



**Consumer Goods**

**SQL Project  
Visuals**

**Ad\_Hoc\_Insights**

**Consumer Goods**

CREATED BY  
UJJAL MONDAL



# WHY?

Objectives

# WHAT?

Company details & Markets

# HOW?

Data Analysis, Business Request, Tools

# Objectives

- **Atliq Hardware** (fictitious corporation) is one of the major computer hardware manufacturers in Indi, 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 conduct a **SQL challenge** to evaluate both tech and soft skills.
- The company seeks insights for **10 ad hoc** requests.



# WHAT?

# Company Details

AtliQ hardware ia a computer hardware and accessories manufacturer

- **Markets**



**Product line**

**Division**

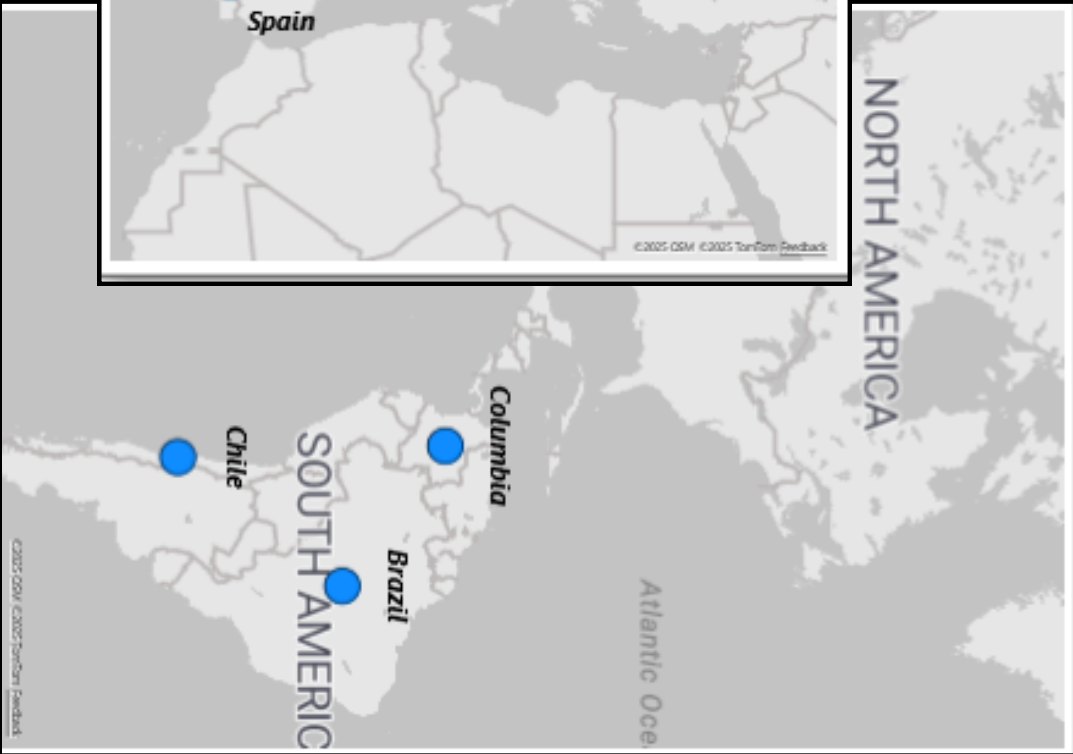
- P&A, PC, N&S

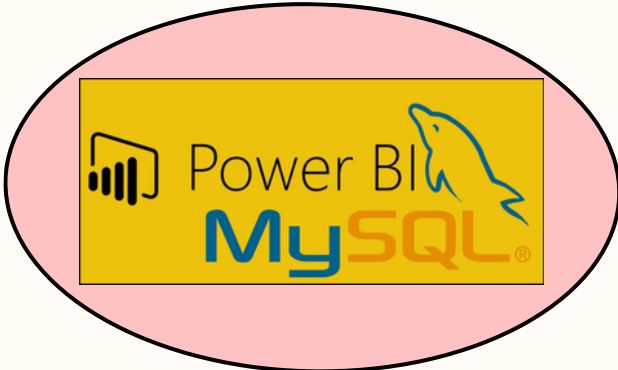
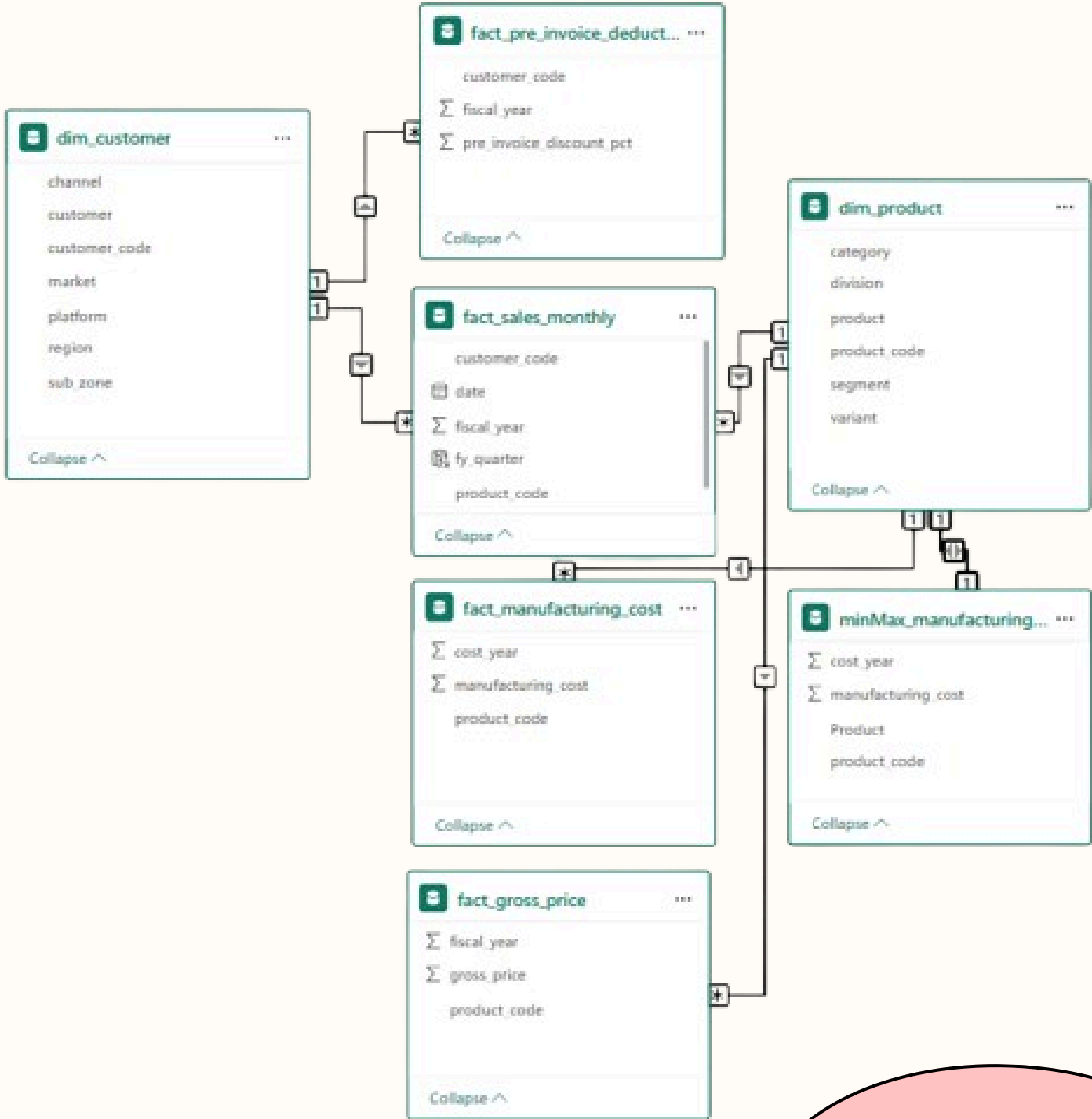
**Segment**

- Networking, Storage,
- Desktop, Notebook etc.

**Category**

- Wifi extender, graphics card,
- Internal HDD, keyboard, Mouse
- Business laptop, USB flash light etc.





Codebasics SQL Challenge

Requests:

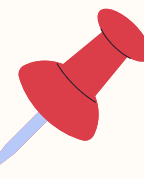
1. Provide the list of markets in which customer "Atliq Exclusive" operates its business in the APAC region.
2. What is the percentage of unique product increase in 2021 vs. 2020? The final output contains these fields,  
unique\_products\_2020  
unique\_products\_2021  
percentage\_chg
3. Provide a 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.



- **SQL query**

Select distinct market, region

From dim\_customer

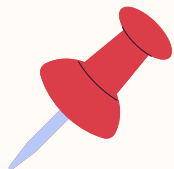
Where customer = "Atliq Exclusive" and region = "APAC"



market	region
India	APAC
Indonesia	APAC
Japan	APAC
Philippines	APAC
South Korea	APAC
Australia	APAC
Newzealand	APAC
Bangladesh	APAC



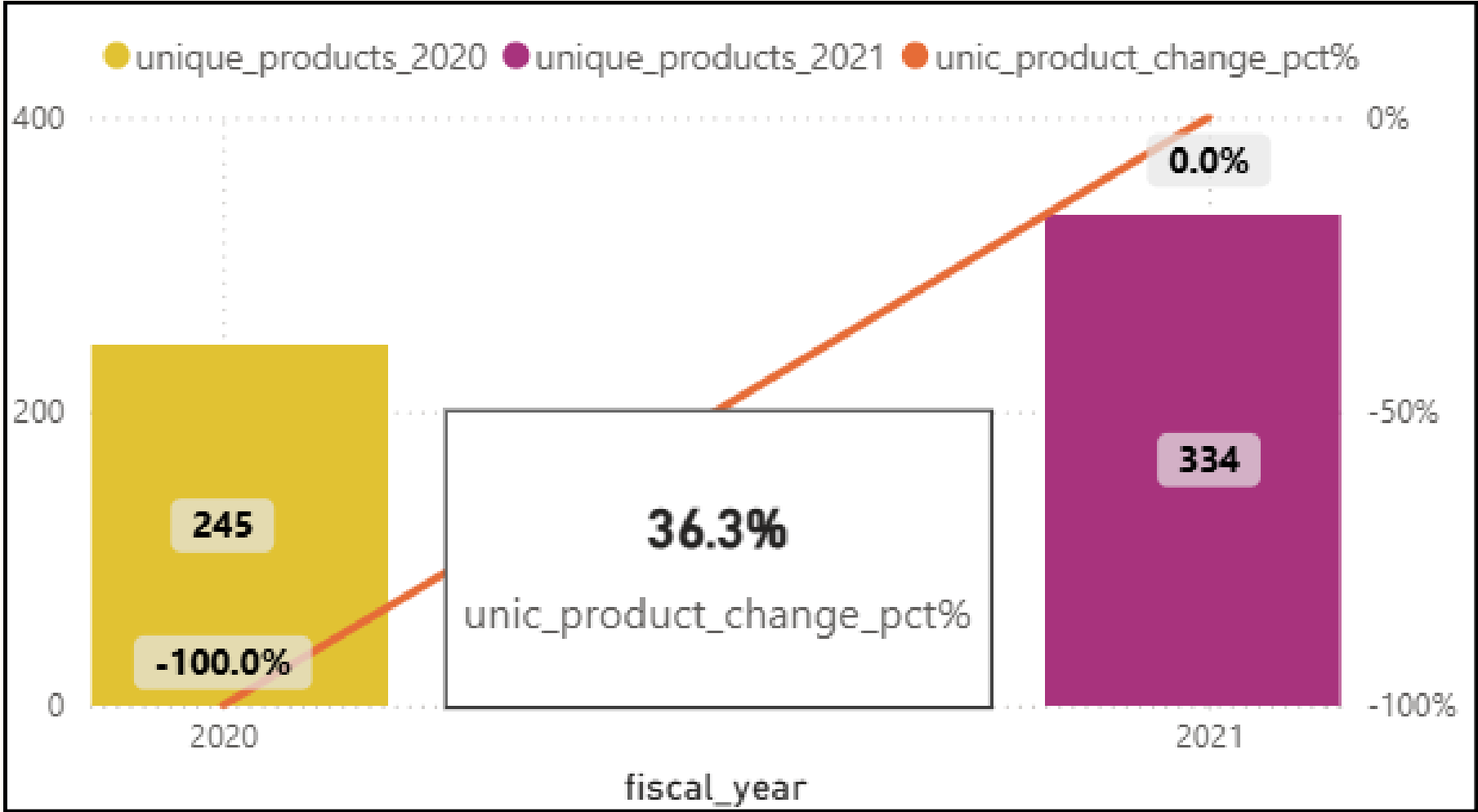
2. What is the percentage of unique product increase in 2021 vs. 2020? The final output contains these fields, unique\_products\_2020 unique\_products\_2021 percentage\_chg



• SQL Data

```
With cte1 as(
Select count(distinct p.product_code) as unique_products_2020,
g.fiscal_year
From dim_product P Join fact_gross_price g On p.product_code=
g.product_code where g.fiscal_year = 2020),
cte2 as (
Select count(distinct p.product_code) as unique_products_2021,
g.fiscal_year
From dim_product P Join fact_gross_price g On p.product_code =
g.product_code where fiscal_year = 2021)
Select
cte1.unique_products_2020, cte2.unique_products_2021,
Round((cte2.unique_products_2021 -
cte1.unique_products_2020)*100/cte1.unique_products_2020,2)
as change_pct
From cte1, cte2
```

	unique_products_2020	unique_products_2021	change_pct
▶	245	334	36.33

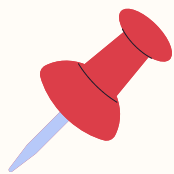


Insights:

- Demand and production both **increased**

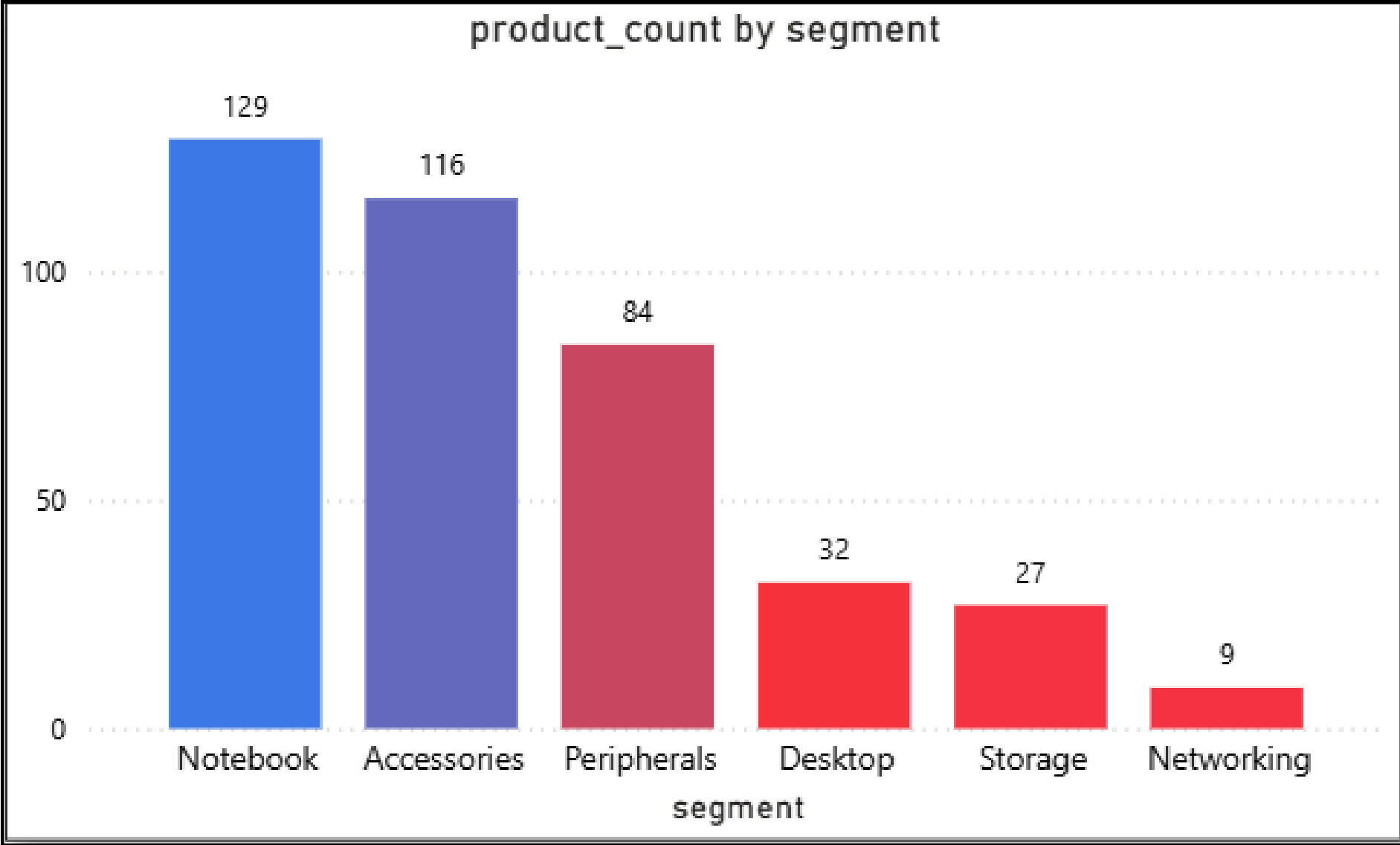


3. Provide a report with all the unique product counts for each segment and sort them in descending order of product counts. The final output contains 2 fields, segment product\_count



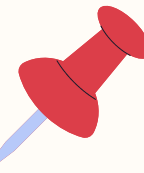
• **SQL query** **Select count(distinct(product\_code)) as product\_count, segment From dim\_product group by segment order by product\_count desc**

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





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( • **SQL query**

```
Select p.segment,  
COUNT(DISTINCT CASE WHEN s.fiscal_year = 2020 THEN p.product_code END) AS  
product_count_2020, COUNT(DISTINCT CASE WHEN s.fiscal_year = 2021 THEN  
p.product_code END) AS product_count_2021 From dim_product p Join  
fact_sales_monthly s On p.product_code=s.product_code  
Group By p.segment)
```

```
Select segment,  
product_count_2020, product_count_2021, product_count_2021,  
product_count_2020 as difference From cte1  
order by product_count_2020 desc
```

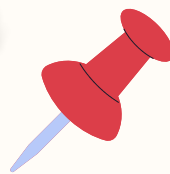
## **Suggestions:**

Package Deal  
Customer  
Services  
Free Vouchers  
Student Discount  
Cash Back  
Gift cards.  
Memberships

## **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

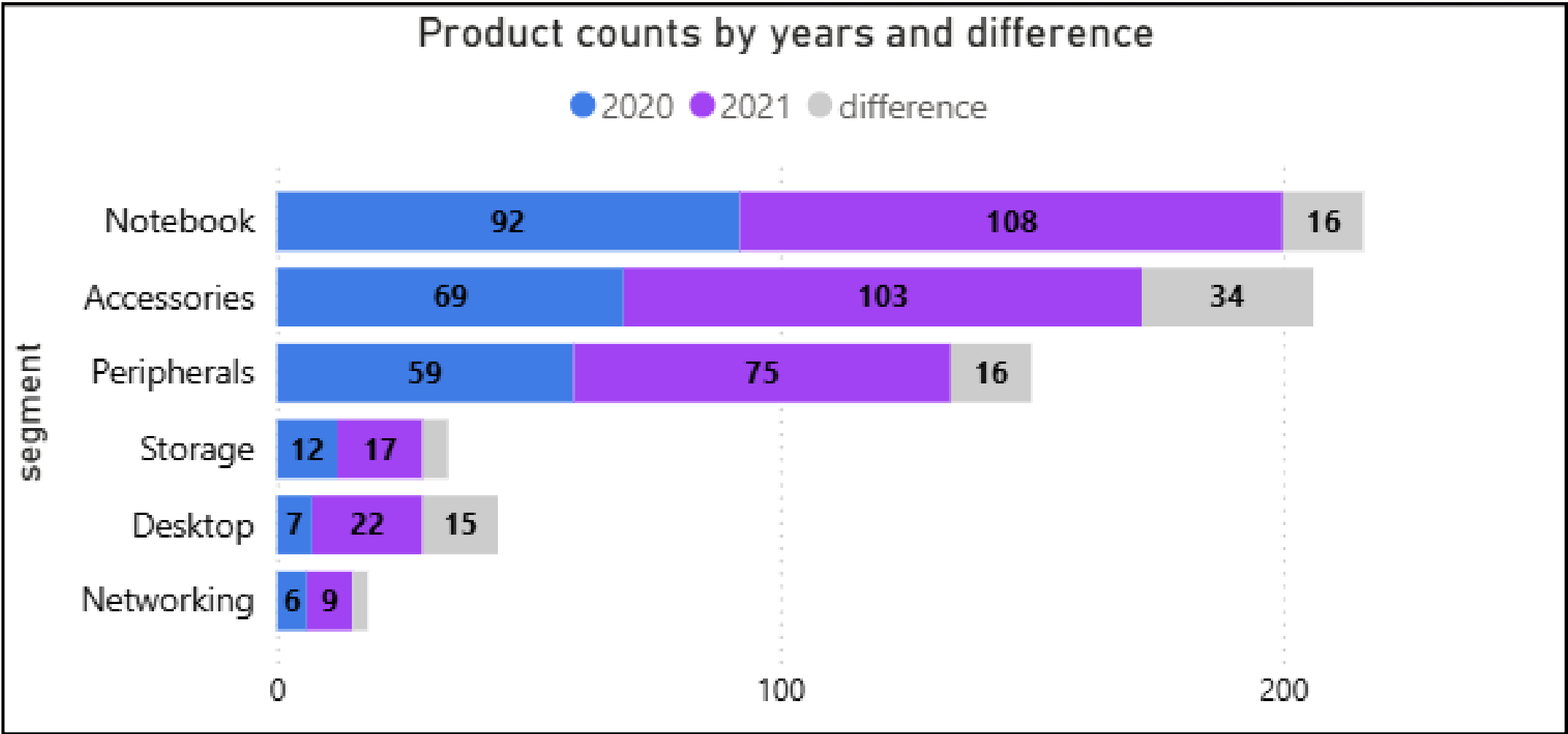


**Suggestions:**

- Package Deal
- Customer Services
- Free Vouchers
- Student Discount
- Cash Back
- Gift cards.
- Memberships



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



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



• **SQL query**

```
Select p.product, m.product_code, m.manufacturing_cost
From fact_manufacturing_cost m
Join dim_product p
On p.product_code=m.product_code Where
m.manufacturing_cost = (Select max(manufacturing_cost) from fact_manufacturing_cost) OR
m.manufacturing_cost = (Select Min(manufacturing_cost) from fact_manufacturing_cost)
Order by m.manufacturing_cost desc
```



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

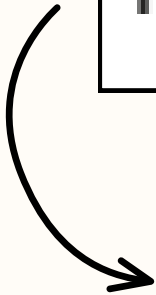


5. Get the products that have the highest and lowest manufacturing costs. The final output should contain these fields, product\_code product manufacturing\_cost




• SQL Data

Product with Higest and Lowet manufacturing Cost		
product_code	Product	manufacturing_cost
A6120110206	AQ HOME Allin1 Gen 2	240.54
A2118150101	AQ Master wired x1 Ms	0.89
Total		241.43



Highest manufacturing cost

**\$240.54**



A6120110206  
AQ Home Allin 1Gen 2  
**Personal Desktop**

Lowest manufacturing cost

**\$0.89**



A2118150101  
AQ Master wired x1 MS  
**Mouse**



Insights:

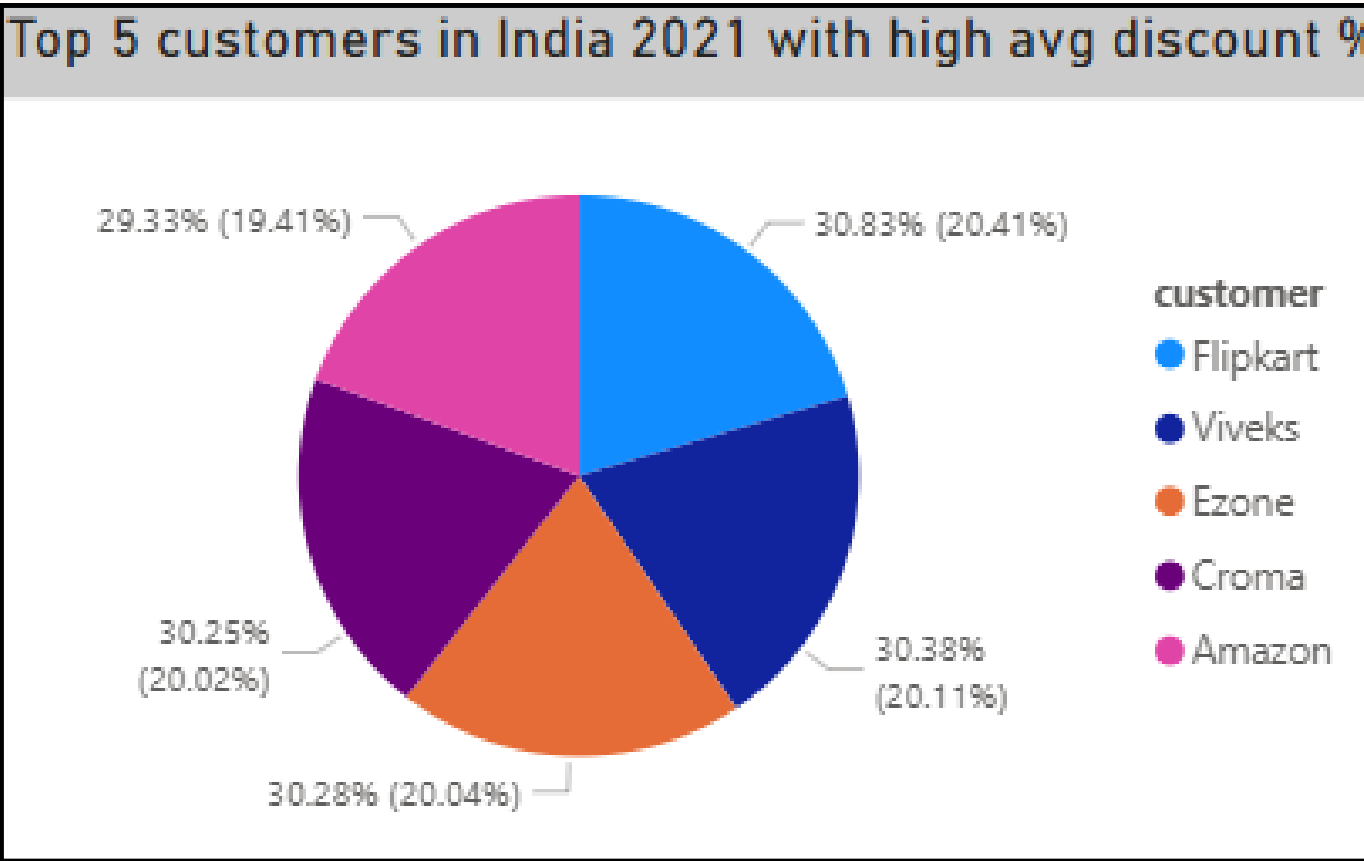
- Mouse: AQ Master wired xl Ms (Variant: Standard) has the lowest manufacturing cost.
- Personal Desktop: AQ Home Allin 1Gen 2 (Variant: plus 3) has the highest manufacturing cost.

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.

• **SQL Data**

```
Select
c.customer, p.customer_code,
CONCAT(Round(avg(p.pre_invoice_discount_pct)*100, 2), '%') as
average_discount_percentage
From fact_pre_invoice_deductions p
Join dim_customer c
On p.customer_code=c.customer_code
Where p.fiscal_year= "2021" and c.market= "India"
Group by c.customer, p.customer_code
Order by avg(p.pre_invoice_discount_pct)*100 DESC Limit 5
```

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



**Insights:**

- The largest pre-invoice discount was given to **Flipkart**
- The lowest 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.



• SQL query

```
Select
monthname(s.date)      as      month_name,      year(s.date)      as      year_,
concat('$,Round(SUM(g.gross_price * s.sold_quantity) / 1000000, 2)) as gross_sales_mln
From fact_sales_monthly s
Join fact_gross_price g
On s.Product_code=g.Product_code and s.fiscal_year=g.fiscal_year
Join dim_customer c
On s.customer_code=c.customer_code
Where c.customer = "Atliq Exclusive"
Group By month_name, year_
Order by year_
```

• SQL Data

month_name	year_	gross_sales_mln
September	2019	\$4.50
October	2019	\$5.14
November	2019	\$7.52
December	2019	\$4.83
January	2020	\$4.74
February	2020	\$4.00
March	2020	\$0.38
April	2020	\$0.40
May	2020	\$0.78
June	2020	\$1.70
July	2020	\$2.55
August	2020	\$2.79
September	2020	\$12.35
October	2020	\$13.22
November	2020	\$20.46
December	2020	\$12.94
January	2021	\$12.40
February	2021	\$10.13
March	2021	\$12.14
April	2021	\$7.31
May	2021	\$12.15
June	2021	\$9.82
July	2021	\$12.09
August	2021	\$7.18

FY 2020  
79.5 M

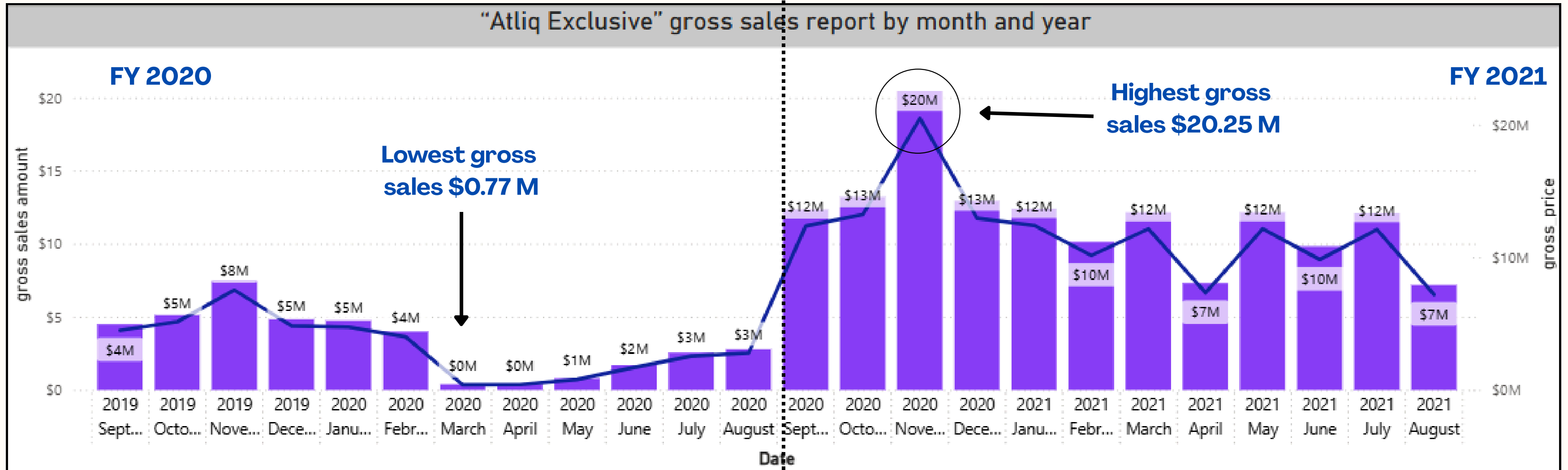
FY 2021  
224.4 M

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**



- Visualization



## Reasons

- Covid-19
- Global chip shortage

### When did the silicon chip shortage start?

The global silicon chip shortage primarily began in early 2020, triggered by the COVID-19 pandemic and its cascading effects on supply chains and increased demand for electronics.



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

• SQL query

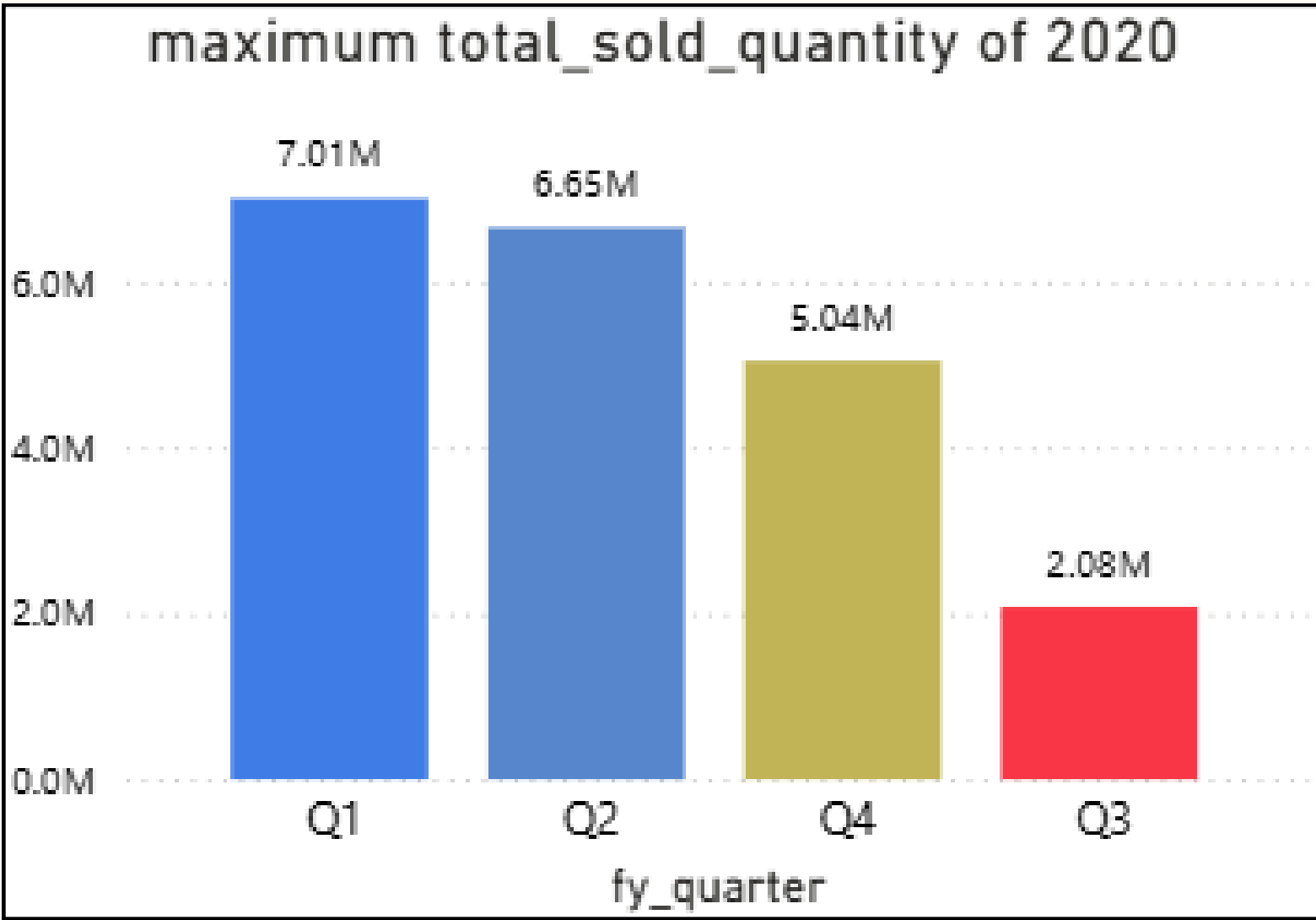
```
Select CASE
when month(date) IN (9,10,11) then "Q1"
when month(date) IN (12,01,02) then "Q2"
when month(date) IN (03,04,05) then "Q3"
ELSE "Q4"
END as quarters,
SUM(sold_quantity) as total_sold_qty
From fact_sales_monthly
Where fiscal_year = 2020
Group by quarters
Order by total_sold_qty Desc
```

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 contribute approximately **34%** of the total sold quantity

• SQL Data

quarters	total_sold_qty
Q1	7005619
Q2	6649642
Q4	5042541
Q3	2075087



• SQL query

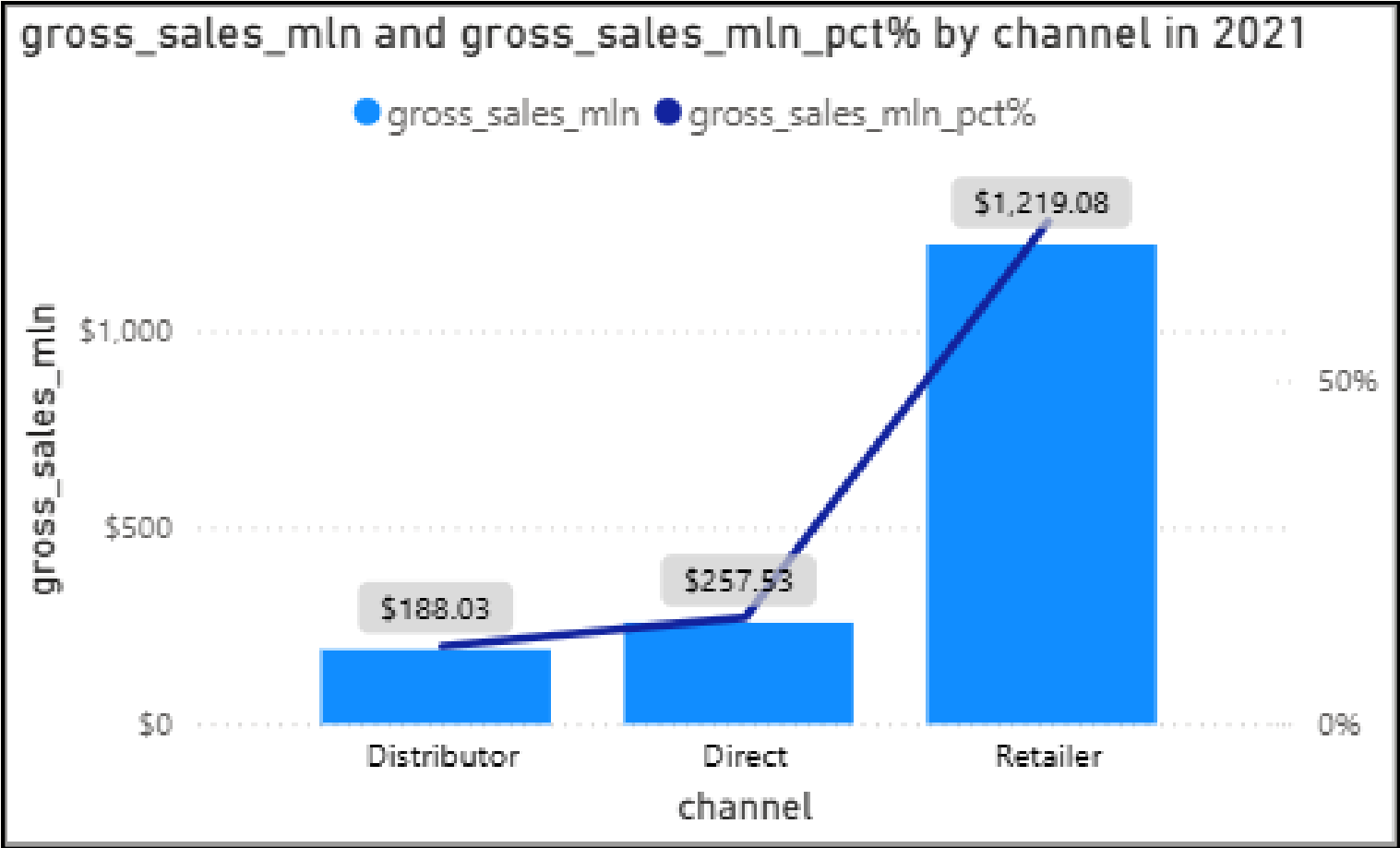
```
WITH cte1 As(  
SELECT c.channel,  
ROUND(SUM(g.gross_price * s.sold_quantity) / 1000000, 2) AS gross_sales_mln  
FROM fact_gross_price g  
JOIN fact_sales_monthly s ON g.product_code = s.product_code AND  
g.fiscal_year = s.fiscal_year  
JOIN dim_customer c ON c.customer_code = s.customer_code  
WHERE s.fiscal_year = 2021  
GROUP BY c.channel)  
  
Select channel, gross_sales_mln, ROUND(gross_sales_mln * 100 /  
SUM(gross_sales_mln) OVER (), 2) As gross_sales_mln_pct  
From cte1 order by gross_sales_mln_pct Desc
```

• SQL Data

channel	gross_sales_mln	gross_sales_mln_pct
Retailer	1219.08	73.23
Direct	257.53	15.47
Distributor	188.03	11.30



- Insights::**
- Channel: "**Retailer**" helped bring maximum sales to the company with **73.23%** as the contribution percentage.
  - Channel: "**Distributor**" make a least contribution at a percentage of **11.30%**





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

• SQL query


```
With cte1 as(
Select  p.division,  p.product_code,  p.product,  sum(s.sold_quantity) as total_sold_quantity,  Dense_rank()over(partition by p.division order by
sum(s.sold_quantity) Desc) As rank_order From dim_product p Join fact_sales_monthly s On p.product_code=s.product_code
Where s.fiscal_year=2021 Group by p.division, p.product_code, p.product)

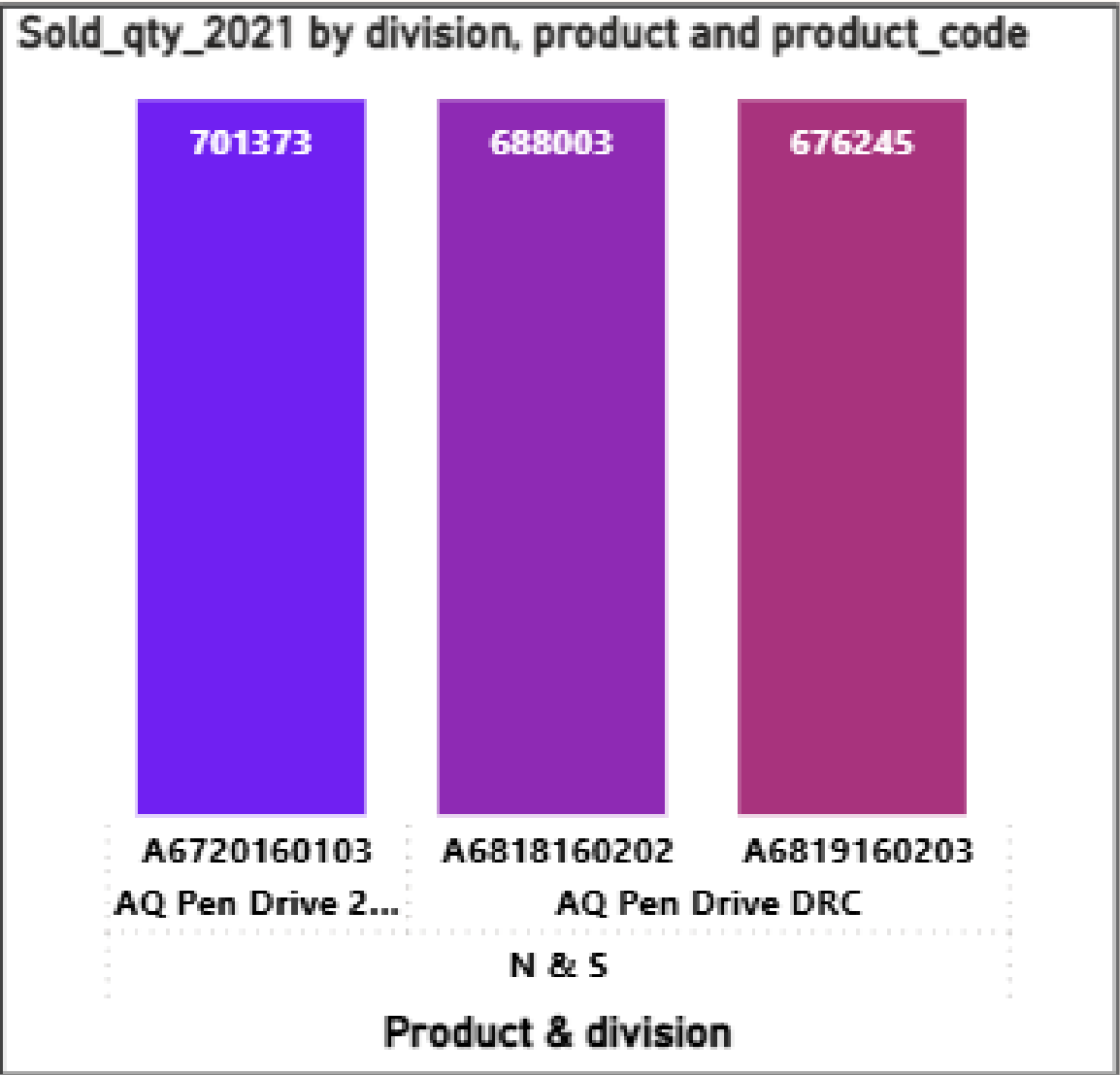
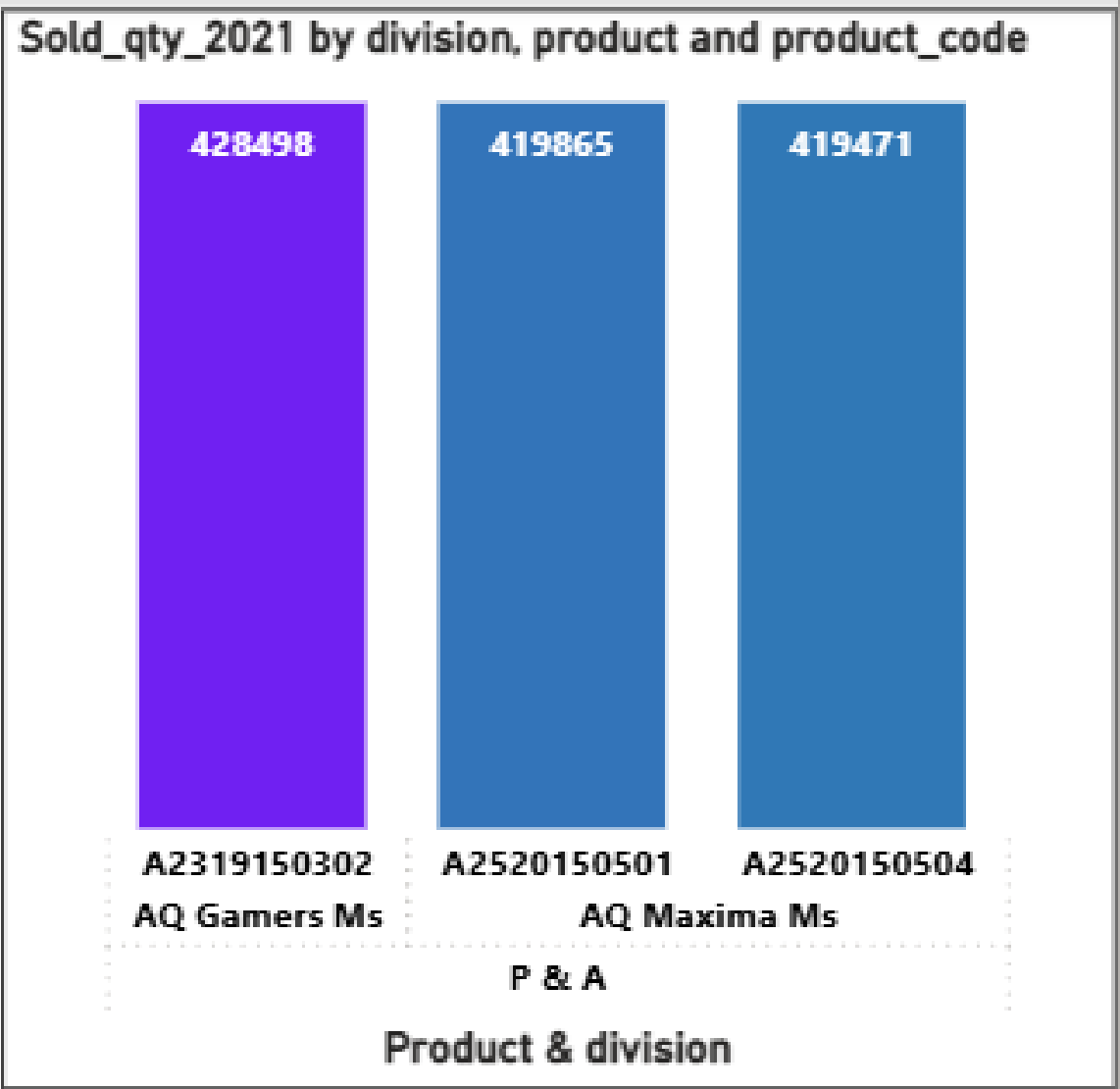
Select division, product_code, product, total_sold_quantity, rank_order
From cte1 where rank_order<=3
Order by division, rank_order
```

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

Insights::

- Every Division has a product with different variant that appears **twice** in the **top 3 products** by division

10. Get the Top 3 products in each division that have a high total\_sold\_quantity in the fiscal\_year 2021? 





# Thank you! 😊

---

**Ujjal Mondal**

ujjalmondal.business@gmail.com

+91 8250861656