Ad-Hoc Insights

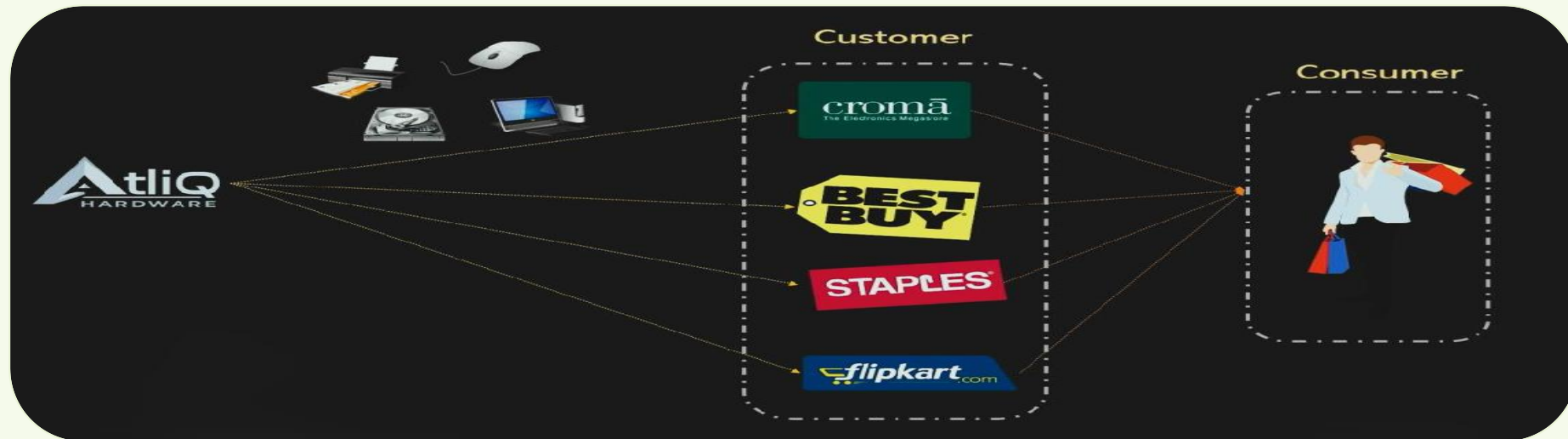## Customer Goods

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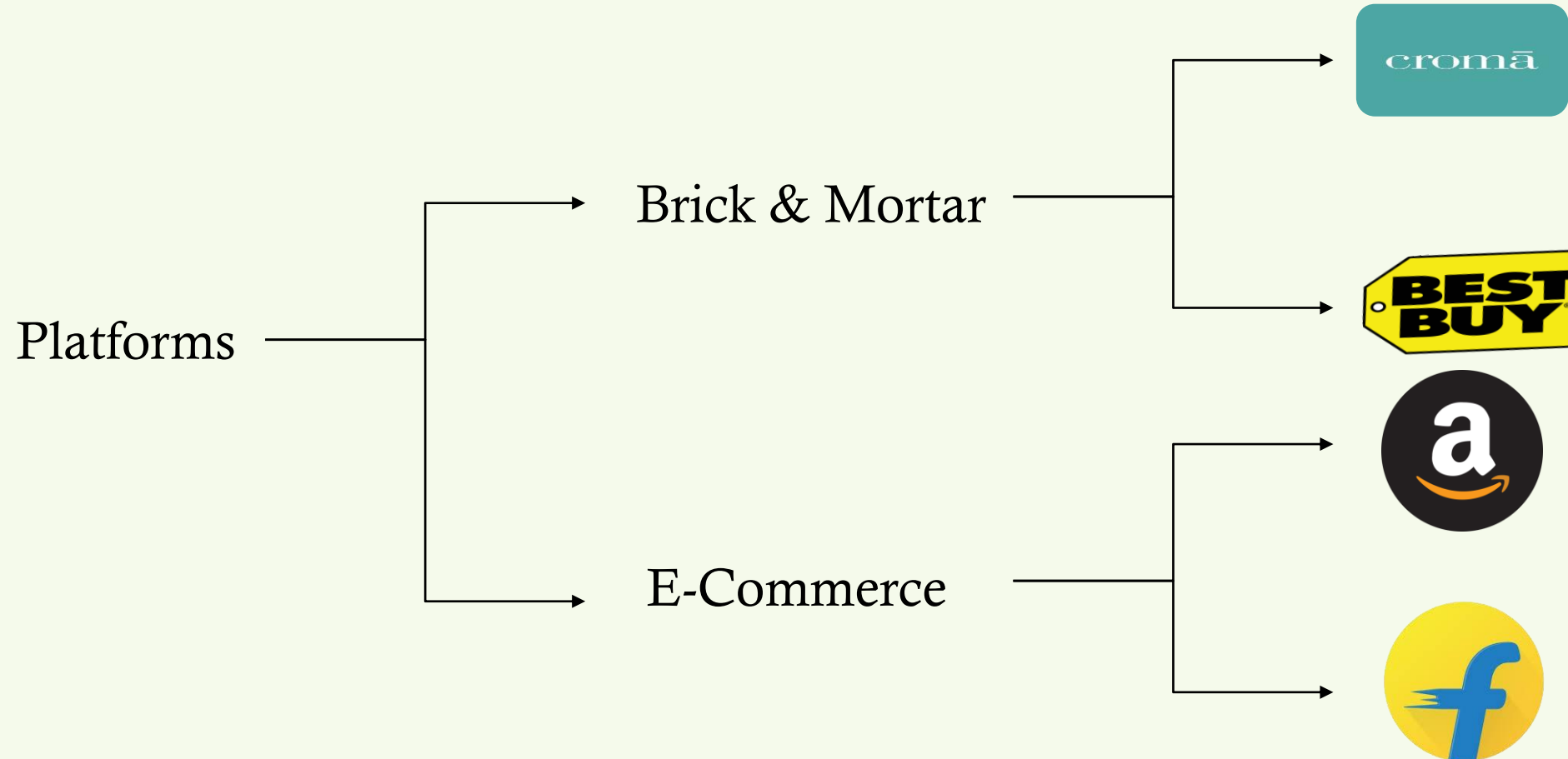
About AtliQ Hardwares

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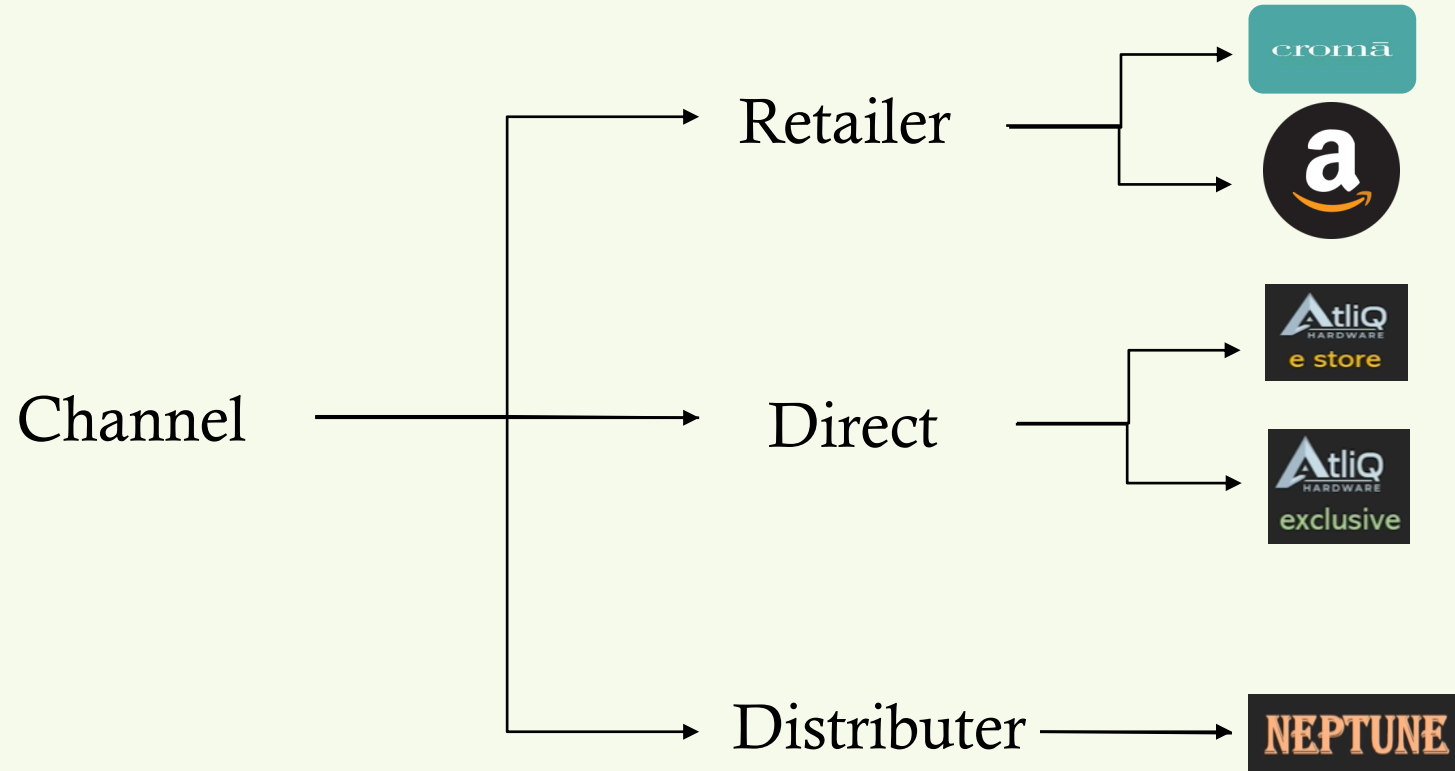
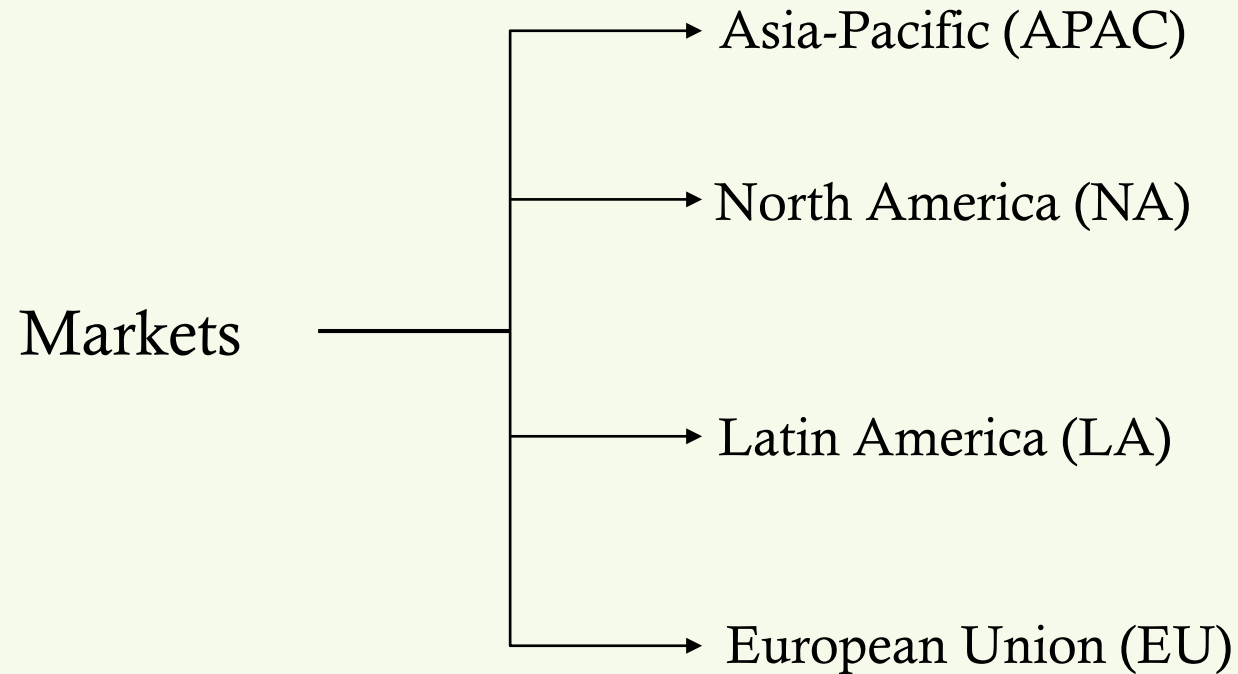❑ Let's see the structure of the business model:

About AtliQ Hardwares

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About AtliQ Hardwares

Markets
- Asia-Pacific (APAC)
- North America (NA)
- Latin America (LA)
- European Union (EU)

Fiscal Year
Sep 1st - Aug 31st

Problem statement

❑ 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.
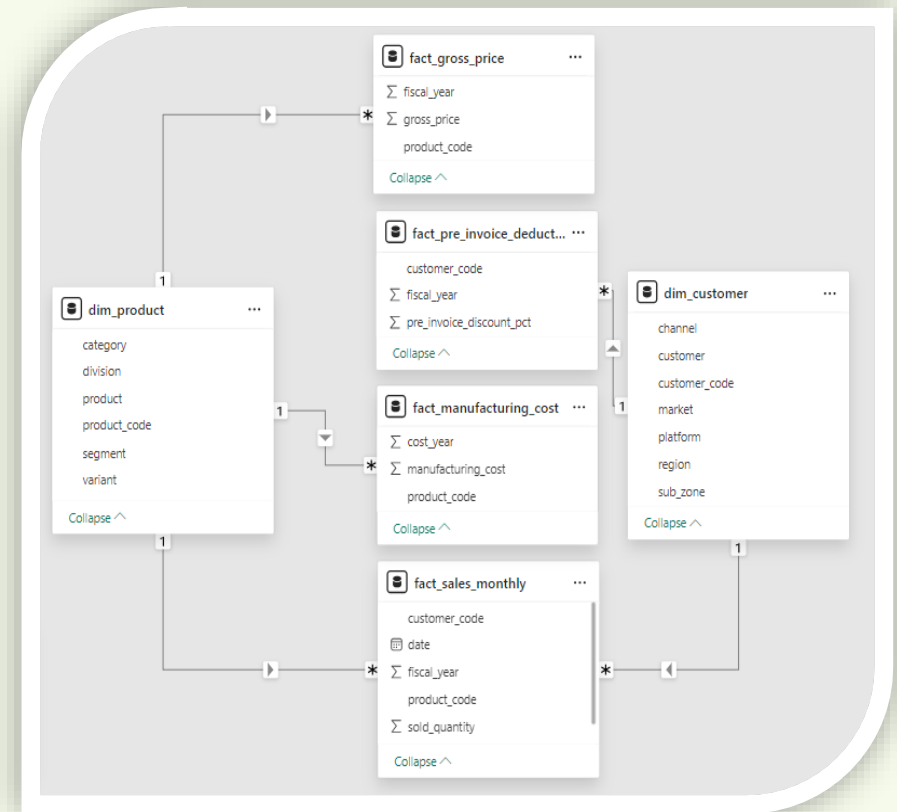
Dataset and model

Dataset and model

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

Output

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

market
India
Indonesia
Japan
Philiphines
South Korea
Australia
Newzealand
Bangladesh

Visualization | Insights
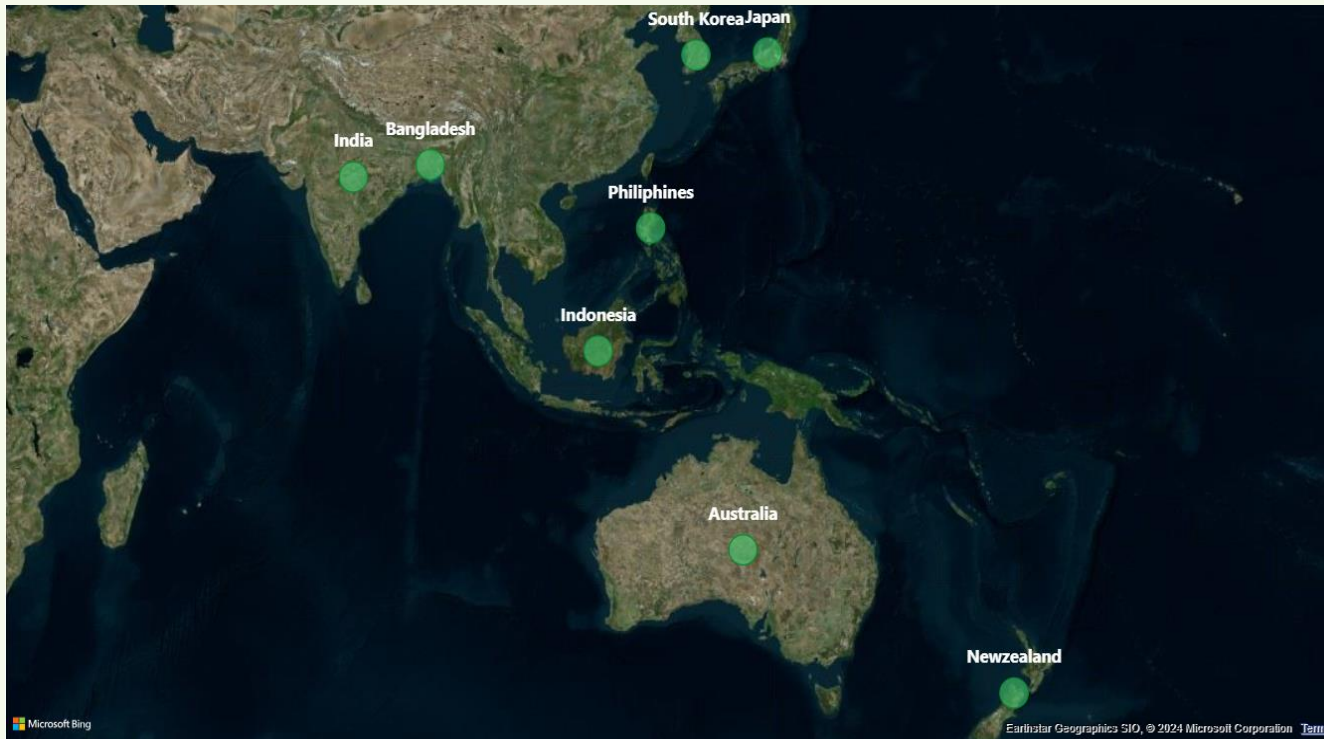
Insight

❑ 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

Output

```sql
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;
```

Product_Stats	VALUE
UNIQUE_PRODUCTS_2020	245.00
UNIQUE_PRODUCTS_2021	334.00
PERCENTAGE_CHG	36.33

Visualization | Insights
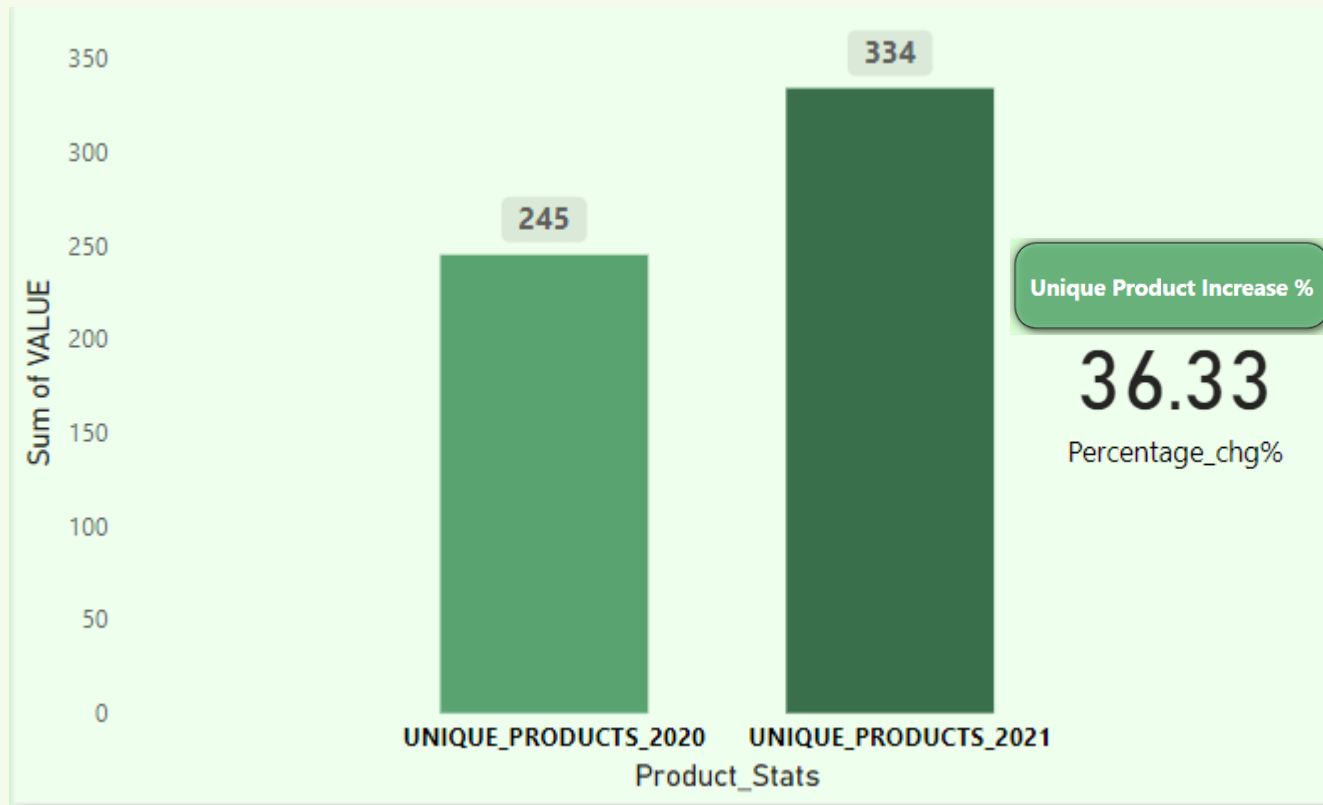
Insights

❑ 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

Output

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

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

Visualization | Insights
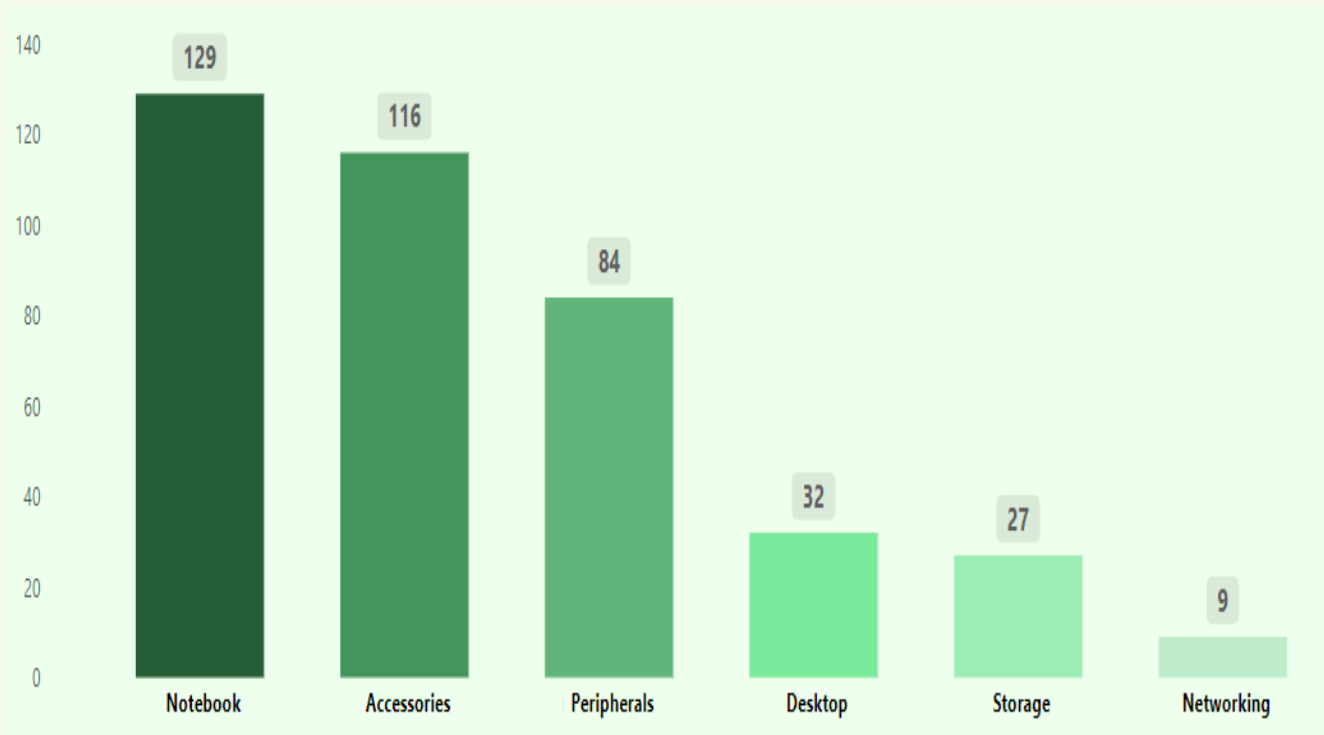
Insights

❑ 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

```sql
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
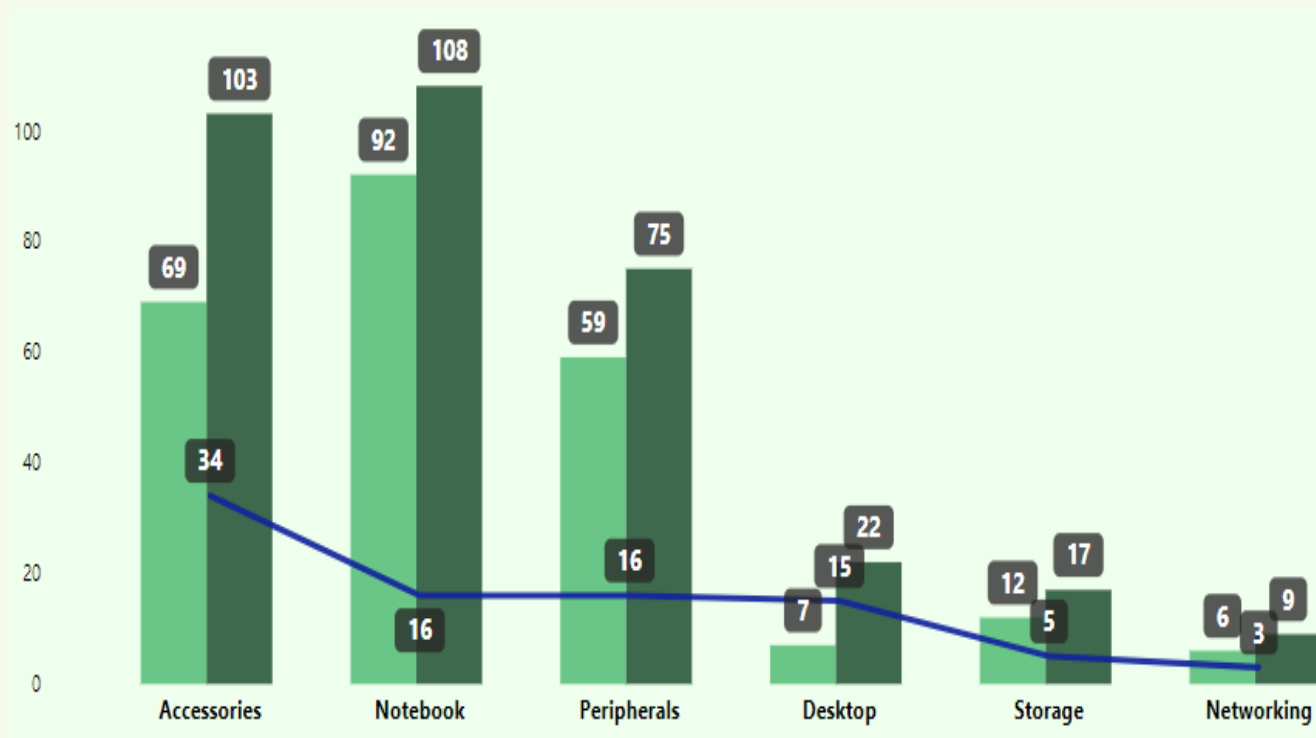
Insights

- **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

```sql
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

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

```sql
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
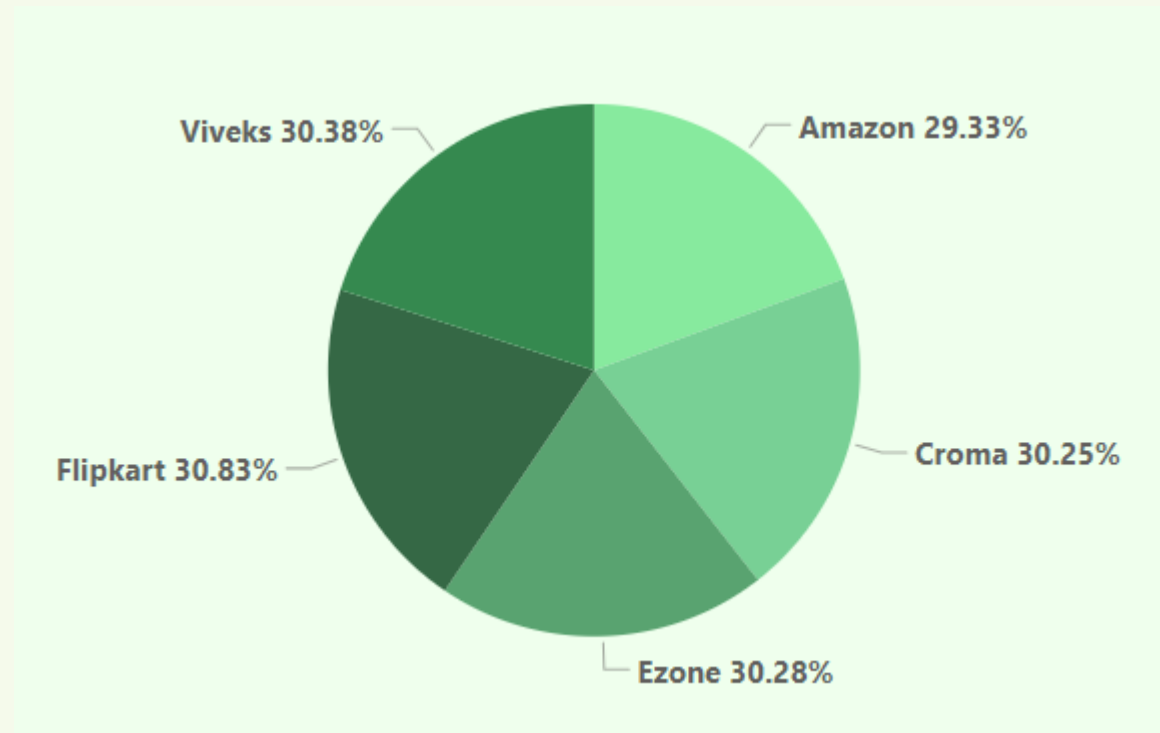
Insights

❑ **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

```sql
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
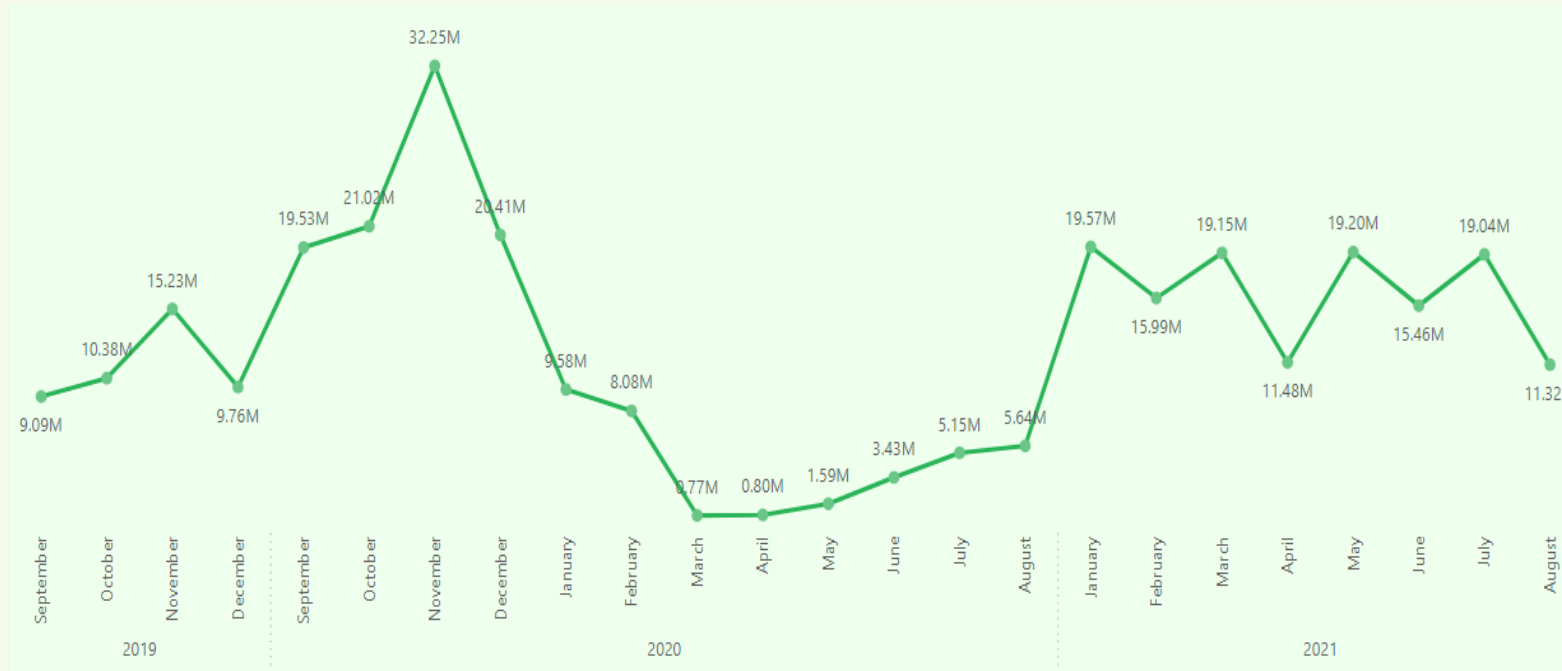
Insights

❑ 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

```sql
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
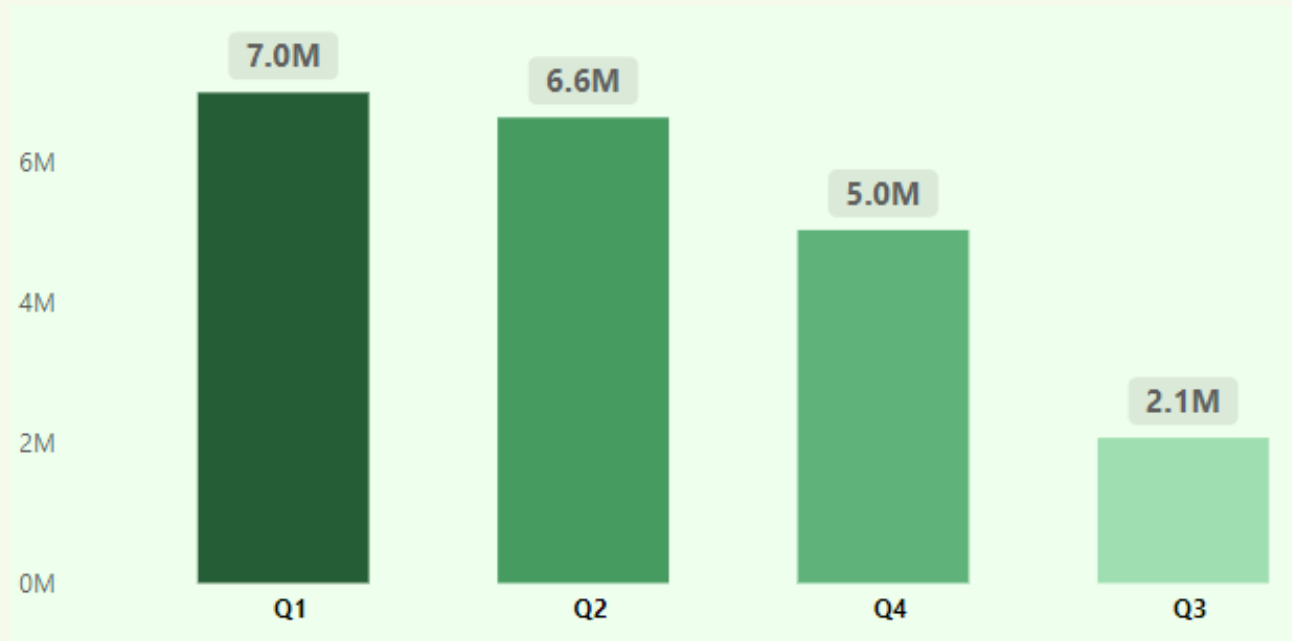
Insights

❑ 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

```sql
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
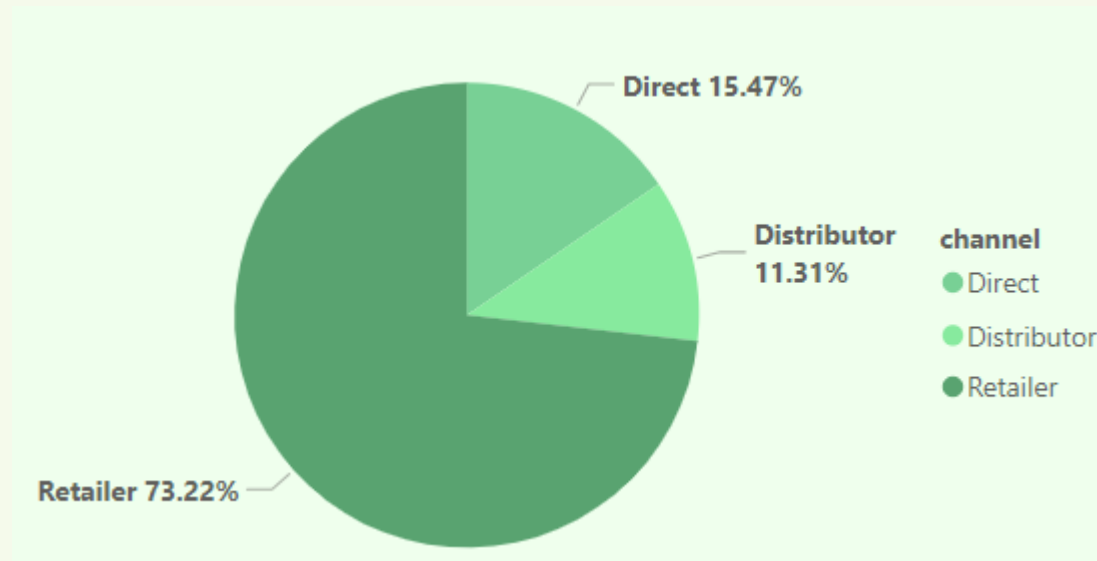
Insights

❑ 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

```sql
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
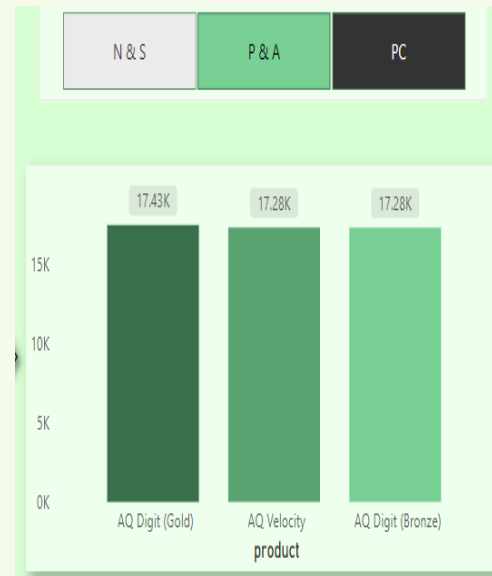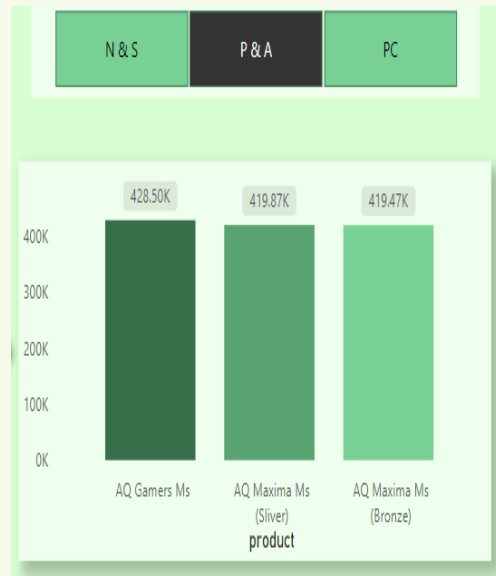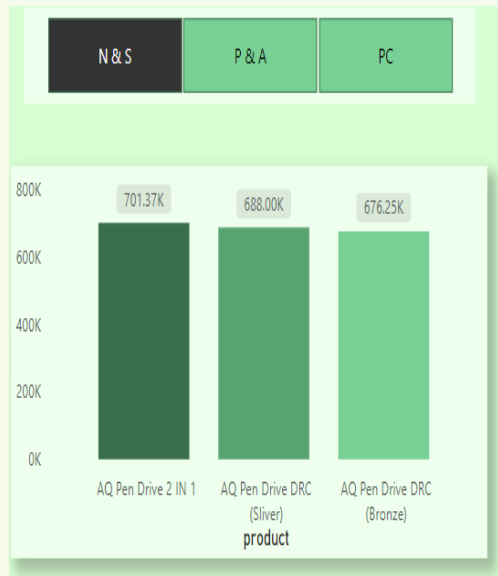
Insights

❑ 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