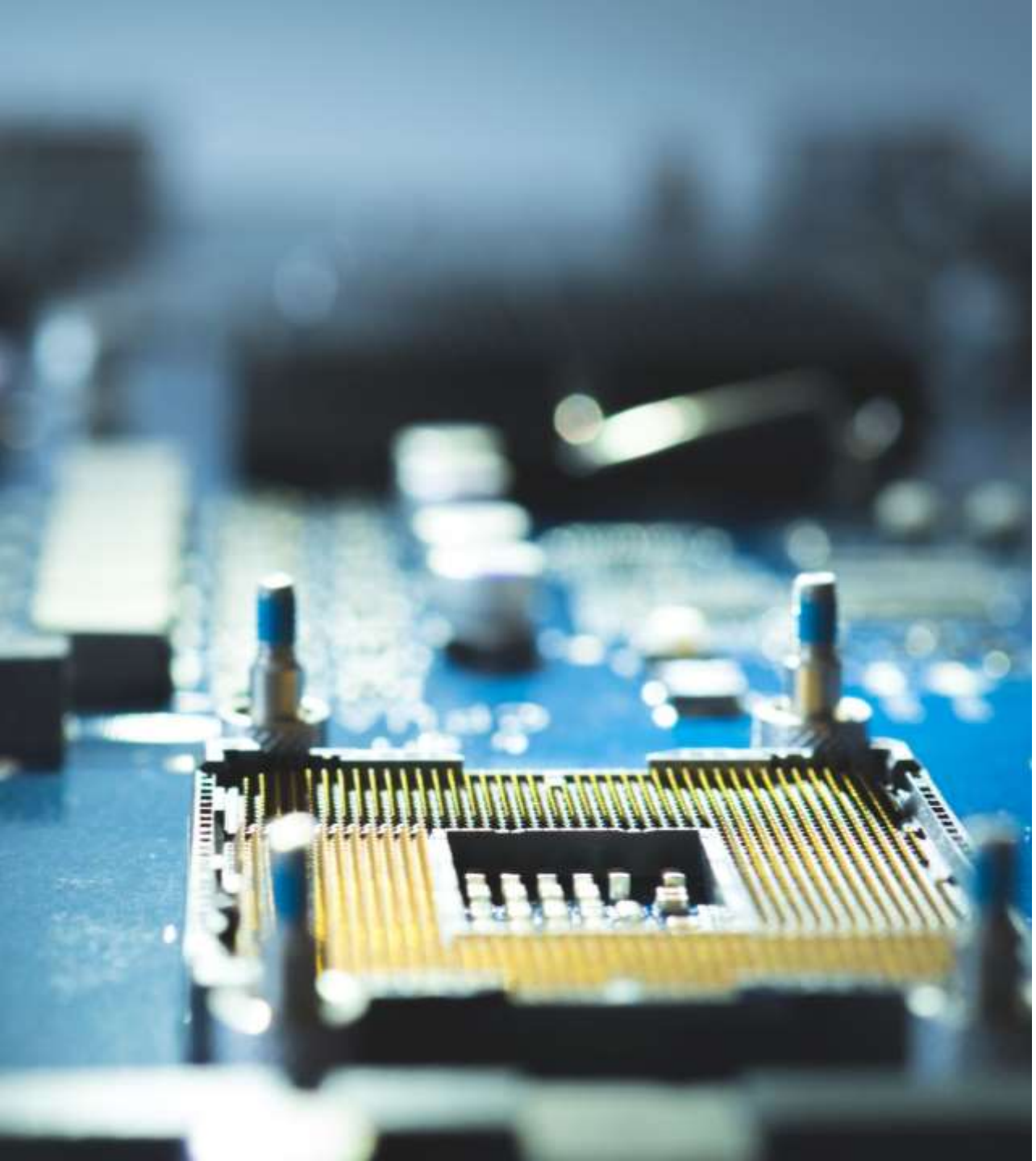
CONSUMER GOODS AD HOC INSIGHTS

Uncovering Actionable Data for Strategic Decisions

Presenter - Kavya Rana



COMPANY DETAILS

- Atliq Hardwares is a leading producer of innovative computer hardware solutions based in India, with a strong international presence.
- The company specializes in a wide range of products, including peripherals, storage devices, and networking solutions.
- Aimed at enhancing the technology experience for its customers.

OBJECTIVES

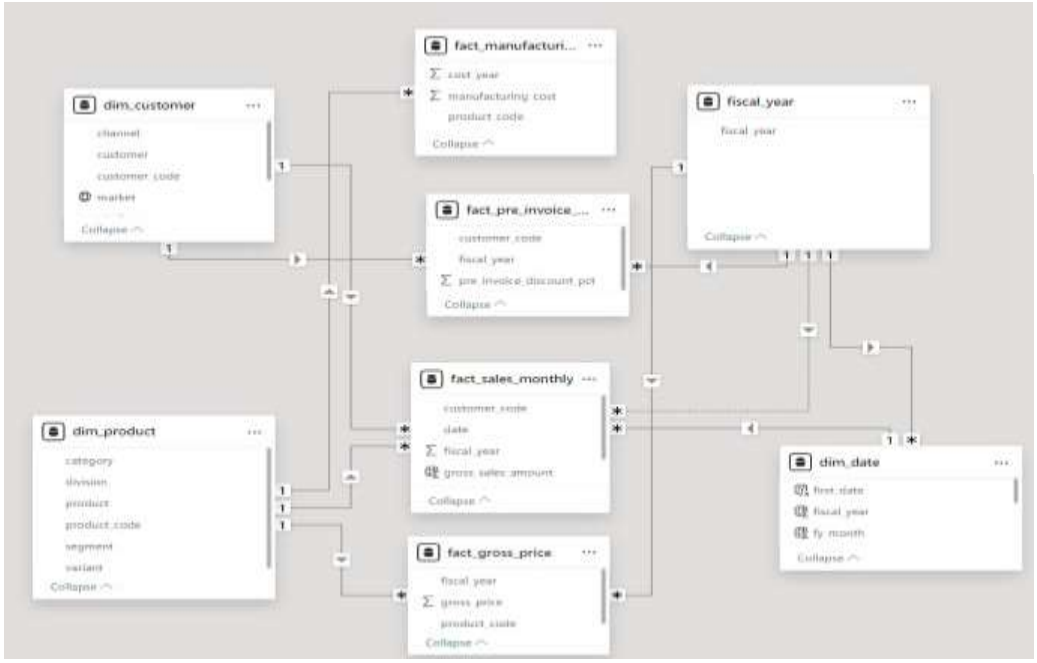
Deliver High-Quality Products: Ensure all products meet customer needs and industry standards.

Foster Innovation: Continuously improve hardware technology and develop new solutions.

Promote Sustainability: Implement environmentally responsible practices throughout all operations.

DATA, REQUEST AND TOOLS

- **Comprehensive Dataset:** Contains customer, product, and sales information across various operational segments.
- **SQL for Data Analysis:** Utilized for querying and extracting insights from the database.
- **Power BI for Visualization:** Employed to create impactful visual representations of data for effective stakeholder presentations.
- **Data-Driven Decision Making:** Supports informed strategic planning and enhances business operations.



Codebasics SQL Challenge

Requests:

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

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
   percentage_chg

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 2 fields,
   segment
   product_count

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

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

codebasics.io

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

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

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

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

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

codebasics.io

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

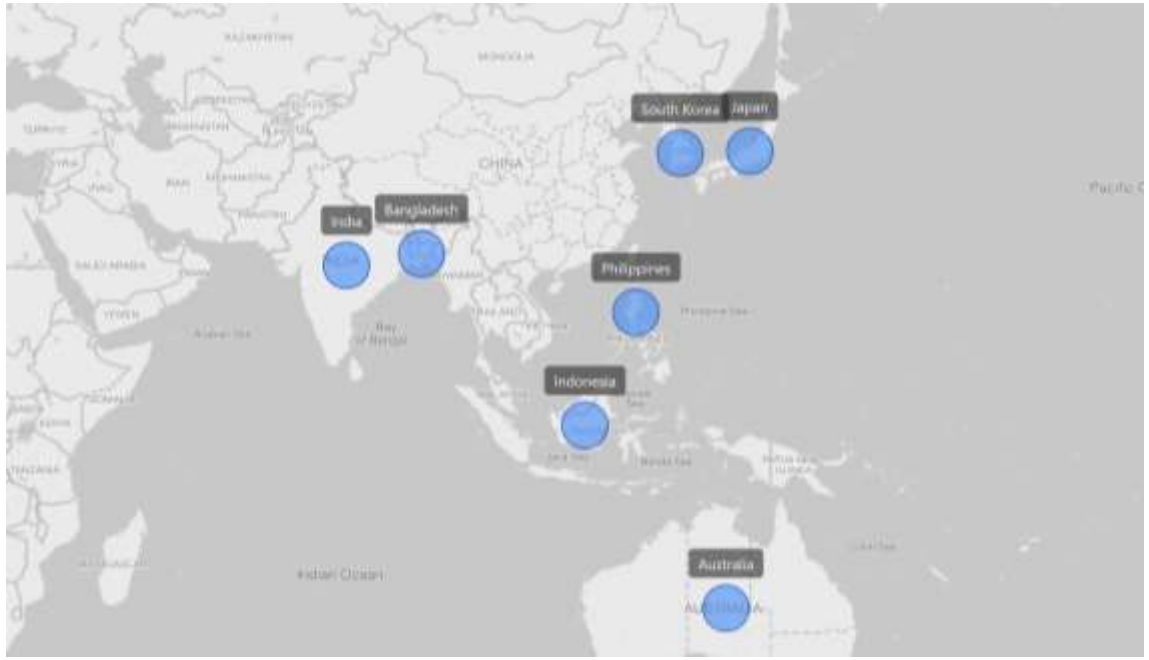
Query

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

Output

market
India
Indonesia
Japan
Philiphines
South Korea
Australia
Newzealand
Bangladesh

INSIGHTS



- Atliq Exclusive operates in 8 major markets within the Asia-Pacific (APAC) region including India, Bangladesh, South Korea, Japan, Philippines, Indonesia, Australia, and New Zealand.
- India and Australia appear to be significant markets based on the larger size of the data points, indicating higher business activity or presence.
- Bangladesh, South Korea, Japan, Philippines, Indonesia, and New Zealand represent additional key markets where Atliq Exclusive operates within APAC.

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 percentage_chg.

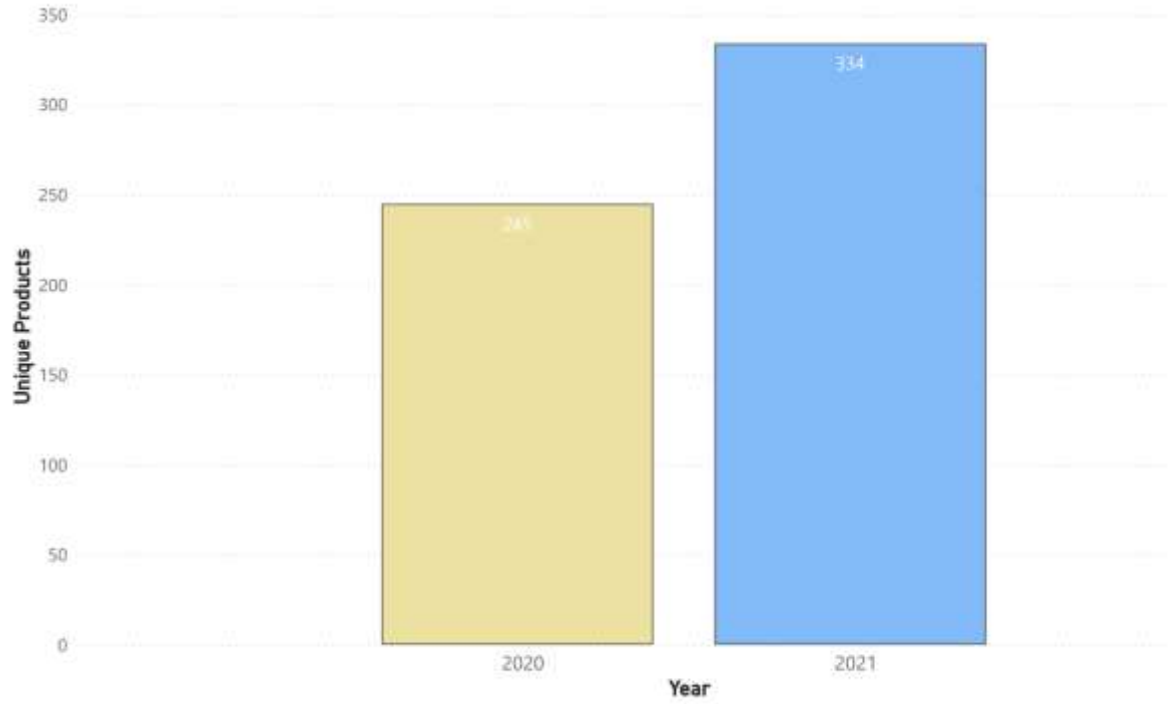
Query

```
WITH unique_products AS (
    SELECT
        fiscal_year,
        COUNT(DISTINCT Product_code) as unique_products
    FROM
        fact_gross_price
    GROUP BY
        fiscal_year
)
SELECT
    up_2020.unique_products as unique_products_2020,
    up_2021.unique_products as unique_products_2021,
    round((up_2021.unique_products -
up_2020.unique_products)/up_2020.unique_products * 100,2)
as percentage_change
FROM
    unique_products up_2020
CROSS JOIN
    unique_products up_2021
WHERE
    up_2020.fiscal_year = 2020
    AND up_2021.fiscal_year = 2021;
```

Output

unique_product_2020	unique_products_2021	percentage_chg
245	334	36.33

INSIGHTS



- The number of unique products grew from 245 in 2020 to 334 in 2021, reflecting a 36.33% increase.
- This suggests a strong focus on product portfolio expansion or innovation during 2021.

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 2 fields, segment, product_count.

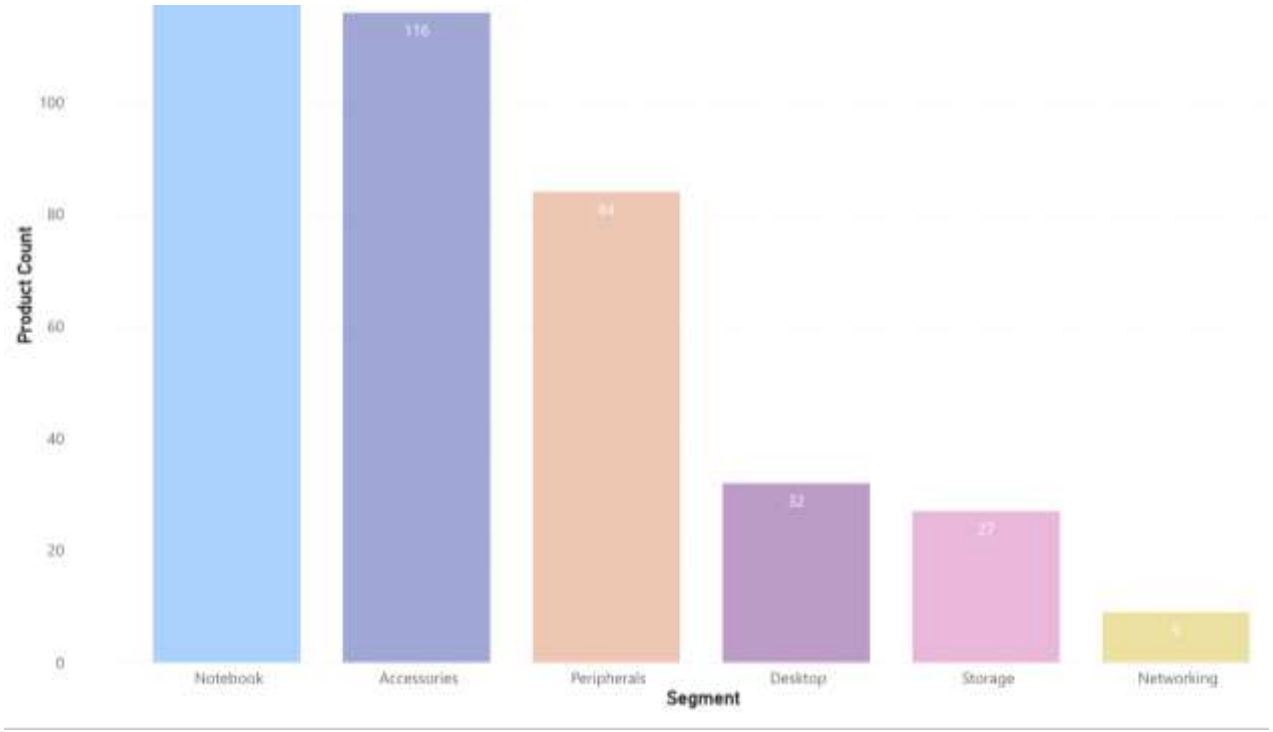
Query

```
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

INSIGHTS



- The Notebook, Accessories, and Peripherals segments collectively make up the bulk of the product range, each averaging over 110 products, indicating a strong market presence. Meanwhile, segments like Desktop, Storage, and Networking lag with an average of just 23 products per segment.
- There is a need for the Product Development team to evaluate and possibly redesign offerings in the underperforming segments to stay competitive with modern standards.
- Innovation in lagging segments like Networking and Desktop could help AtliQ Hardware maintain a competitive edge and capture untapped market potential.

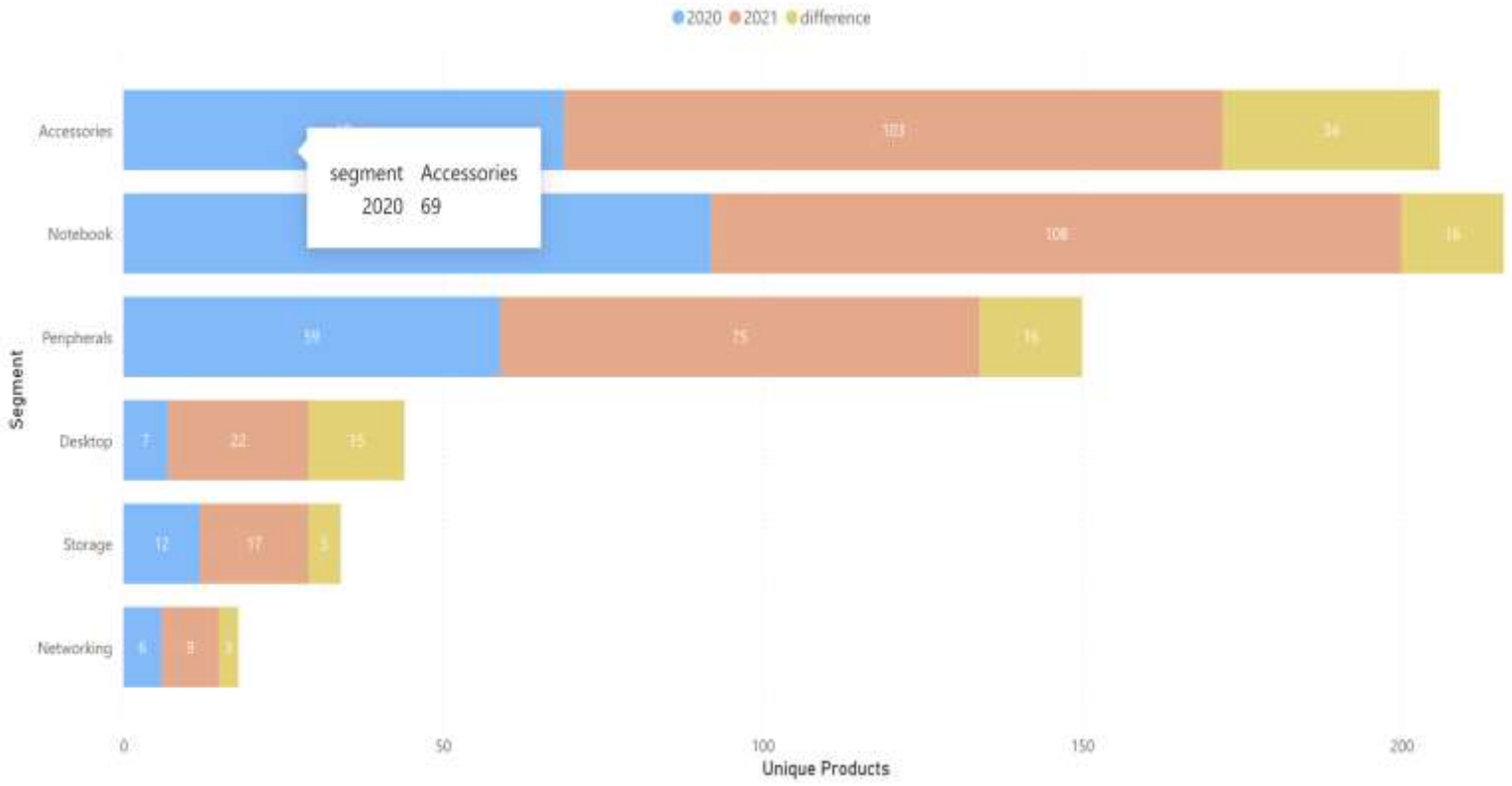
4. Follow-up: Which segment had the most increase in unique products in 2021 vs 2020? The final output contains these fields, segment, product_count_2020, product_count_2021,difference.

Query

```
WITH temp_table AS (
    SELECT
        p.segment, s.fiscal_year,
        COUNT(DISTINCT s.Product_code) as product_count
    FROM
        fact_sales_monthly s
        JOIN dim_product p ON s.product_code =
p.product_code
    GROUP BY
        p.segment,
        s.fiscal_year
)
SELECT
    up_2020.segment,
    up_2020.product_count as product_count_2020,
    up_2021.product_count as product_count_2021,
    up_2021.product_count - up_2020.product_count as
difference
FROM
    temp_table as up_2020
JOIN
    temp_table as up_2021
ON
    up_2020.segment = up_2021.segment
    AND up_2020.fiscal_year = 2020
    AND up_2021.fiscal_year = 2021
ORDER BY
    difference DESC;
```

Output

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



INSIGHTS

- **Accessories** show the highest growth with an increase of 34 products from 2020 to 2021.
- **Desktop** follows with a rise of 15 products.
- **Notebook** and **Peripherals** both saw an increase of 16 products.
- **Networking** and **Storage** experienced smaller gains, with 3 and 5 additional products, respectively.

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

Query

```
SELECT m.product_code, concat(product," (",variant,")")
AS product, cost_year,manufacturing_cost
FROM fact_manufacturing_cost m
JOIN dim_product p
ON m.product_code = p.product_code
WHERE manufacturing_cost=
(SELECT min(manufacturing_cost)
FROM fact_manufacturing_cost)
or
manufacturing_cost =
(SELECT max(manufacturing_cost)
FROM fact_manufacturing_cost)
ORDER BY manufacturing_cost
DESC;
```

Output

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

INSIGHTS

- **AQ HOME Allin1 Gen 2** has the highest cost at **240.54**.
- **AQ Master wired x1 Ms** has the lowest cost at **0.89**.

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.

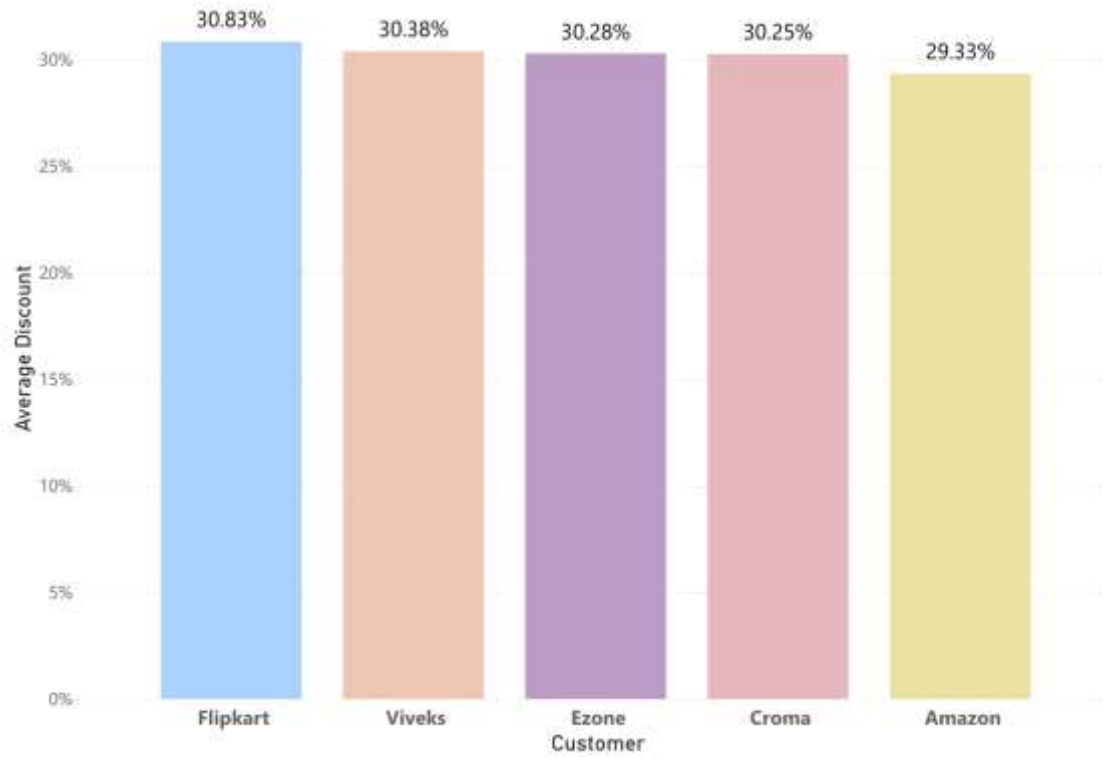
Query

```
SELECT c.customer_code, c.customer,
round(AVG(pre_invoice_discount_pct),4)
AS average_discount_percentage
FROM fact_pre_invoice_deductions d
JOIN dim_customer c
ON d.customer_code = c.customer_code
WHERE c.market = "India"
AND fiscal_year = "2021"
GROUP BY customer_code
ORDER BY average_discount_percentage
DESC
LIMIT 5;
```

Output

customer_code	customer	average_discount_percentage
90002009	Flipkart	0.3083
90002006	Viveks	0.3038
90002003	Ezone	0.3028
90002002	Croma	0.3025
90002016	Amazon	0.2933

INSIGHTS



- **Flipkart** receives the highest average discount at **30.83%**, closely followed by **Viveks** at **30.38%**.
- Discounts are high for **Flipkart** and **Viveks**, presenting an opportunity to reconsider discount strategies.
- **Ezone**, **Croma**, and **Amazon** also benefit from similar discounts, with Amazon receiving the lowest at **29.33%**.
- **Amazon**, with the lowest discount in the top 5, could be a target for growth with competitive discount adjustments.

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.

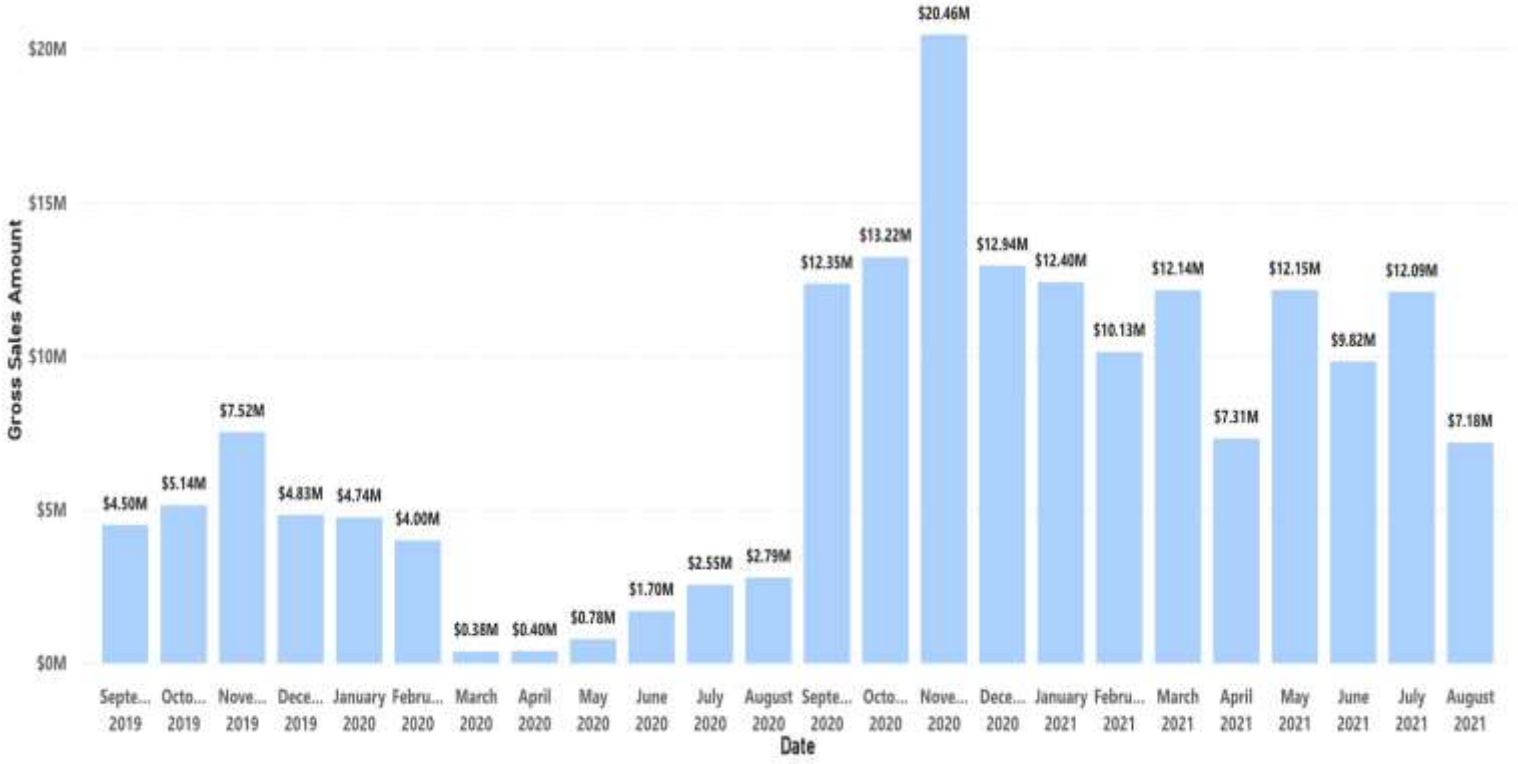
Query

```
WITH temp_table AS (
    SELECT customer,
    monthname(date) AS months ,
    month(date) AS month_number,
    year(date) AS year,
    (sold_quantity * gross_price)  AS gross_sales
 FROM fact_sales_monthly s JOIN
 fact_gross_price g ON s.product_code = g.product_code
 JOIN dim_customer c ON s.customer_code=c.customer_code
 WHERE customer="Atliq exclusive"
)
SELECT months,year, concat(round(sum(gross_sales)/1000000,2),"M") AS
gross_sales FROM temp_table
GROUP BY year,months
ORDER BY year,month_number;
```

Output

months	year	gross_sales
September	2019	9.09M
October	2019	10.38M
November	2019	15.23M
December	2019	9.76M
January	2020	9.58M
February	2020	8.08M
March	2020	0.77M
April	2020	0.80M
May	2020	1.59M
June	2020	3.43M
July	2020	5.15M
August	2020	5.64M
September	2020	19.53M
October	2020	21.02M
November	2020	32.25M
December	2020	20.41M
January	2021	19.57M
February	2021	15.99M
March	2021	19.15M
April	2021	11.48M
May	2021	19.20M
June	2021	15.46M
July	2021	19.04M
August	2021	11.32M

INSIGHTS



Peak Sales in November 2020: Highest sales recorded at $20.46 million due to effective holiday promotions.

Lowest Sales in March 2020: Sales dropped to $0.38 million, reflecting pandemic challenges.

Pandemic Impact: Low sales from March to August were caused by store closures and reduced customer access.

Recovery from September 2020: Sales improved with eased restrictions and the start of the festival season in India and other markets.

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.

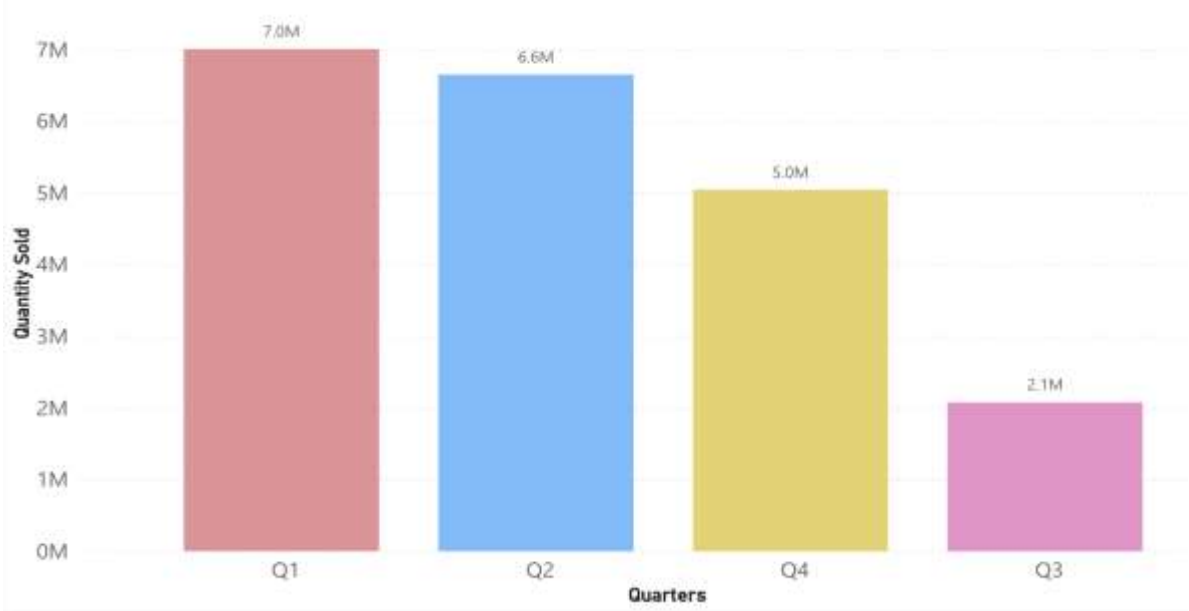
Query

```
WITH temp_table AS (
  SELECT date,month(date_add(date,interval 4 month))
AS period, fiscal_year,sold_quantity
FROM fact_sales_monthly
)
SELECT CASE
   when period/3 <= 1 then "Q1"
   when period/3 <= 2 and period/3 > 1 then "Q2"
   when period/3 <=3 and period/3 > 2 then "Q3"
   when period/3 <=4 and period/3 > 3 then "Q4" END quarter,
 round(sum(sold_quantity)/1000000,2) as total_sold_quanity_in_millions FROM temp_table
WHERE fiscal_year = 2020
GROUP BY quarter
ORDER BY total_sold_quanity_in_millions DESC ;
```

Output

	quarter	total_sold_quanity_in_millions
▶	Q1	7.01
	Q2	6.65
	Q4	5.04
	Q3	2.08

INSIGHTS



Strong Q1 Sales: Highest sales recorded at 7.01 million units, indicating robust early-year demand.

Q3 Decline: Sales dropped significantly to 2.08 million units, suggesting potential seasonal issues.

Recovery in Q4: Sales rebounded to 5.04 million units, showing effective strategies and market responsiveness.

Consistent Growth in Q2: Strong performance with 6.65 million units, supporting the need for continued focus on early-year promotions.

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.

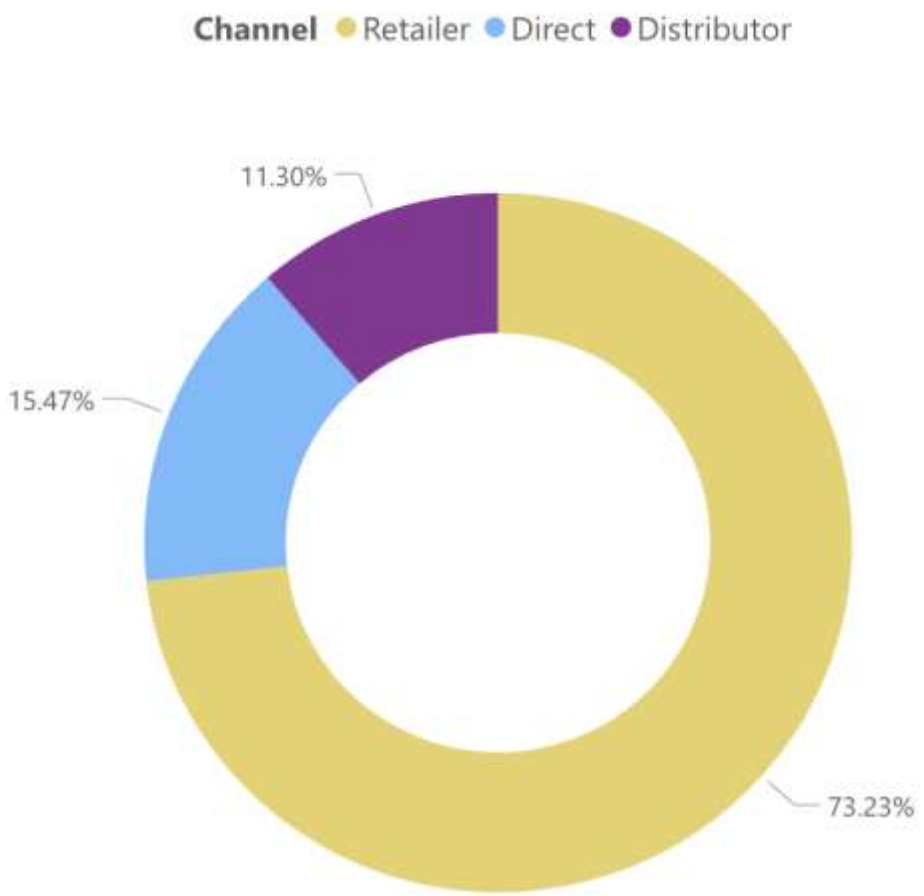
Query

```
WITH temp_table AS (
      SELECT c.channel,sum(s.sold_quantity * g.gross_price) AS total_sales
  FROM
  fact_sales_monthly s
  JOIN fact_gross_price g ON s.product_code = g.product_code
  JOIN dim_customer c ON s.customer_code = c.customer_code
  WHERE s.fiscal_year= 2021
  GROUP BY c.channel
  ORDER BY total_sales DESC
)
SELECT
  channel,
  round(total_sales/1000000,2) AS gross_sales_in_millions,
  round(total_sales/(sum(total_sales) OVER())*100,2) AS percentage
FROM temp_table ;
```

Output

channel	Gross_sales_mln	percentage
Retailer	1924.17 M	73.22 %
Direct	406.69 M	15.48 %
Distributor	297.18 M	11.31 %

INSIGHTS



- Atliq Hardware's sales were primarily driven by **Retailers**, contributing $1,219.08 million, which accounts for **73.23%** of total gross sales.
- This was followed by the **Direct channel** with $257.53 million (**15.47%**), and **Distributors** with $188.03 million (**11.29%**).

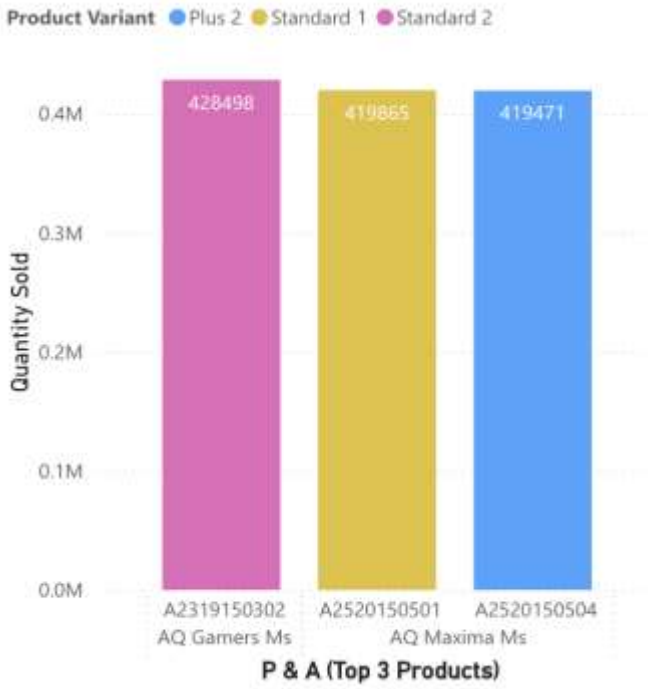
10. Get the Top 3 products in each division that have a high total_sold_quantity in the fiscal_year 2021? The final output contains these fields, division, product_code, product, total_sold_quantity, rank_order.

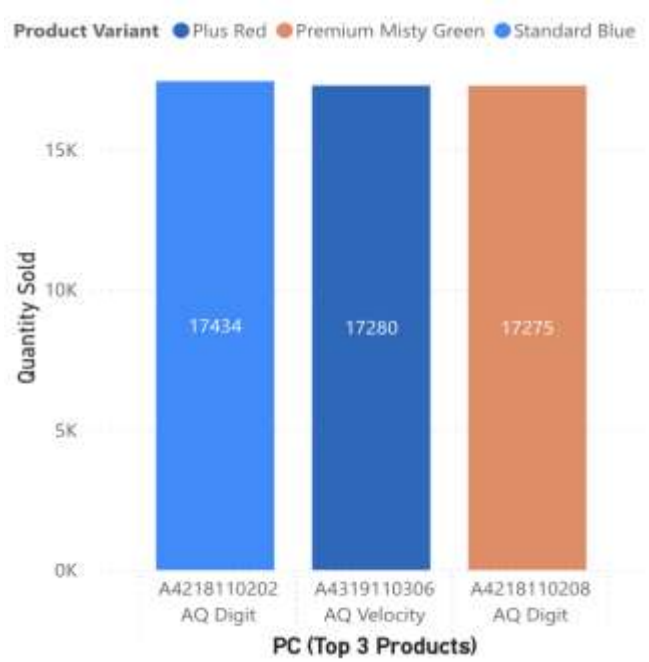
Query

```
WITH temp_table AS (
    select division, s.product_code,
concat(p.product,"(",p.variant,")") AS product ,
sum(sold_quantity) AS total_sold_quantity,
    rank() OVER (partition by division order by
sum(sold_quantity) desc) AS rank_order
 FROM
 fact_sales_monthly s
 JOIN dim_product p
 ON s.product_code = p.product_code
 WHERE fiscal_year = 2021
 GROUP BY product_code
)
SELECT * FROM temp_table
WHERE rank_order IN (1,2,3);
```

Output

division	product_code	product	Total_sold_quantity	Rank_Order
N & S	A6720160103	AQ Pen Drive 2 IN 1 [Premium]	701373	1
N & S	A6818160202	AQ Pen Drive DRC [Plus]	688003	2
N & S	A6819160203	AQ Pen Drive DRC [Premium]	676245	3
P & A	A2319150302	AQ Gamers Ms [Standard 2]	428498	1
P & A	A2520150501	AQ Maxima Ms [Standard 1]	419865	2
P & A	A2520150504	AQ Maxima Ms [Plus 2]	419471	3
PC	A4218110202	AQ Digit [Standard Blue]	17434	1
PC	A4319110306	AQ Velocity [Plus Red]	17280	2
PC	A4218110208	AQ Digit [Premium Misty Green]	17275	3





INSIGHTS

- **N&S Division**: The top-selling product was **AQ Pen Drive 2 IN 1** with 701,373 units sold, followed by two variants of **AQ Pen Drive DRC** with 688,003 and 676,245 units sold, respectively.
- **P&A Division**: The best-seller was **AQ Gamers Ms** with 428,498 units, followed by two variants of **AQ Maxima Ms**.
- **PC Division**: The leading product was **AQ Digit PC**, with 17,434 units sold.