



**ATLIQ**  
**HARDWARE**

**CONSUMER GOODS**  
**AD-HOC ANALYSIS**

# PROBLEM STATEMENT



AtLiQ Hardware, a leading global computer hardware producer, offers products across Peripherals, PCs, and Network & Storage, sold via brick-and-mortar stores (e.g., Chroma, Best Buy) and e-commerce platforms (e.g., Amazon, Flipkart).

To address the management's lack of actionable insights for data-driven decisions, I conducted ad hoc analyses, delivering key recommendations to bridge this gap. Collaborating with Tony Sharma, Director of Data Analytics, I helped support strategic growth and maintain the company's competitive edge.

# TASKS UNDERTAKEN

## I. Understanding Business Needs

- Analyzed the ad-hoc-requests.pdf, which outlined 10 key business questions requiring immediate insights.

## 2. Data Analysis Using SQL

- Designed and executed efficient SQL queries to address each business question.
- Ensured data accuracy, optimized query performance, and maintained clean, structured code.

## 3. Providing Insights

- Translated raw data into actionable insights tailored to the needs of the management.
- Delivered insights that enabled quick decision-making and improved strategic planning.

# 1. PROVIDE THE LIST OF MARKETS WHERE CUSTOMER "ATLIQ EXCLUSIVE" OPERATES ITS BUSINESS IN THE “APAC REGION”.

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

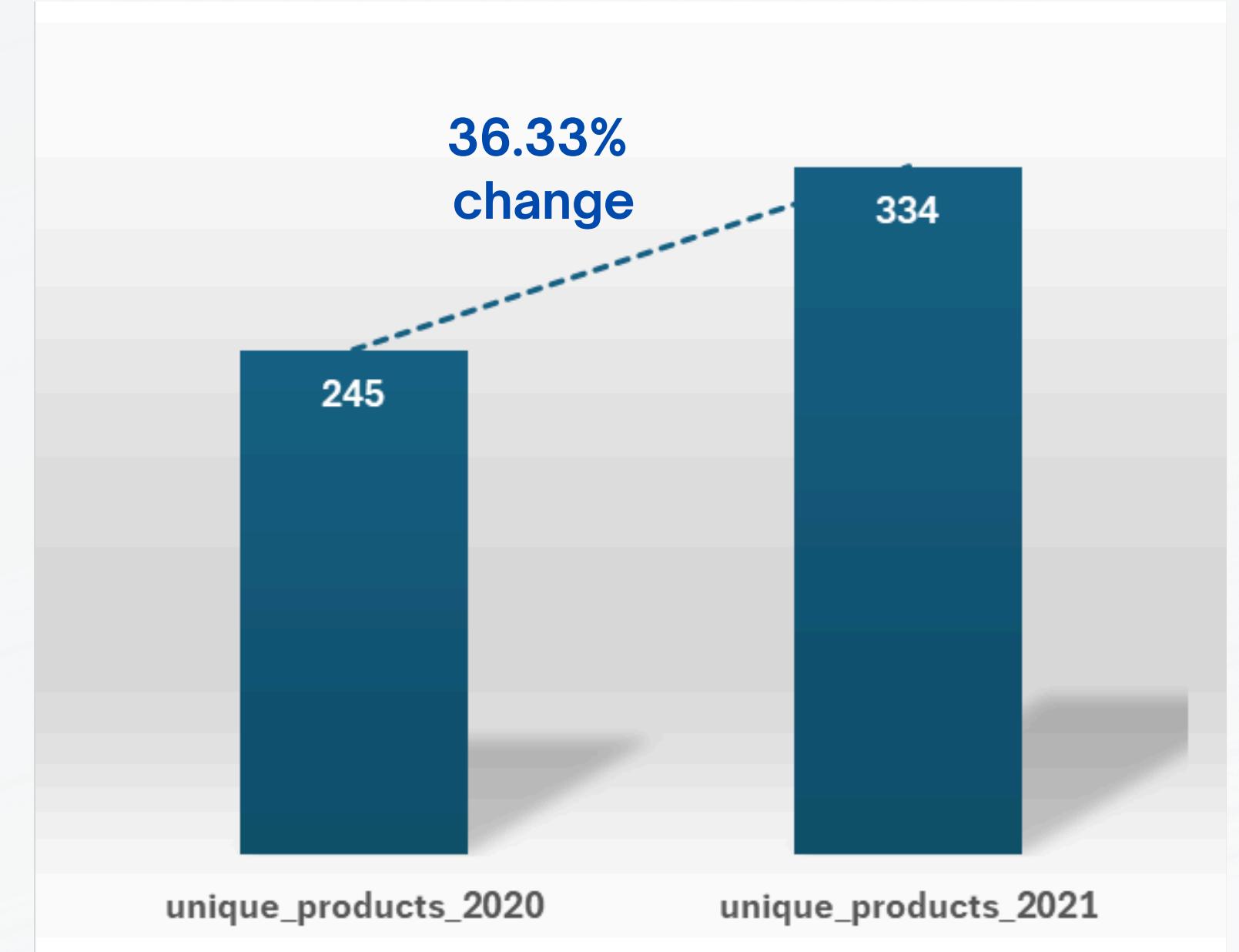
	market
▶	India
	Indonesia
▶	Japan
	Philippines
	South Korea
▶	Australia
	Newzealand
	Bangladesh

Atliq Exclusive operates in 8 different markets of the Asia Pacific Region.



## 2. WHAT IS THE PERCENTAGE OF UNIQUE PRODUCT INCREASE IN 2021 VS. 2020?

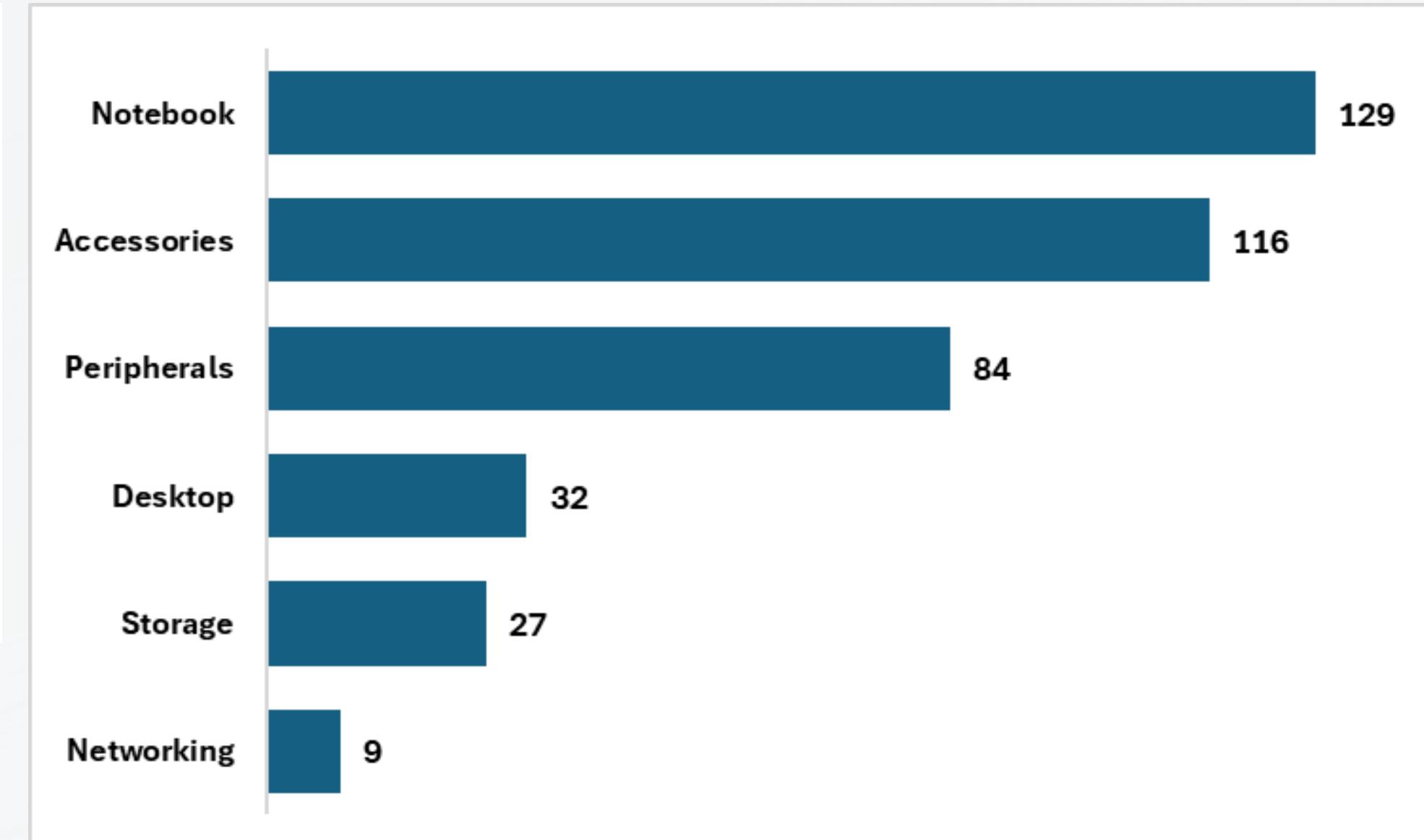
```
WITH products_2020 AS (SELECT  
    COUNT(DISTINCT product_code) AS unique_products_2020  
FROM  
    dim_product p  
    JOIN  
    fact_sales_monthly f USING (product_code)  
WHERE  
    f.fiscal_year = 2020),  
products_2021 AS (SELECT  
    COUNT(DISTINCT product_code) AS unique_products_2021  
FROM  
    dim_product p  
    JOIN  
    fact_sales_monthly f USING (product_code)  
WHERE  
    f.fiscal_year = 2021)  
SELECT  
    unique_products_2020,  
    unique_products_2021,  
    ROUND(((unique_products_2021 - unique_products_2020) * 100 / unique_products_2020),  
        2) AS pct_chg  
FROM  
    products_2020  
    CROSS JOIN  
    products_2021;
```



In 2021, the number of unique products sold rose by **36.33%**, increasing from **245** in 2020 to **334**, a net gain of **89 products**. This growth highlights the company's success in diversifying its product portfolio or meeting evolving customer demands.

### 3. PROVIDE A REPORT WITH EACH SEGMENT'S UNIQUE PRODUCT COUNTS AND SORT THEM IN DESCENDING ORDER OF PRODUCT COUNTS.

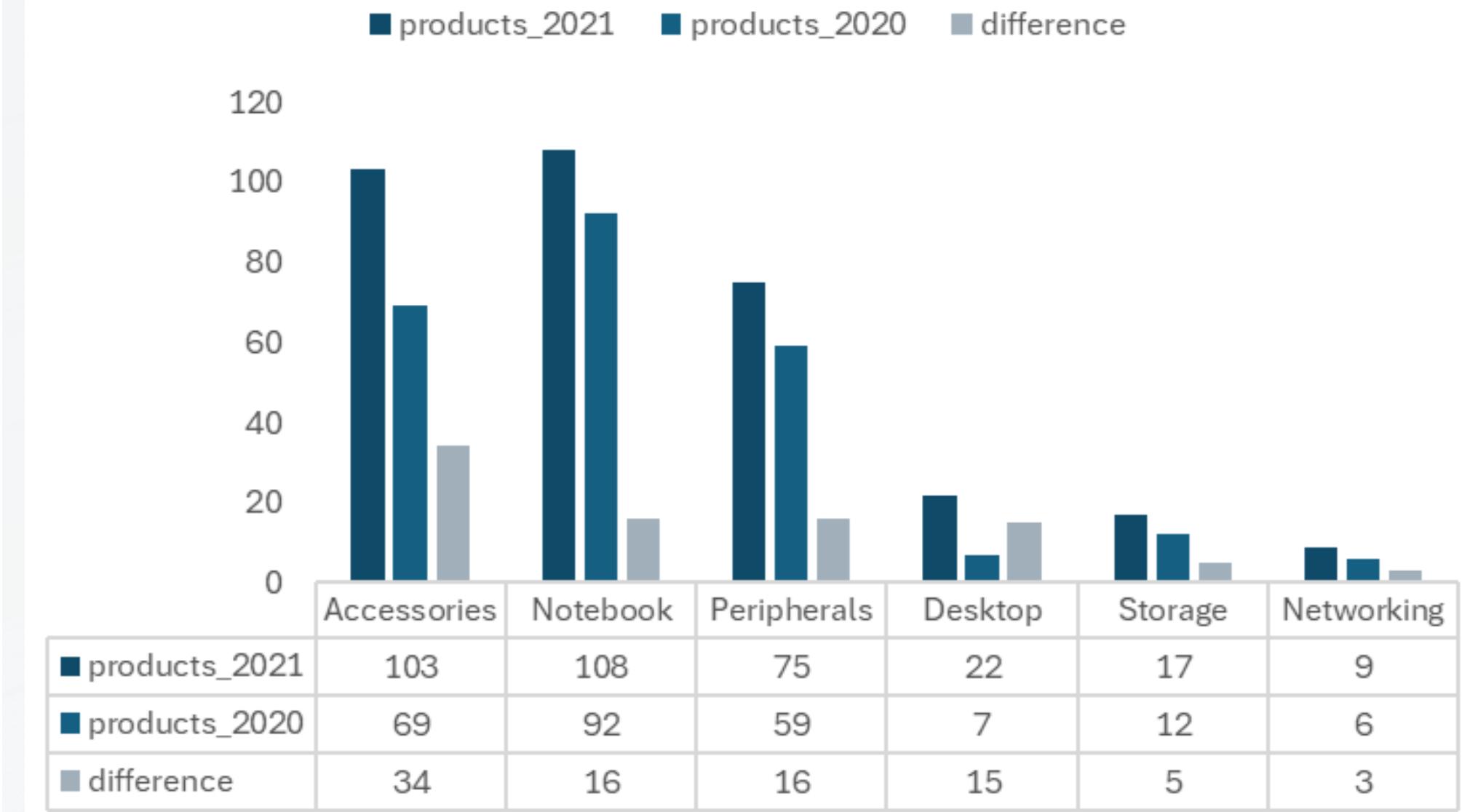
```
SELECT  
    segment,  
    COUNT(product_code) AS product_count  
FROM  
    dim_product  
GROUP BY segment  
ORDER BY product_count DESC;
```



The **Notebook** segment leads with **129** unique products, highlighting strong demand in this category. **Networking** and **Storage** have the **fewest products**, suggesting a niche focus or limited offerings.

## 4. WHICH SEGMENT HAD THE MOST INCREASE IN UNIQUE PRODUCTS IN 2021 VS 2020?

```
WITH products_2020 AS (
  SELECT segment, COUNT(DISTINCT product_code) AS products_2020
  FROM
    dim_product p
    JOIN
      fact_sales_monthly f USING (product_code)
  WHERE f.fiscal_year = 2020
  GROUP BY segment
  ORDER BY products_2020 DESC),
products_2021 AS (
  SELECT segment, COUNT(DISTINCT product_code) AS products_2021
  FROM
    dim_product p
    JOIN
      fact_sales_monthly f USING (product_code)
  WHERE f.fiscal_year = 2021
  GROUP BY segment
  ORDER BY products_2021 DESC)
SELECT p0.segment, products_2021, products_2020,
products_2021 - products_2020 AS difference
FROM
  products_2020 p0
  JOIN
  products_2021 p1 USING (segment)
ORDER BY difference DESC;
```



The **Accessories segment** experienced the most significant increase in unique products with a rise of **34** in 2021, while the **Networking segment** showed the lowest growth with an increase of just **3**.

## 5. GET THE PRODUCTS THAT HAVE THE HIGHEST AND LOWEST MANUFACTURING COSTS.

```
WITH CTE AS
  (SELECT
    product_code, manufacturing_cost,
    DENSE_RANK() OVER(ORDER BY manufacturing_cost DESC) as drnk
  FROM
    fact_manufacturing_cost
  ORDER BY drnk)
  SELECT
    c.product_code, p.product, c.manufacturing_cost
  FROM
    CTE c
    JOIN
    dim_product p USING (product_code)
  WHERE
    drnk IN
    ((SELECT MAX(drnk) FROM CTE),
     (SELECT MIN(drnk) FROM CTE))
  ORDER BY manufacturing_cost DESC;
```

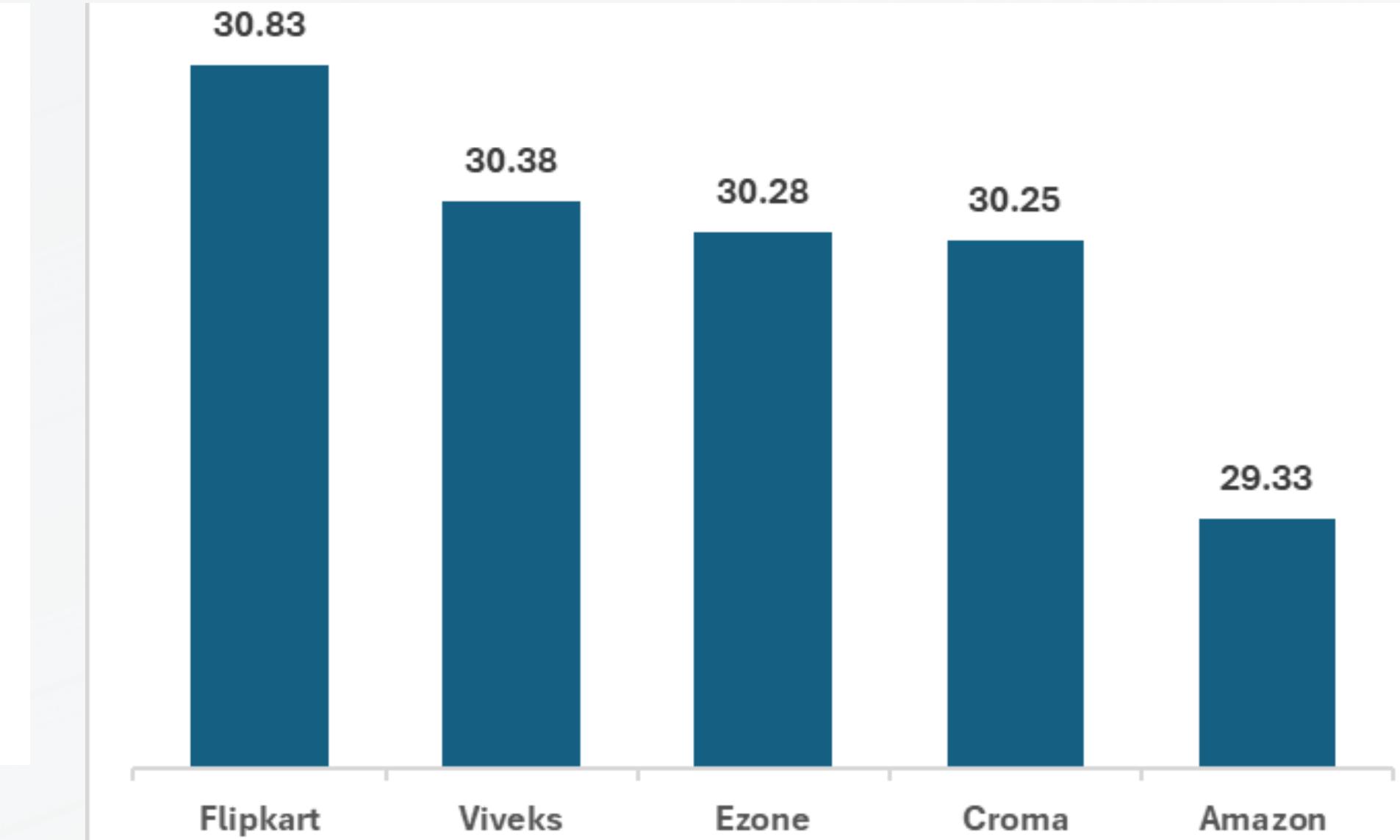
product_code	product	manufacturing_cost
A6120110206	AQ HOME Allin1 Gen 2	240.5364
A2118150101	AQ Master wired x1 Ms	0.8920

The product with the highest manufacturing cost is AQ HOME Allin1 Gen 2 at 240.5364 (i.e. Personal Desktop), while the product with the lowest manufacturing cost is AQ Master wired x1 Ms at 0.8920 (i.e. Mouse).

## 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.

```
SELECT c.customer_code, customer,
       ROUND(AVG(pre_invoice_discount_pct)* 100, 2)
             AS average_discount_percentage
FROM
    fact_pre_invoice_deductions f
    JOIN
        dim_customer c USING (customer_code)
WHERE fiscal_year = 2021 AND market = 'India'
GROUP BY c.customer_code, customer
ORDER BY average_discount_percentage DESC
LIMIT 5;
```

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



For FY 2021, Flipkart received the highest average pre-invoice discount at 30.83%, followed by Viveks, Ezone, Croma, and Amazon.

## 7. GET THE COMPLETE REPORT OF THE GROSS SALES AMOUNT FOR THE CUSTOMER “ATLIQ EXCLUSIVE” FOR EACH MONTH.

```

SELECT
    DATE_FORMAT(date, '%M') AS month, s.fiscal_year,
    CONCAT(ROUND(SUM(g.gross_price * sold_quantity)/1000000,
    2), ' M') AS gross_sales
FROM
    fact_sales_monthly s
        JOIN
    fact_gross_price g USING (product_code, fiscal_year)
        JOIN
    dim_customer c USING (customer_code)
WHERE customer LIKE 'Atliq Exclusive'
GROUP BY month , s.fiscal_year
ORDER BY
FIELD(month, 'September', 'October', 'November',
'December', 'January', 'February' , 'March',
'April', 'May', 'June', 'July', 'August');

```

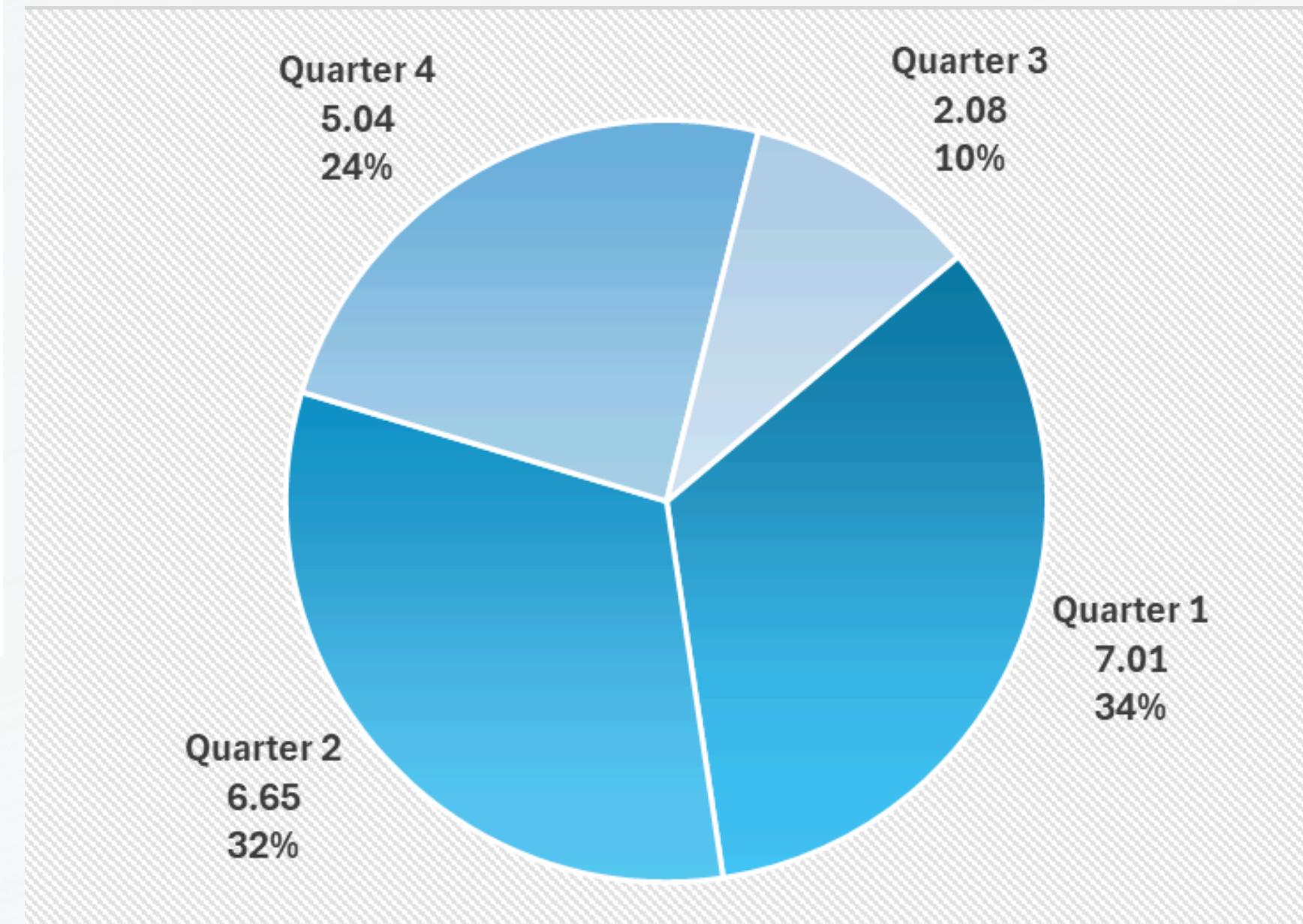
month	fiscal_year	gross_sales	month	fiscal_year	gross_sales
September	2020	4.50 M	September	2021	12.35 M
October	2020	5.14 M	October	2021	13.22 M
November	2020	7.52 M	November	2021	20.46 M
December	2020	4.83 M	December	2021	12.94 M
January	2020	4.74 M	January	2021	12.40 M
February	2020	4.00 M	February	2021	10.13 M
March	2020	0.38 M	March	2021	12.14 M
April	2020	0.40 M	April	2021	7.31 M
May	2020	0.78 M	May	2021	12.15 M
June	2020	1.70 M	June	2021	9.82 M
July	2020	2.55 M	July	2021	12.09 M
August	2020	2.79 M	August	2021	7.18 M

Atliq Exclusive's gross sales rose from FY 2020 to FY 2021, especially in October and November. November 2021 sales hit ₹20.46M, up from ₹7.52M the previous year. This growth highlights the success of strategic efforts and the need to focus on high-sales months and address low-performance periods.

## 8. IN WHICH QUARTER OF 2020, GOT THE MAXIMUM TOTAL\_SOLD\_QUANTITY?

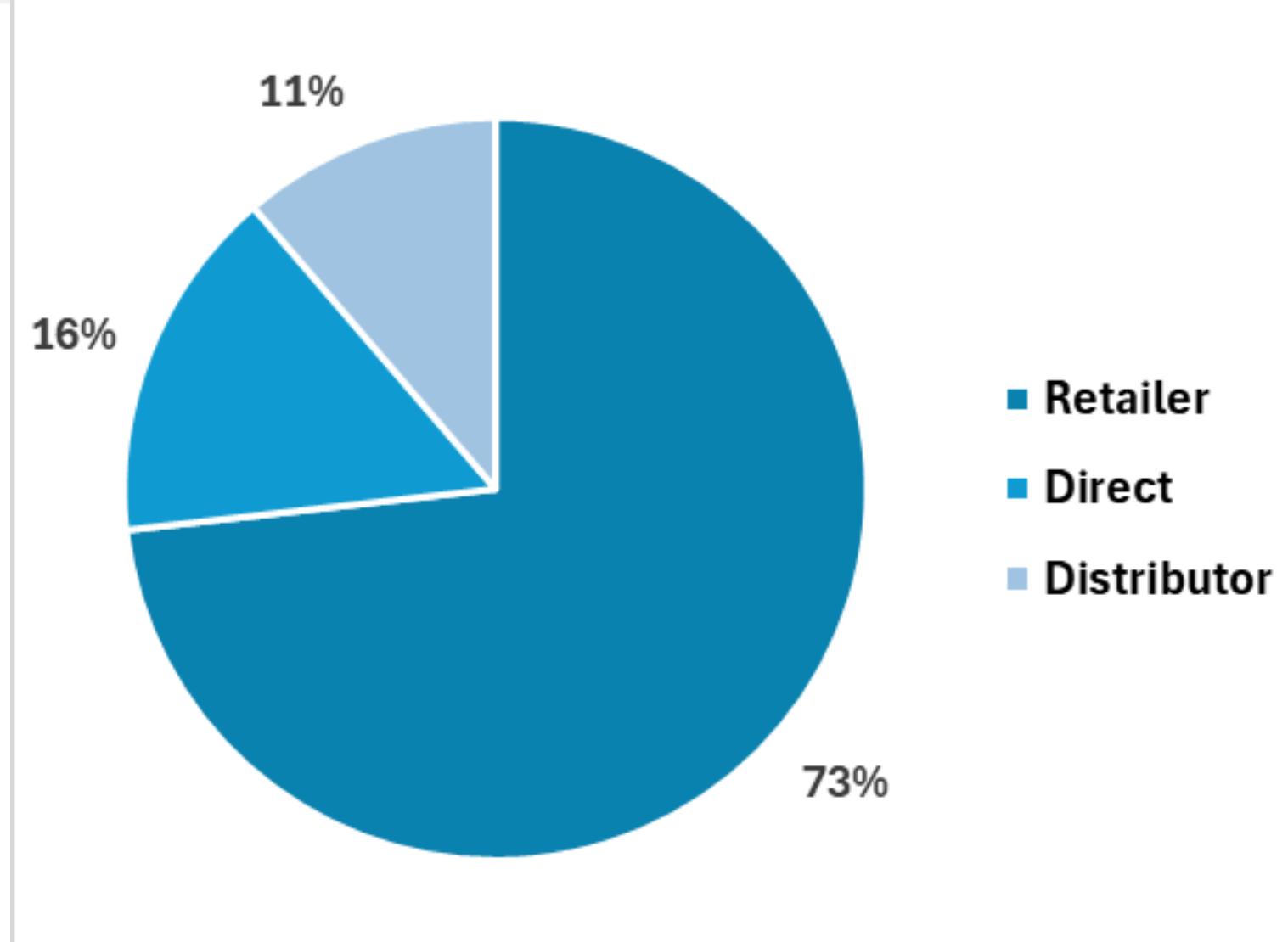
```
SELECT  
    CASE  
        WHEN MONTH(date) IN ('9' , '10', '11') THEN 'Quarter 1'  
        WHEN MONTH(date) IN ('12' , '01', '02') THEN 'Quarter 2'  
        WHEN MONTH(date) IN ('03' , '04', '05') THEN 'Quarter 3'  
        ELSE 'Quarter 4'  
    END AS Quarter,  
    ROUND(SUM(sold_quantity)/1000000,2) as total_sold_quantity  
FROM  
    fact_sales_monthly  
WHERE fiscal_year=2020  
GROUP BY Quarter  
ORDER BY total_sold_quantity desc;
```

In FY 2020, the majority of sales for Atliq Hardware occurred in the first half of the year, with the highest sales in **Q1 (34%)** and **Q2 (32%)**. **Q3** had the least products sold at **24%**, while **Q4** saw a significant drop to **10%**.



## 9. WHICH CHANNEL HELPED TO BRING MORE GROSS SALES IN THE FISCAL YEAR 2021 AND THE PERCENTAGE OF CONTRIBUTION?

```
WITH gross_sales AS (SELECT
    c.channel,
    ROUND(SUM(s.sold_quantity * g.gross_price) / 1000000,
          2) AS gross_sales_mlns
  FROM
    fact_sales_monthly s
    JOIN
    dim_customer c USING (customer_code)
    JOIN
    fact_gross_price g USING (product_code , fiscal_year)
  WHERE fiscal_year=2021
  GROUP BY channel)
SELECT *,
    CONCAT(ROUND(gross_sales_mlns*100/SUM(gross_sales_mlns) OVER(),
                  2), "%") as pct_contribution
  FROM gross_sales
  GROUP BY channel
  ORDER BY pct_contribution DESC;
```



In FY 2021, Atliq Exclusive saw the **Retail channel** contribute the most to gross sales, with **Retail accounting for 73%**, followed by **Direct sales at 16%** and **Distributor sales at 11%**.

## 10. GET THE TOP 3 PRODUCTS IN EACH DIVISION THAT HAVE A HIGH TOTAL\_SOLD\_QUANTITY IN THE FISCAL\_YEAR 2021?

```
WITH top_sold_products AS
(SELECT p.division, s.product_code, p.product, variant,
     SUM(sold_quantity) AS total_sold_quantity
  FROM fact_sales_monthly s
    JOIN dim_product p USING (product_code)
 WHERE fiscal_year=2021
 GROUP BY p.division, s.product_code, p.product),
top_sold_per_division AS
(SELECT *,
     RANK() OVER(PARTITION BY division ORDER BY total_sold_quantity DESC)
          as ranking
  FROM top_sold_products)
SELECT * FROM top_sold_per_division
WHERE ranking IN (1,2,3);
```

In FY 2021, the **N & S segment** saw the highest product sales among the three segments. This indicates a strong performance in this area, highlighting the segment's significant contribution to overall sales.

division	product_code	product	variant	total_sold_quantity	ranking
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



**ATLIQ HARDWARE**

**THANK YOU**

