



# Ad-Hoc Insights

## Customer Goods

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# Content

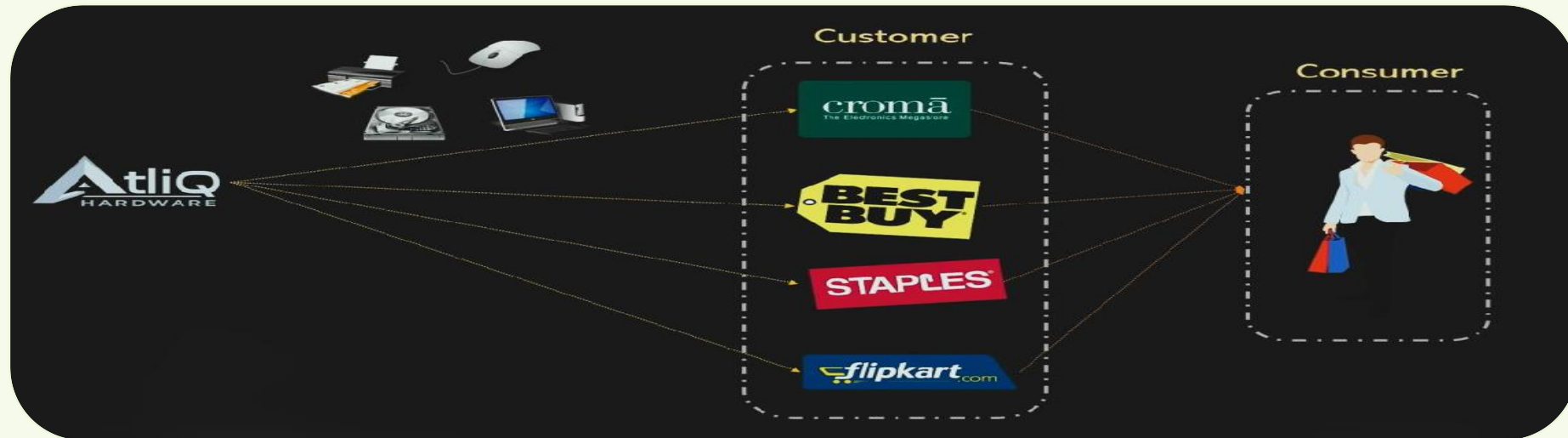
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- ❑ About AtliQ Hardwares
- ❑ Problem statement
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# About AtliQ Hardwares

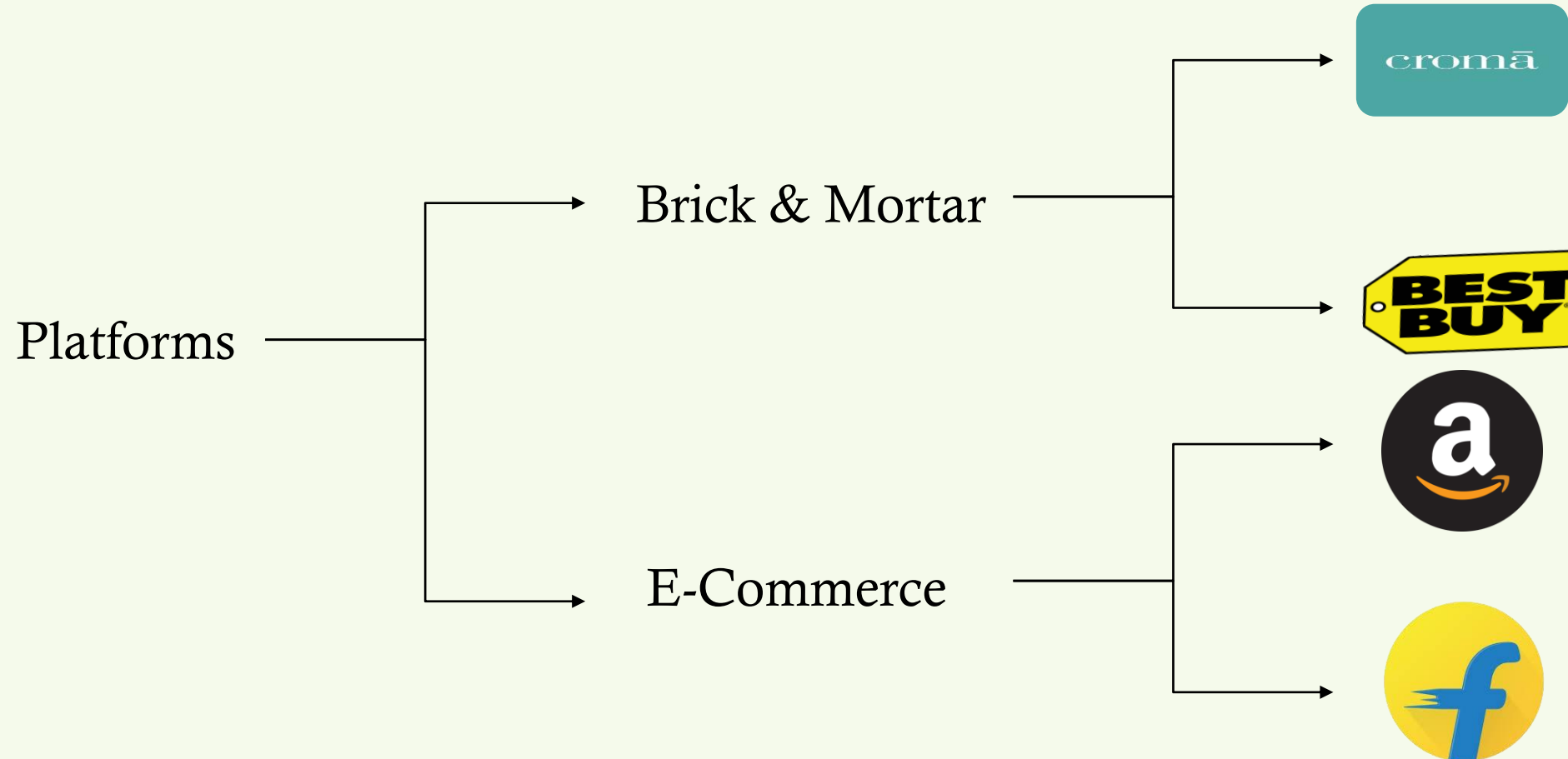
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- ❑ AtliQ Hardwares (imaginary company) is one of the leading computer hardware producers in India and well expanded in other countries too.
- ❑ Let's see the structure of the business model:



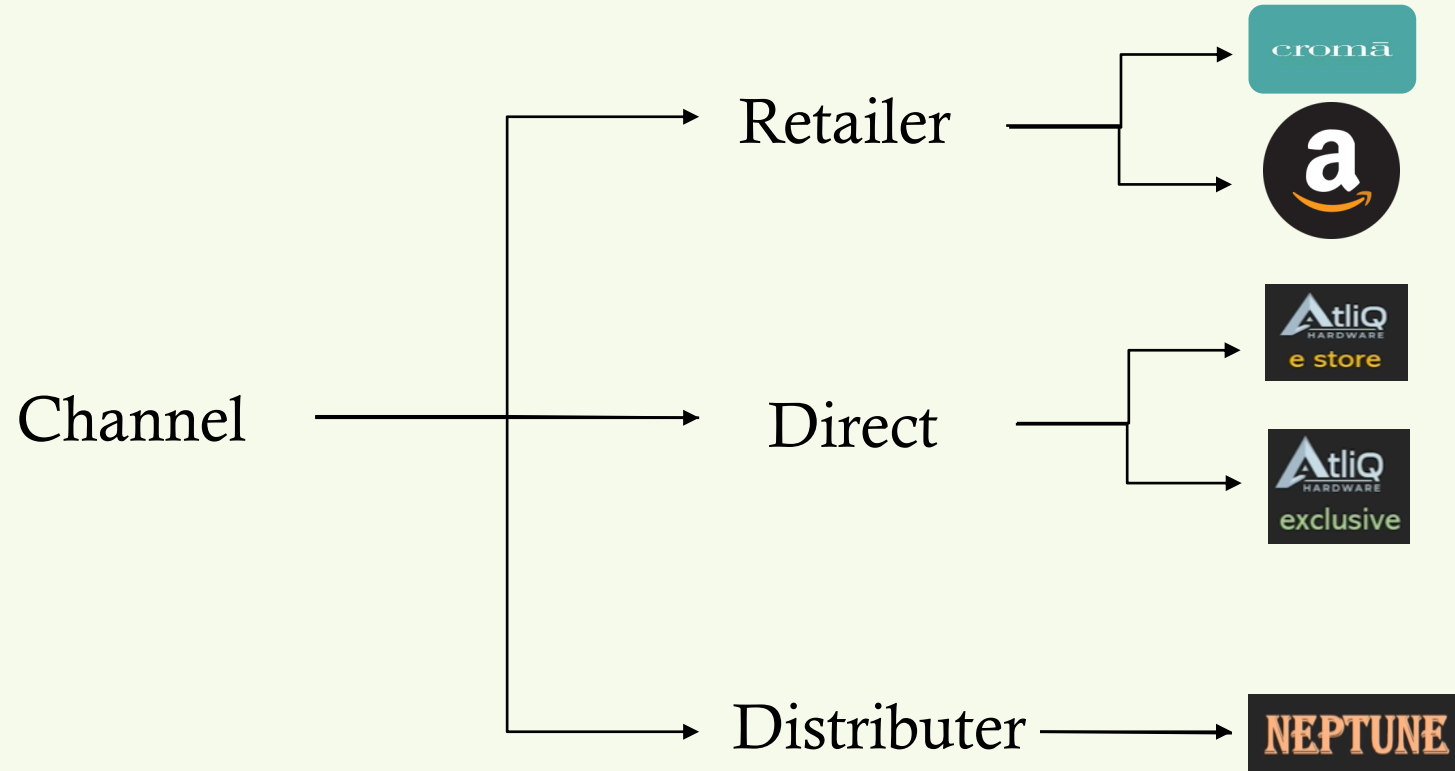
# About AtliQ Hardwares

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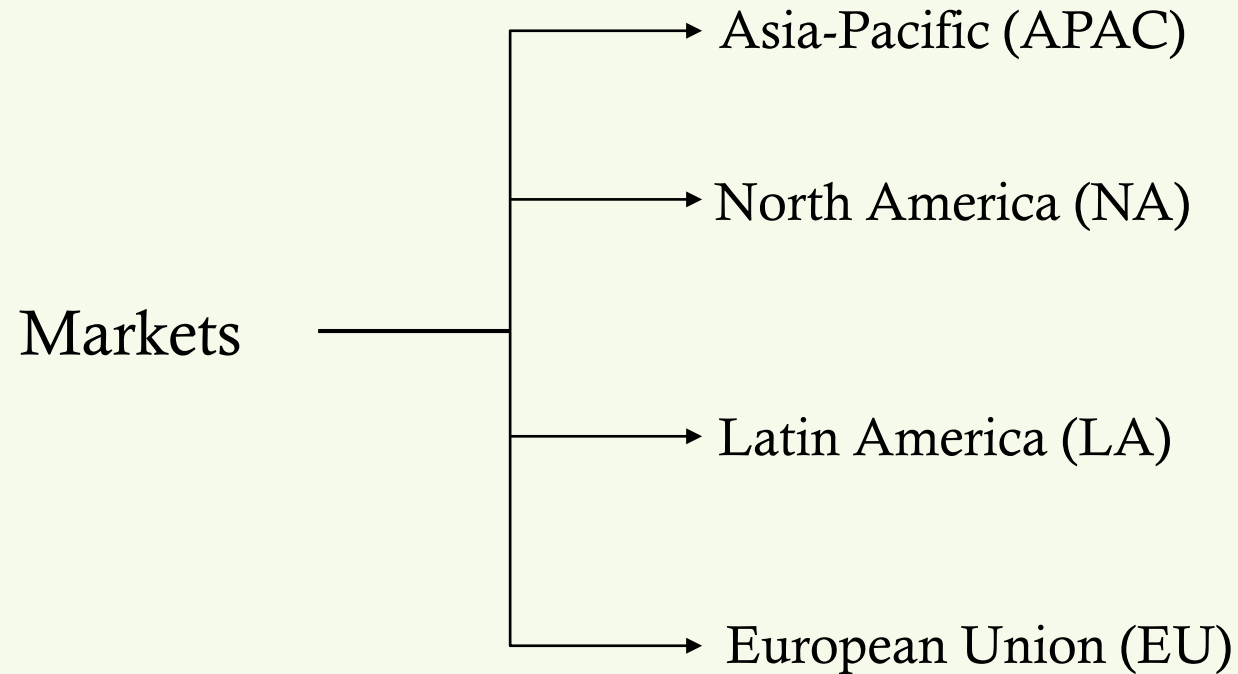
# About AtliQ Hardwares

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# About AtliQ Hardwares

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**Fiscal Year**  
Sep 1<sup>st</sup> - Aug 31<sup>st</sup>

# Problem statement

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- ❑ Management noticed they don't have enough insights to make quick, smart, and data-driven decisions.
- ❑ Decision made to expand the data analytics team by adding junior data analysts.
- ❑ Tony Sharma, the Data Analytics Director, plans to conduct a SQL challenge to evaluate both technical and soft skills.
- ❑ The business has 10 ad hoc requests that need insights, So Tony Sharma decided to conduct a SQL Challenge to evaluate the necessary skills.

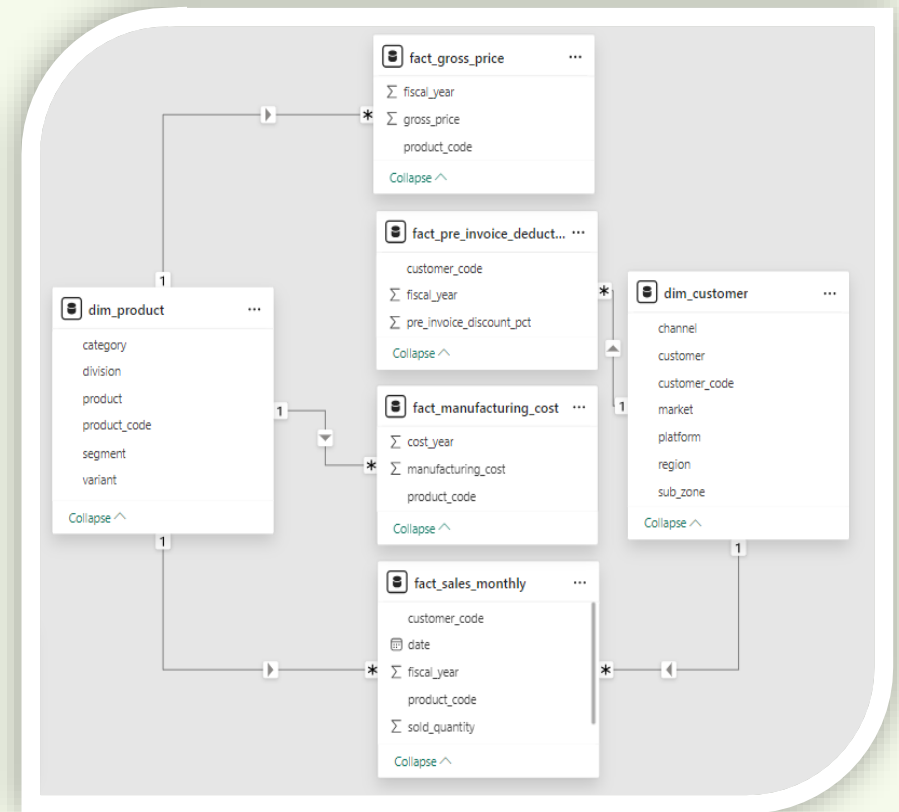
# Dataset and model

## 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

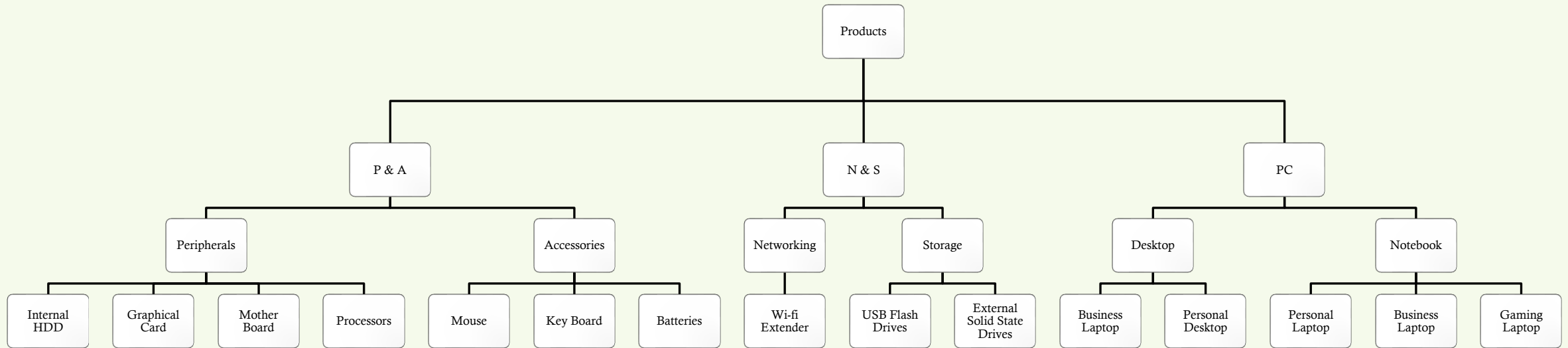
6. Generate a report which contains the top 5 customers who received an average high pre\_invoice\_discount\_pct for the **fiscal year 2021** and in the **Indian** market. The final output contains these fields,  
customer\_code  
customer  
average\_discount\_percentage
7. Get the complete report of 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\_min  
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





# Dataset and model

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# Let's Review the Ad-Hoc Requests, Query, and Output

Tools Used



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

Query

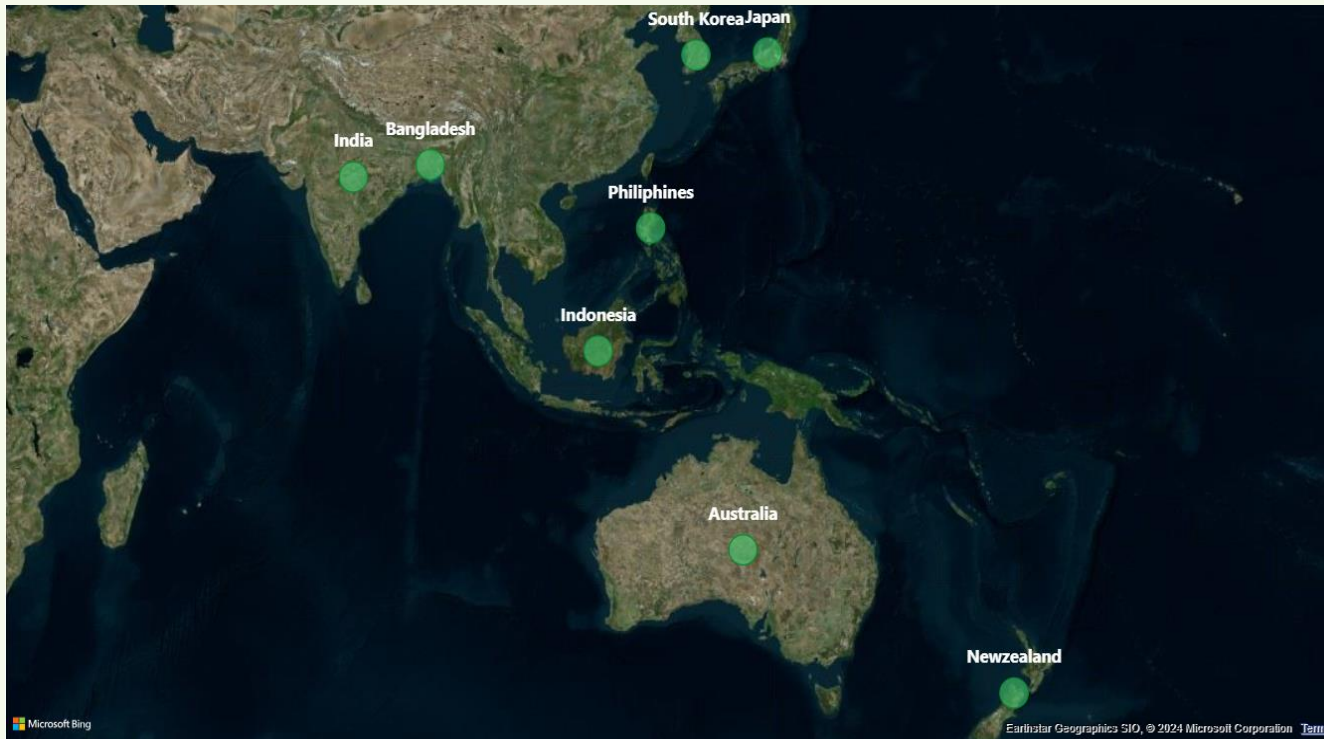
```
SELECT
    DISTINCT market
FROM dim_customer
WHERE customer = 'Atliq Exclusive' AND region = 'APAC';
```

Output

market
India
Indonesia
Japan
Philippines
South Korea
Australia
Newzealand
Bangladesh

# Visualization | Insights

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## Insight

- ❑ AtliQ Exclusive operates in eight countries across the APAC(Asia Pacific) region, demonstrating a strong and growing market presence in these key areas.

## 2. What is the percentage of unique product increase in 2021 Vs 2020?

### Query

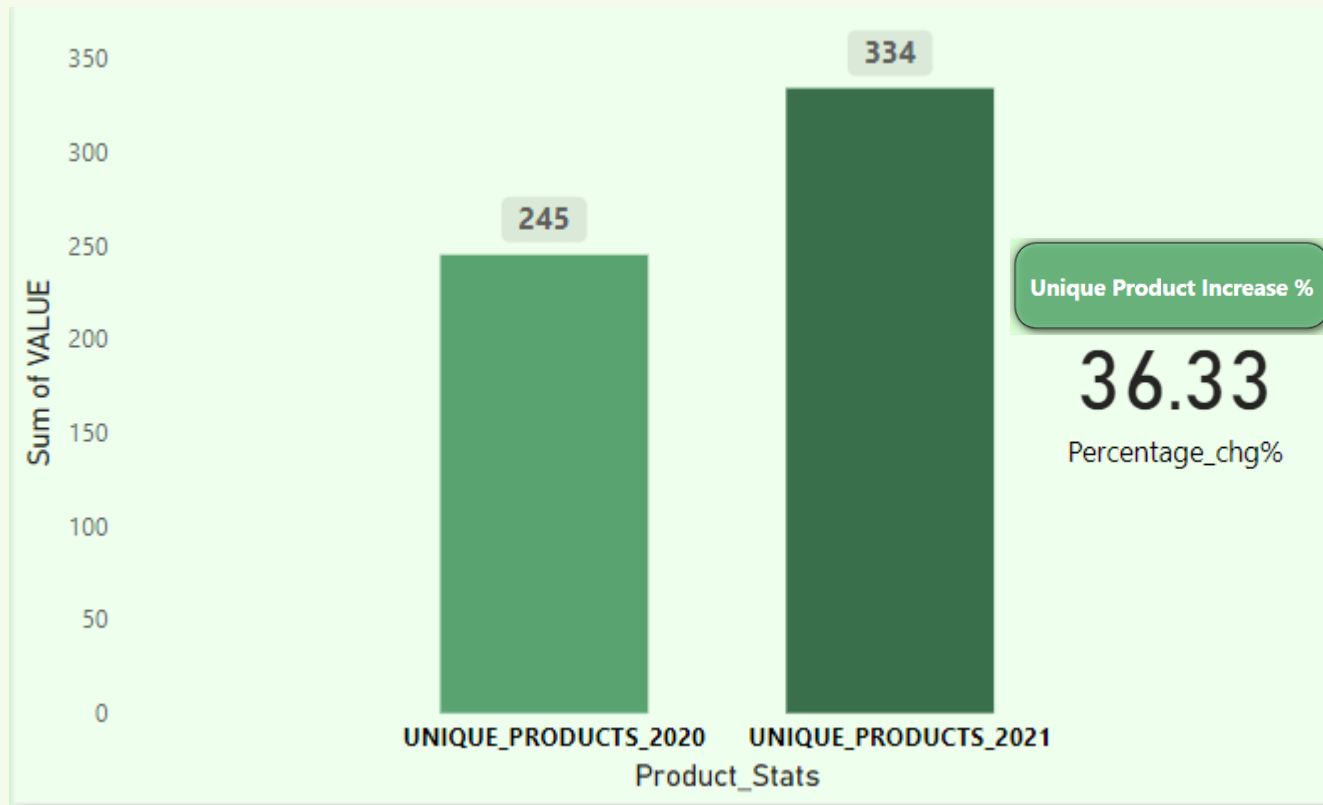
```
WITH unique_counts AS (  
    SELECT  
        (SELECT COUNT(DISTINCT product_code) FROM fact_sales_monthly WHERE fiscal_year = 2020) AS unique_products_2020,  
        (SELECT COUNT(DISTINCT product_code) FROM fact_sales_monthly WHERE fiscal_year = 2021) AS unique_products_2021  
    )  
SELECT 'UNIQUE_PRODUCTS_2020' AS Product_Stats, unique_products_2020 AS VALUE  
FROM unique_counts  
UNION ALL  
SELECT 'UNIQUE_PRODUCTS_2021' AS Product_Stats, unique_products_2021 AS VALUE  
FROM unique_counts  
UNION ALL  
SELECT 'PERCENTAGE_CHG' AS Product_Stats,  
    ROUND(((unique_products_2021 - unique_products_2020) / unique_products_2020) * 100, 2) AS VALUE  
FROM unique_counts;
```

### Output

Product_Stats	VALUE
UNIQUE_PRODUCTS_2020	245.00
UNIQUE_PRODUCTS_2021	334.00
PERCENTAGE_CHG	36.33

# Visualization | Insights

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## Insights

- ❑ The number of unique products increased from 245 in 2020 to 334 in 2021, representing a 36.33% increase.
- ❑ This prominent increase shows the company's focus on innovation and meeting the needs of a wider range of customers.

3. Provide a report with all the unique product counts for each segment and sort them in descending order of product counts.

Query

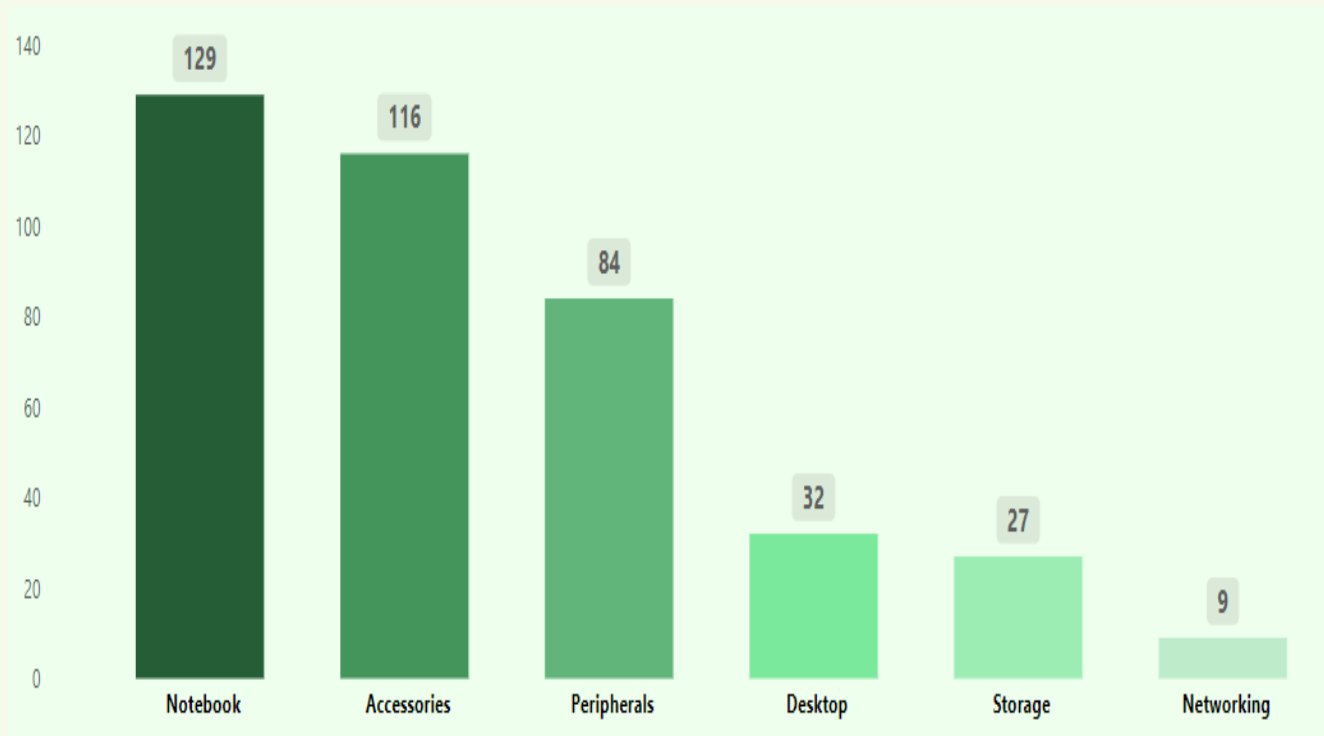
```
SELECT
    segment, COUNT(DISTINCT product_code) AS product_count
FROM dim_product
GROUP BY segment ORDER BY 2 DESC;
```

Output

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

# Visualization | Insights

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## Insights

- ❑ Notebooks, Accessories, and Peripherals are showing significant manufacturing growth, making up **83%** of AtliQ's total products.
- ❑ In contrast, Desktops, Storage, and Networking account for just **17%**, suggesting AtliQ should prioritize Networking products that meet current customer needs and market demands.



## 4. Which segment had the most increase in unique products in 2021 vs 2020?

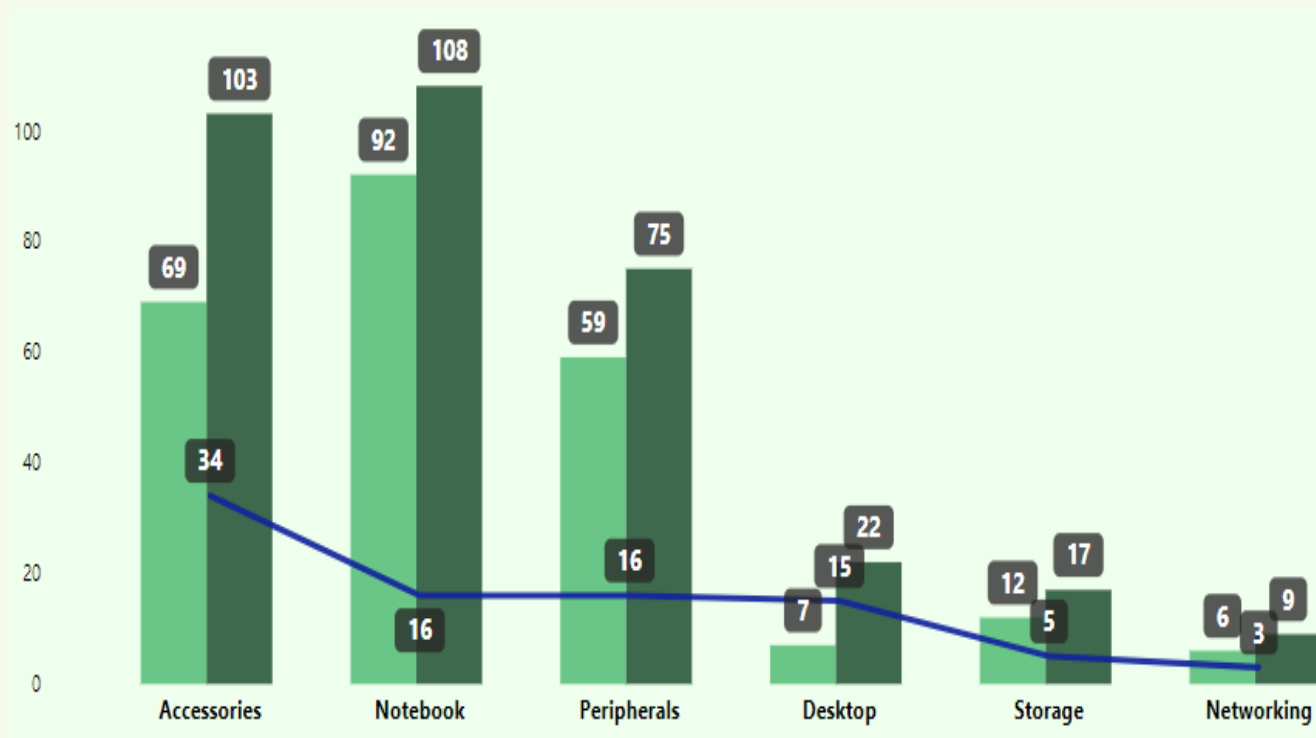
### Query

```
WITH CTE AS (  
    SELECT  
        p.segment, fs.fiscal_year, COUNT(DISTINCT fs.product_code) as product_count_2020  
    FROM dim_product AS p  
    JOIN fact_sales_monthly as fs ON p.product_code = fs.product_code  
    WHERE fiscal_year = 2020 GROUP BY segment  
)  
CTE1 AS(  
    SELECT  
        p.segment, fs.fiscal_year, COUNT(DISTINCT fs.product_code) as product_count_2021  
    FROM dim_product AS p  
    JOIN fact_sales_monthly as fs ON p.product_code = fs.product_code  
    WHERE fiscal_year = 2021 GROUP BY segment)  
SELECT  
    CTE.segment, product_count_2020, product_count_2021, (product_count_2021 - product_count_2020) AS difference  
FROM CTE  
JOIN CTE1 ON CTE.segment = CTE1.segment  
ORDER BY difference DESC;
```

### Output

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

# Visualization | Insights



## Insights

- ❑ **Accessories** had the biggest growth, adding 34 new products from 2020 to 2021.
- ❑ **Desktop** products grew rapidly, increasing from 7 to 22 unique products.
- ❑ **Storage** and **Networking** showed slower growth, producing the fewest new products during this time.

## 5. Get the products that have the highest and lowest manufacturing costs.

### Query

```
WITH CTE AS (  
    SELECT  
        p.product_code, p.product, m.manufacturing_cost,  
        ROW_NUMBER() OVER (ORDER BY m.manufacturing_cost ASC) AS min_rank,  
        ROW_NUMBER() OVER (ORDER BY m.manufacturing_cost DESC) AS max_rank  
    FROM dim_product p  
    JOIN fact_manufacturing_cost m ON p.product_code = m.product_code  
)  
SELECT  
    product_code, product, manufacturing_cost  
FROM CTE  
WHERE max_rank = 1 OR min_rank = 1;
```

### Output

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

# Visualization | Insights

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## Insights

- ❑ **The Personal Desktop:** **AQ Home Allin1 Gen2** holds the highest manufacturing cost.
- ❑ **The Mouse:** **AQ Master Wired x1 Ms** has the lowest manufacturing cost among all products.

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.

## Query

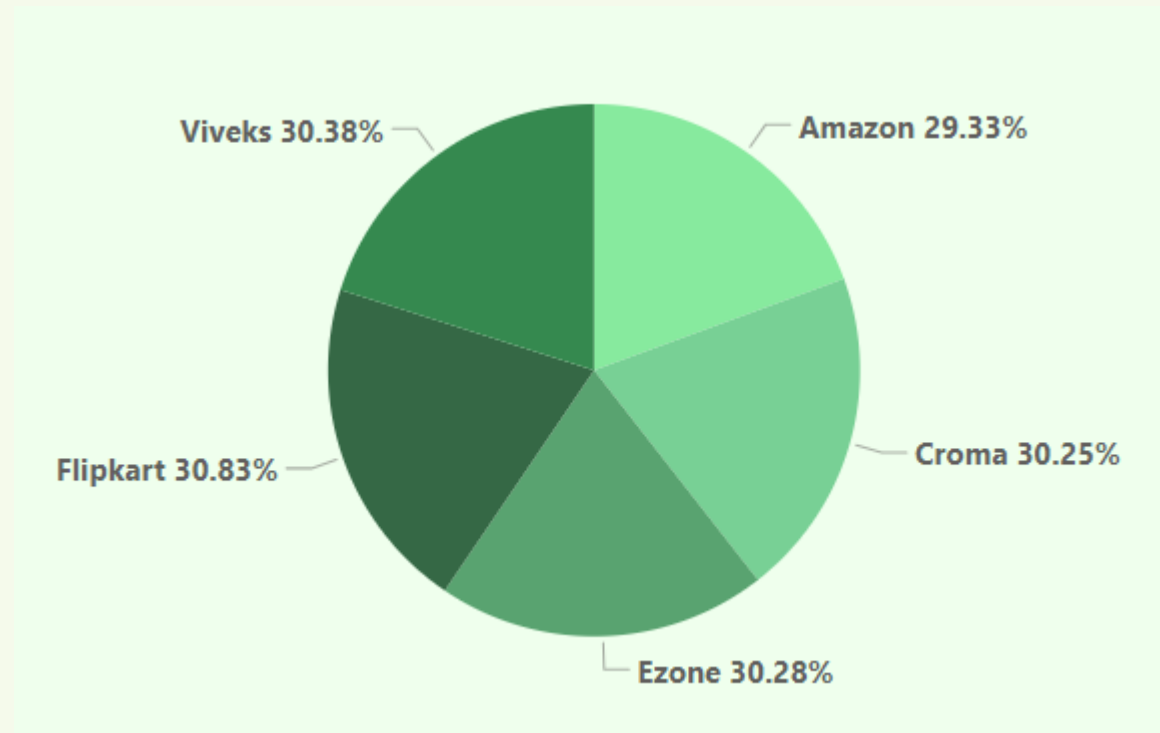
```
SELECT a.customer_code ,  
       b.customer,  
       CONCAT(ROUND(AVG(pre_invoice_discount_pct)*100,2),'%') AS avg_discount_pct  
FROM fact_pre_invoice_deductions AS a  
INNER JOIN  
dim_customer AS b  
ON a.customer_code = b.customer_code  
WHERE market = 'India'  
AND fiscal_year = 2021  
GROUP BY customer, customer_code  
ORDER BY AVG(pre_invoice_discount_pct) DESC  
LIMIT 5;
```

## Output

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

# Visualization | Insights

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## Insights

- ❑ **Flipkart** achieved the largest average pre-invoice discount in the Indian market with a discount of 30.83%.
- ❑ **Amazon** received the lowest average pre-invoice discount among the top 5 customers, with a discount of 29.33%.

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.

## Query

```
SELECT
    MONTHNAME(fs.date) AS MONTH,
    YEAR(fs.date) AS YEAR,
    ROUND(SUM(fp.gross_price * fs.sold_quantity),2) AS Gross_Sales_Amount
FROM fact_gross_price fp
JOIN fact_sales_monthly fs ON fp.product_code = fs.product_code
JOIN dim_customer c ON c.customer_code = fs.customer_code
WHERE c.customer = 'Atliq Exclusive' GROUP BY MONTH, YEAR;
```

## Output

	MONTH	YEAR	Gross_Sales_Amount
►	September	2019	9092670.34
	November	2019	15231894.97
	December	2019	9755795.06
	January	2020	9584951.94
	March	2020	766976.45
	April	2020	800071.95
	May	2020	1586964.48
	July	2020	5151815.40
	August	2020	5638281.83
	September	2020	19530271.30
	November	2020	32247289.79
	December	2020	20409063.18
	January	2021	19570701.71
	March	2021	19149624.92
	April	2021	11483530.30
	May	2021	19204309.41
	July	2021	19044968.82
	August	2021	11324548.34
	October	2019	10378637.60
	February	2020	8083995.55
	June	2020	3429736.57
	October	2020	21016218.21
	February	2021	15986603.89
	June	2021	15457579.66

# Visualization | Insights



## Insights

- ❑ November 2020 achieved the highest gross sales for AtliQ Exclusive of **32.25 million**, while March 2020 experienced the lowest gross sales of **0.77 million**.
- ❑ The big drop in gross sales in March 2020 was due to the COVID-19 pandemic.



## 8. In which quarter of 2020, got the maximum total\_sold\_quantity?

### Query

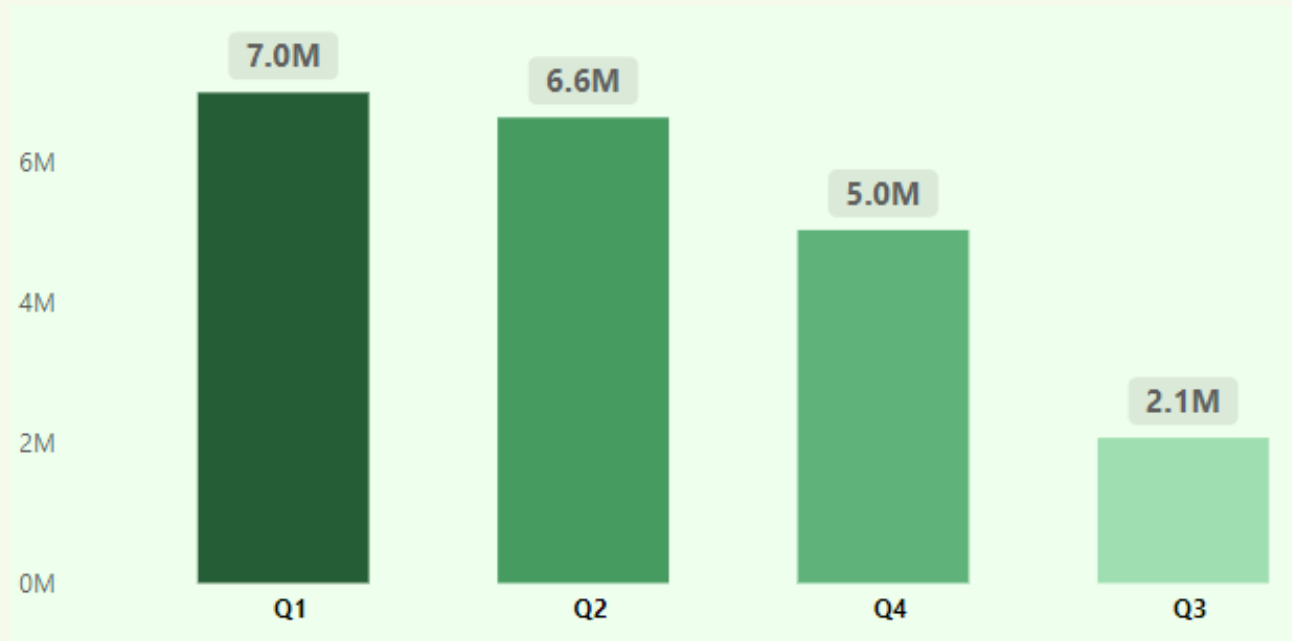
```
SELECT
CASE
  WHEN date BETWEEN '2019-09-01' AND '2019-11-01' THEN 'Q1'
  WHEN date BETWEEN '2019-12-01' AND '2020-02-01' THEN 'Q2'
  WHEN date BETWEEN '2020-03-01' AND '2020-05-01' THEN 'Q3'
  WHEN date BETWEEN '2020-06-01' AND '2020-08-01' THEN 'Q4'
  END AS Quarters,
  SUM(sold_quantity) AS total_sold_quantity
FROM fact_sales_monthly
WHERE fiscal_year = 2020
GROUP BY Quarters
ORDER BY total_sold_quantity DESC;
```

### Output

	Quarter	total_sold_qty
▶	Q1	7005619
	Q2	6649642
	Q4	5042541
	Q3	2075087

# Visualization | Insights

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## Insights

- ❑ Q1 2020 recorded the highest sales volume, with around **7 million units sold**, showing strong performance early in the year.
- ❑ In Q3, AtliQ experienced a significant drop in sales, likely due to the COVID-19 pandemic, which led to challenging market conditions.

## 9. Which channel helped to bring more gross sales in the fiscal year 2021 and the percentage of contribution?

### Query

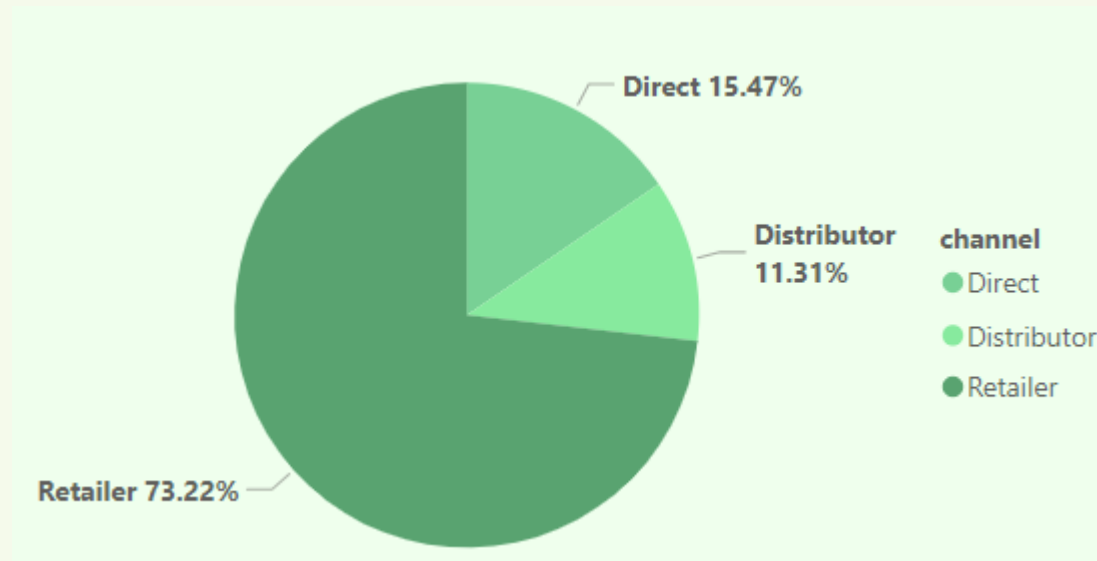
```
WITH CTE AS (  
    SELECT  
        C.channel,  
        SUM(S.sold_quantity * G.gross_price) AS total_sales  
    FROM fact_sales_monthly S  
    JOIN fact_gross_price G ON S.product_code = G.product_code  
    JOIN dim_customer C ON S.customer_code = C.customer_code  
    WHERE S.fiscal_year= 2021 GROUP BY C.channel ORDER BY total_sales DESC)  
SELECT  
    channel,  
    CONCAT(ROUND(total_sales/1000000,1)," M") AS gross_sales_mln,  
    CONCAT(ROUND(total_sales/(SUM(total_sales) OVER())*100,2),'%') AS percentage  
FROM CTE;
```

### Output

	channel	gross_sales_mln	percentage
▶	Retailer	1924.2 M	73.22%
	Direct	406.7 M	15.47%
	Distributor	297.2 M	11.31%

# Visualization | Insights

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## Insights

- ❑ Retailers provide the biggest share of gross sales in FY 2021 contributing **73.22%**.
- ❑ Direct sales contributed **15.47%**, while distributor sales made up **11.31%** of the total gross sales.

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

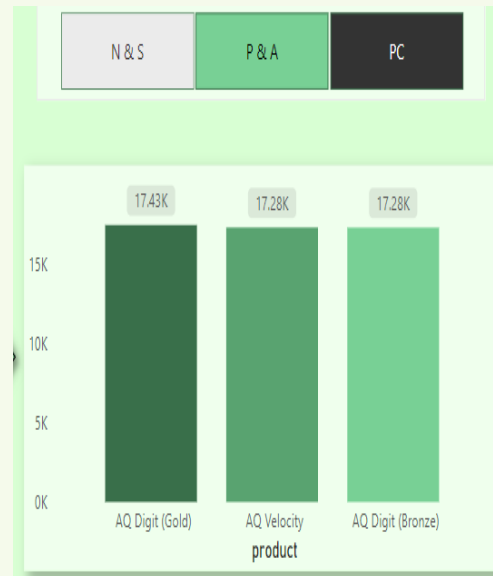
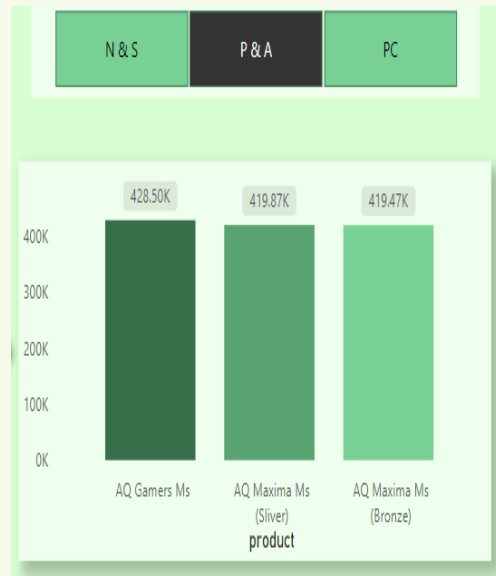
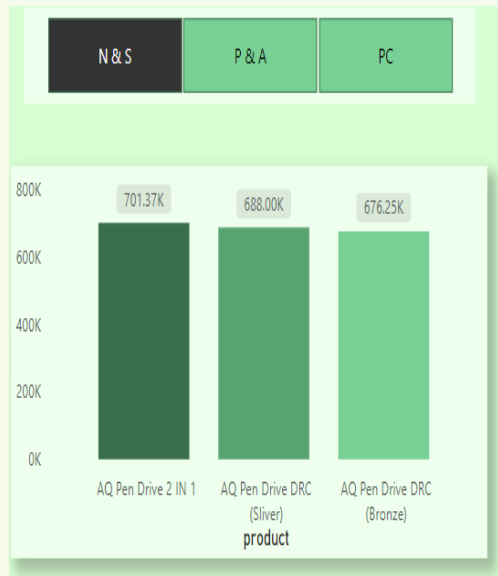
### Query

```
WITH RankedProducts AS (  
    SELECT  
        P.division,FS.product_code,P.product,  
        SUM(FS.sold_quantity) AS Total_sold_quantity,  
        RANK() OVER(PARTITION BY P.division ORDER BY SUM(FS.sold_quantity) DESC) AS Rank_Order  
    FROM dim_product P  
    JOIN fact_sales_monthly FS ON P.product_code = FS.product_code  
    WHERE FS.fiscal_year = 2021  
    GROUP BY P.division, FS.product_code, P.product  
)  
SELECT  
    division,product_code,product,Total_sold_quantity,Rank_Order  
FROM RankedProducts  
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	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

# Visualization | Insights



## Insights

- ❑ The top three products in each division with the highest sold quantities in FY 2021 are **Pen Drives, Mouse, and Personal Laptops**.
- ❑ The N&S division has the highest sold quantity of **701.37k**, while the PC division has the lowest sold quantity of **17.28k**.

Thank You