Ad Hoc Insights

Consumer Goods

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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.**

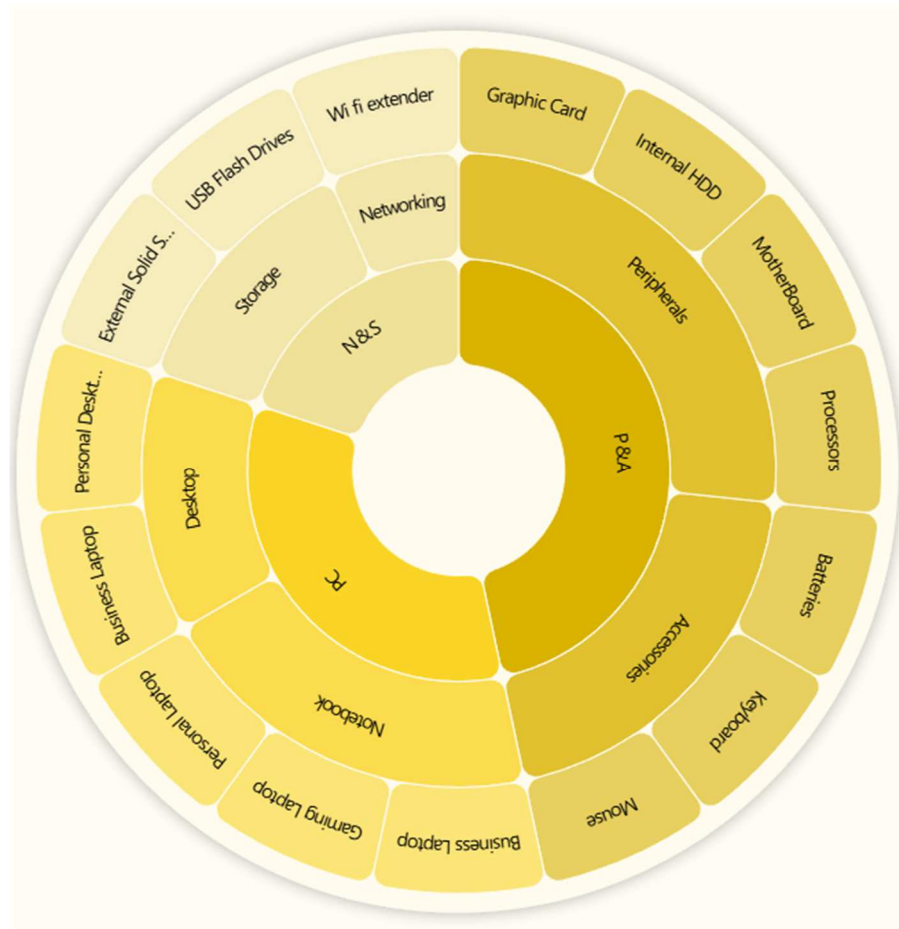- **The company seeks insights for 10 ad hoc requests.**

Company Details

Atliq Hardware is a computer hardware and accessory manufacturer.

Fiscal Year

September 2019 – August 2020
FY 2020
September 2020 – August 2021
FY 2021

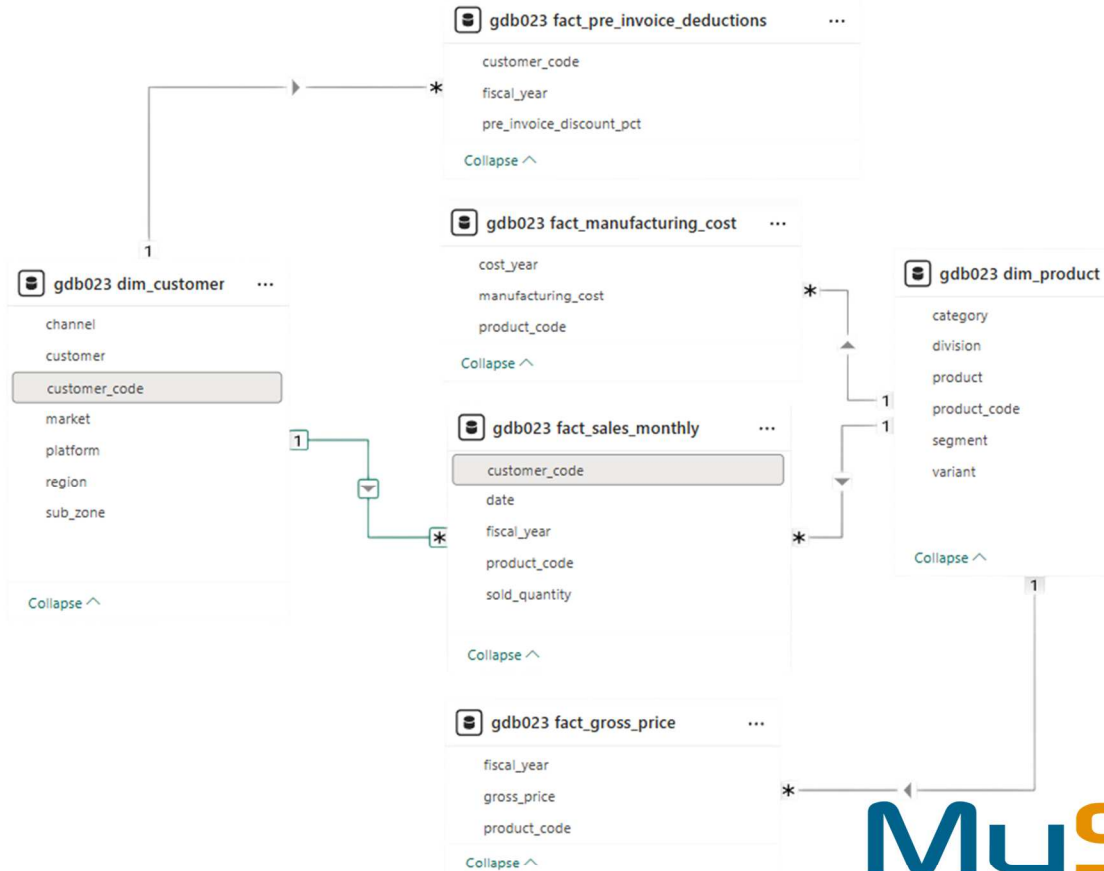**Outer Circle: Category**

Mid Circle: Segment

Inner Circle: Division

Company's Market

Data, Requests and Tools

gdb023 fact_pre_invoice_deductions ···
- customer_code
- fiscal_year
- pre_invoice_discount_pct

Collapse ∧

gdb023 fact_manufacturing_cost ···
- cost_year
- manufacturing_cost
- product_code

Collapse ∧

gdb023 dim_customer ···
- channel
- customer
- customer_code
- market
- platform
- region
- sub_zone

Collapse ∧

gdb023 fact_sales_monthly ···
- customer_code
- date
- fiscal_year
- product_code
- sold_quantity

Collapse ∧

gdb023 dim_product ···
- category
- division
- product
- product_code
- segment
- variant

Collapse ∧

gdb023 fact_gross_price ···
- fiscal_year
- gross_price
- product_code

Collapse ∧

**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

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

For Analysis and visualization:

MySQL®

Power BI

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

market
India
Indonesia
Japan
Pakistan
Philiphines
South Korea
Australia
Newzealand
Bangladesh
China
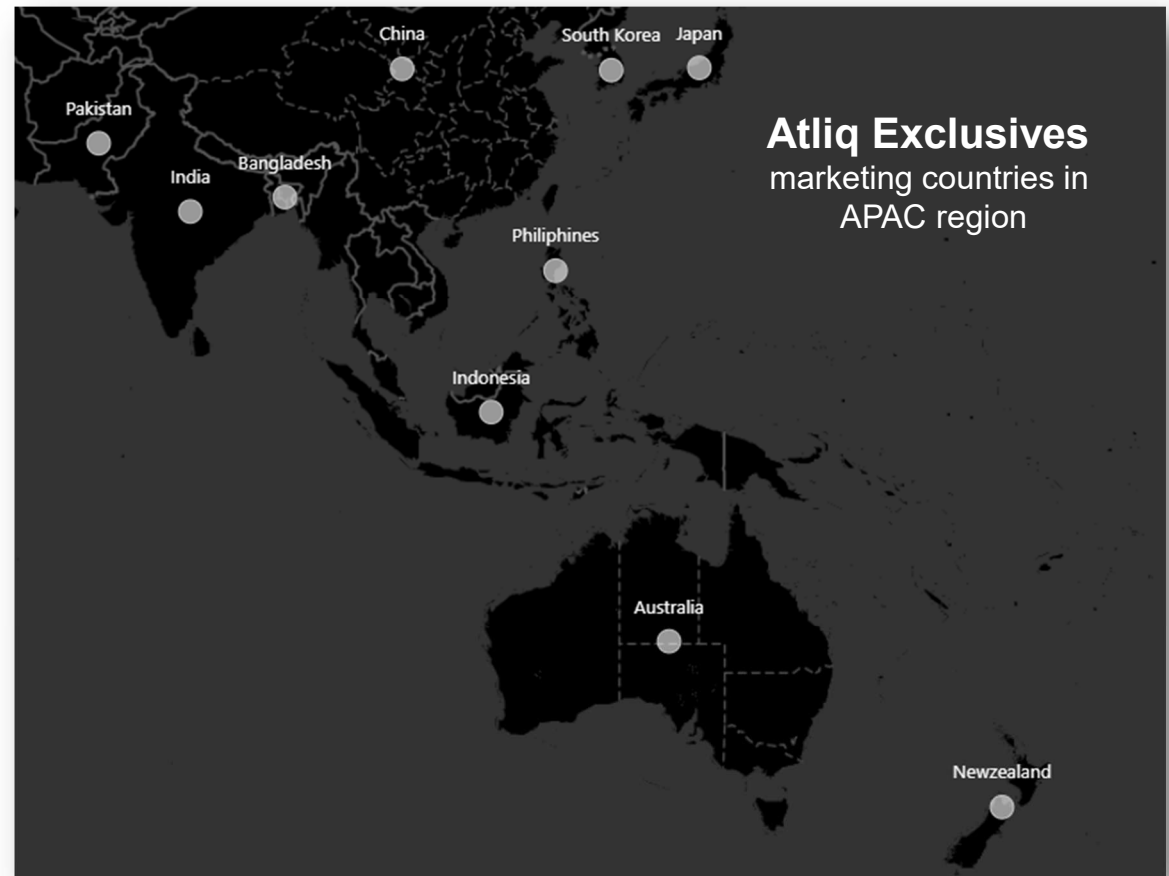
Atliq Exclusives
marketing countries in
APAC region

2.What is the percentage of unique product increase in 2021 vs. 2020? The final output contains these fields,
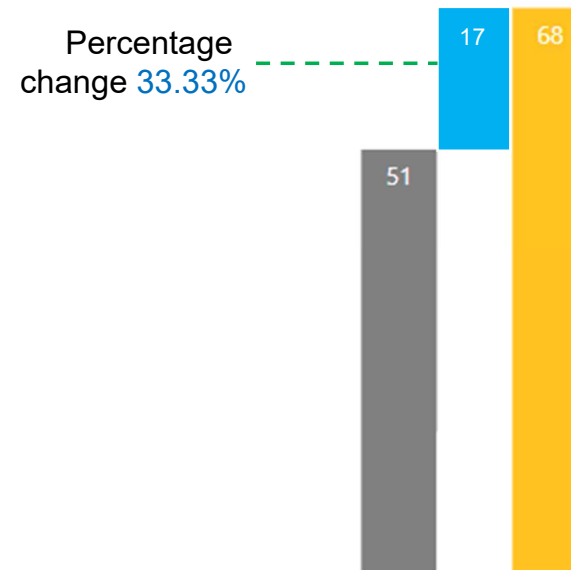
unique_products_2020
unique_products_2021
percentage_chg

Unique products 2020
Vs
Unique products 2021

	unique_products_2020	unique_products_2021	percentage_change
▶	51	68	33.3333

Percentage change 33.33%

17   68

51

Insights:
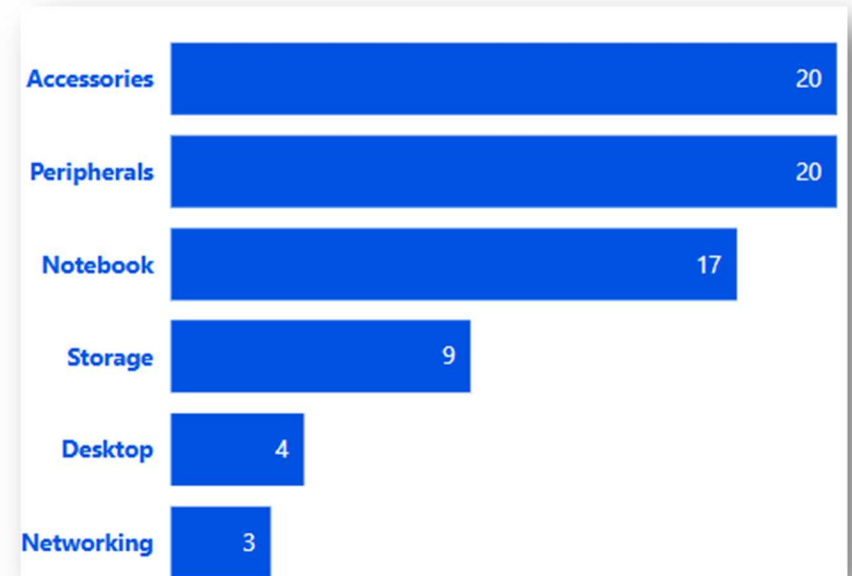- Demand and production both **increased**

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

segment	product_count
Accessories	20
Peripherals	20
Notebook	17
Storage	9
Desktop	4
Networking	3

Unique **product count** for each **segment**

Insights:

- Segments: notebooks, accessories, and peripherals are showing **significant manufacturing growth** as compared to desktops, storage, and networking.
- Notebooks, accessories, and peripherals constitute **83%** of the total manufactured product.

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

segment	uni_2020	uni_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

Unique product difference per **segment** from 2020 to 2021

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** had the **largest** increase in production.
- **Storage and networking** are experiencing slower production growth than other segments.

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

Products having the **highest** and lowest manufacturing costs

	Product_code	Product	Cost	Cost_Type
▶	A2118150101	AQ Master wired x1 Ms	0.8920	Min Cost
	A6120110206	AQ HOME Allin1 Gen 2	240.5364	Max Cost

240.54

A6120110206
AQ HOME Allin1 Gen 2
Personal Desktop

0.89

A2118150101
AQ Master wired x1 Ms
Mouse

Insights:

• Mouse: AQ Master wired x1 Ms **(Variant: Standard 1)** has the lowest manufacturing cost.

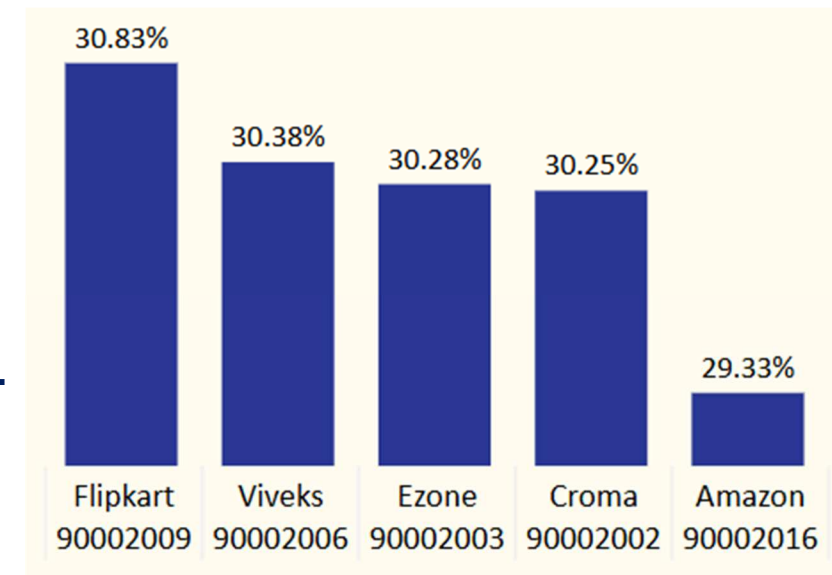• Personal Desktop: AQ Home Allin1 Gen2 (Variant: Plus 3) has the highest manufacturing cost.

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

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

Top 5 Indian customers with highest average discount percentage for **FY 2021**

Insights:

- The **largest** average pre-invoice discount was given to **Flipkart.**
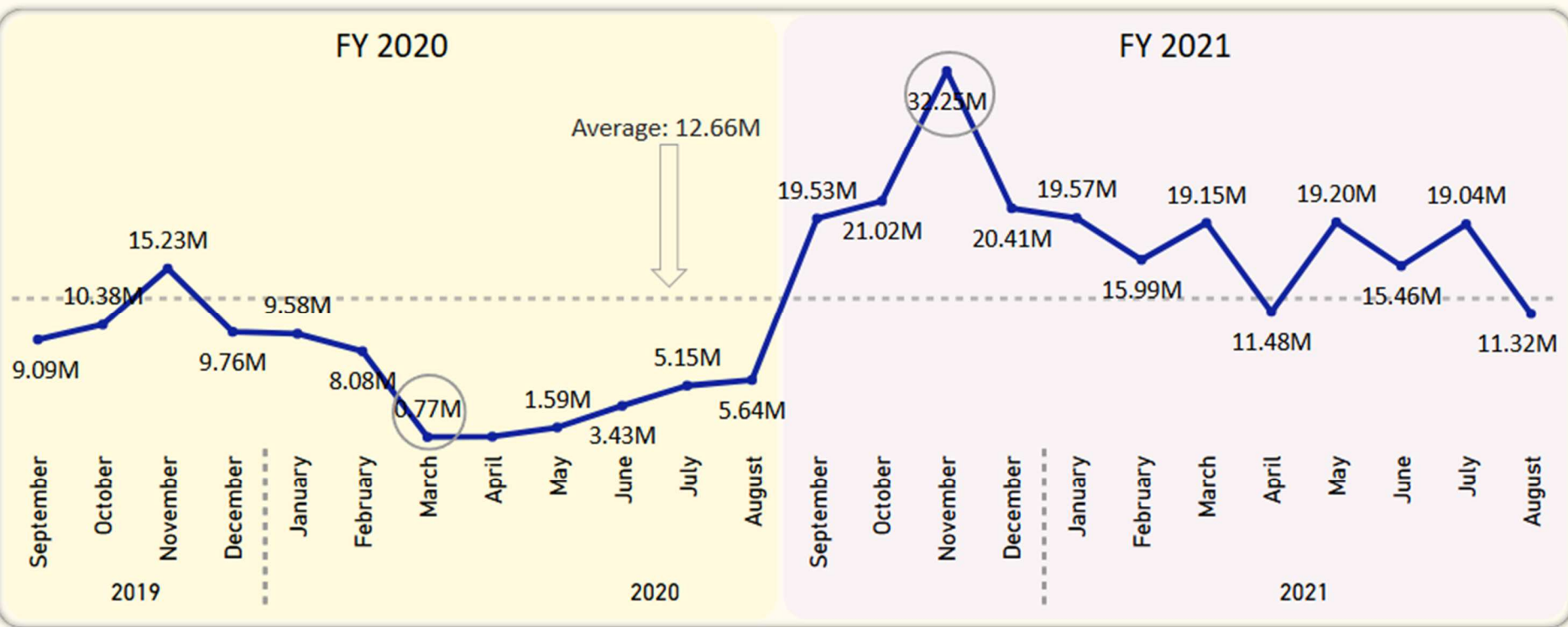- The **least** average pre-invoice discount was given to **Amazon.**

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

Month	fiscal_year	gross_sales_amount
January	2020	4740600.1605
February	2020	3996227.7661
March	2020	378770.9700
April	2020	395035.3535
May	2020	783813.4238
June	2020	1695216.6008
July	2020	2551159.1584
August	2020	2786648.2601
September	2020	4496259.6724
October	2020	5135902.3467
November	2020	7522892.5608
December	2020	4830404.7285
January	2021	12399392.9788
February	2021	10129735.5675
March	2021	12144061.2501
April	2021	7311999.9547
May	2021	12150225.0139
June	2021	9824521.0110
July	2021	12092346.3245
August	2021	7178707.5902
September	2021	12353509.7938
October	2021	13218636.1966
November	2021	20464999.0997
December	2021	12944659.6509

Insights:

- The **lowest** Gross sales total for both fiscal years is in **March (2020)**.
- The **highest** Gross sales total for both fiscal years is in **November (2020)**.
- **73.8%** of the total Gross sales figure is in **FY 2021**.

Reasons:
- **COVID-19**
- Global Chip shortage

When did the silicon chip shortage start?

From **early 2020**, when the effects of and the mitigation of the COVID-19 pandemic caused disruptions in supply chains and logistics which, coupled with a 13% increase in global demand for PCs owing to some countries' shift to a stay-at-home economy, impacted the availability of key chips necessary for the manufacturing ...

https://en.wikipedia.org › wiki › 2020–present_global_...

2020–present global chip shortage - Wikipedia

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

fiscal_quarter	month_name	month_number	total_sold_quantity
Q1 (Sep-Nov)	September	9	1764002
Q1 (Sep-Nov)	October	10	2190792
Q1 (Sep-Nov)	November	11	3050825
Q2 (Dec-Feb)	December	12	3184205
Q2 (Dec-Feb)	January	1	1762652
Q2 (Dec-Feb)	February	2	1702785
Q3 (Mar-May)	March	3	238961
Q3 (Mar-May)	April	4	819956
Q3 (Mar-May)	May	5	1016170
Q4 (Jun-Aug)	June	6	1559773
Q4 (Jun-Aug)	July	7	1692575
Q4 (Jun-Aug)	August	8	1790193

fiscal_quarter	total_sold_quantity
Q1	7005619
Q2	6649642
Q3	2075087
Q4	5042541

Insights:

- **Quarter 1** of FY2020 saw the most units sold overall, while **Quarter 3** had the fewest.
- The highest and lowest overall sold quantity is in **December** and **March.** Quarter 1 accounts for approximately **34%** of the total sold quantity for FY2020

Total sold quantity in **FY 2020** by **Quarter**
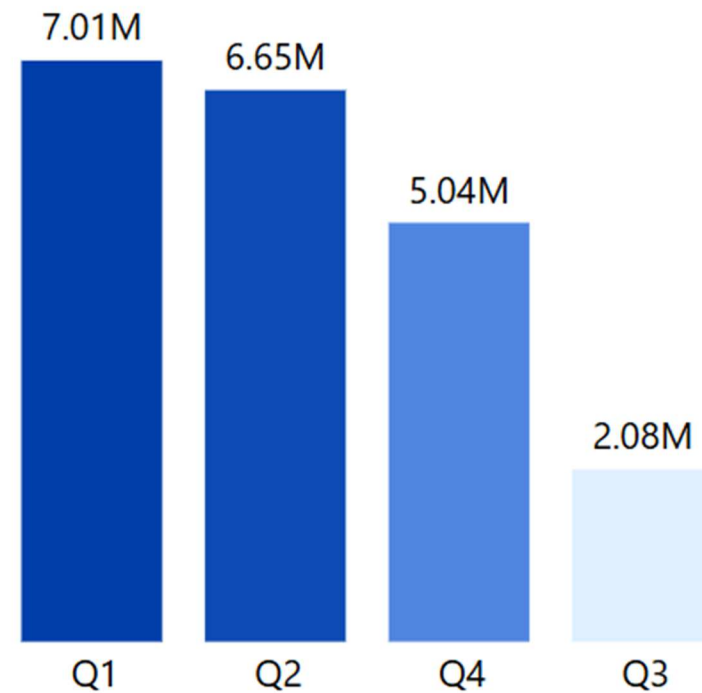
9. Which channel helped to bring more gross sales in the fiscal year 2021 and the percentage of contribution? The final output contains these fields: channel, gross_sales_mln, percentage

channel	gross_sales_mln	percentage_contribution
Retailer	1219.08	73.2%
Direct	257.53	15.5%
Distributor	188.03	11.3%

Gross sales and contribution percentages by **Channels** for **FY 2021**

Retailer 1219.08M (73.23%)

Distributor 188.03M (11.3%)

Direct 257.53M (15.47%)
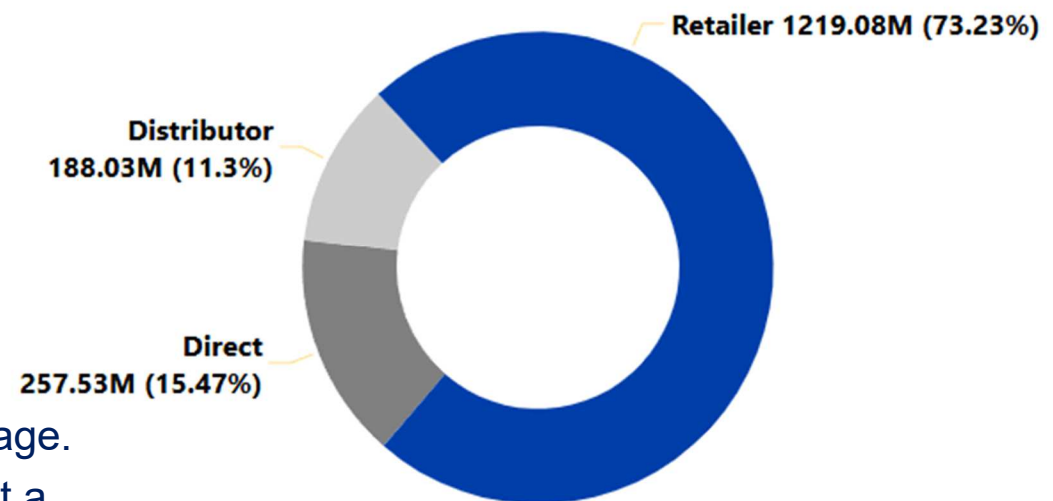
Insights:

- Channel: **"Retailer"** helped bring maximum sales to the company with **73.22%** as the contribution percentage.
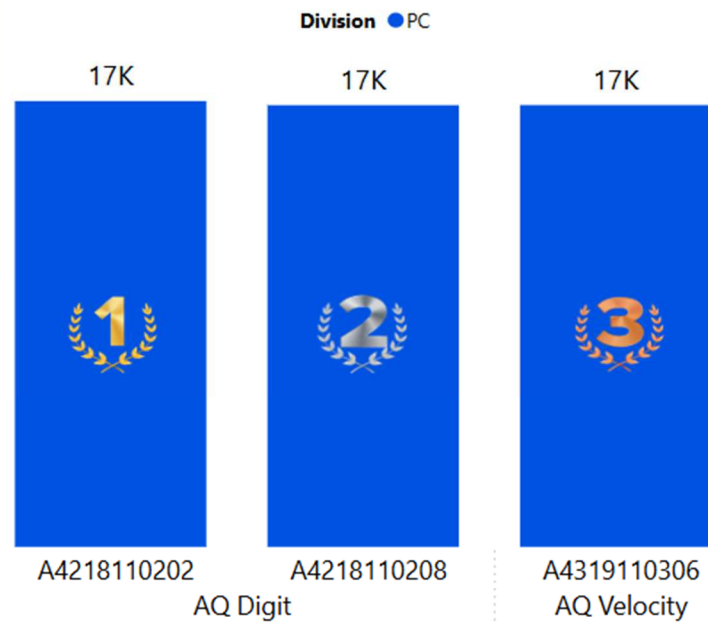- Channel: **"Distributor"** makes the least contribution at a percentage of **11.31%**.
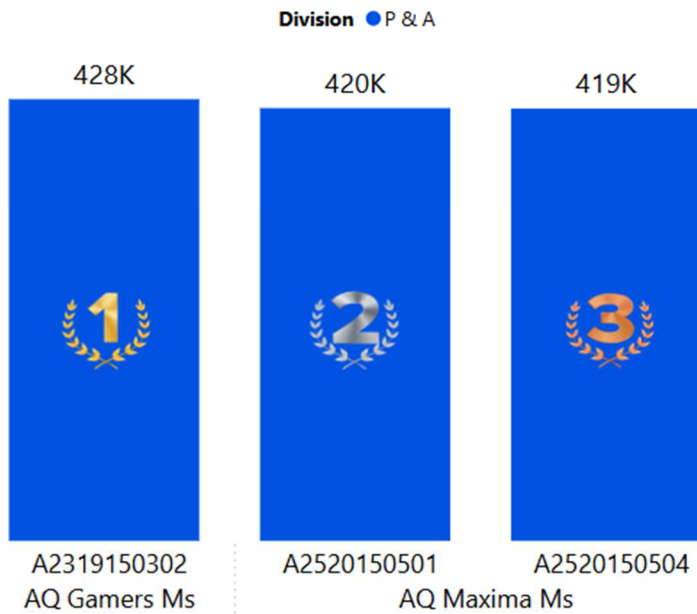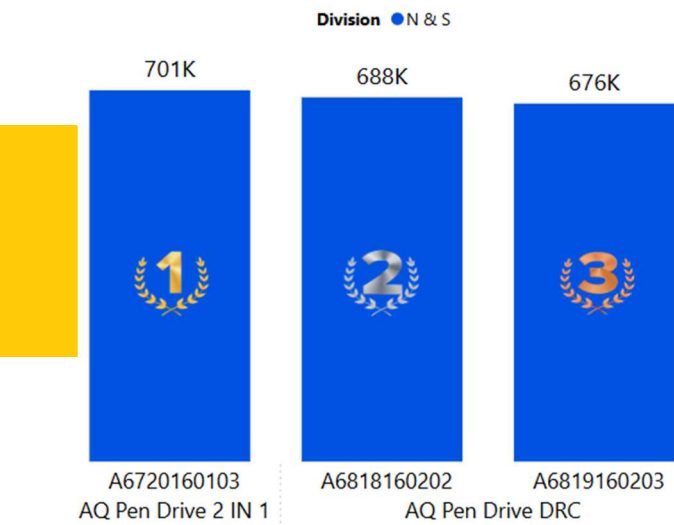
10. Get the Top 3 products in each division that have a high total_sold_quantity in the fiscal_year 2021? The final output contains these fields: division, product_code product total_sold_quantity rank_order

division	product_code	product	total_sold_quantity	rank_order
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

Insight:

- Every division has a product with **different variants** that appears **twice** in the top three products by division list.

701K

688K

676K

A6720160103
AQ Pen Drive 2 IN 1

A6818160202
AQ Pen Drive DRC

A6819160203

428K

420K

419K

A2319150302
AQ Gamers Ms

A2520150501
AQ Maxima Ms

A2520150504

17K

17K

17K

A4218110202

A4218110208
AQ Digit

A4319110306
AQ Velocity

Thank you