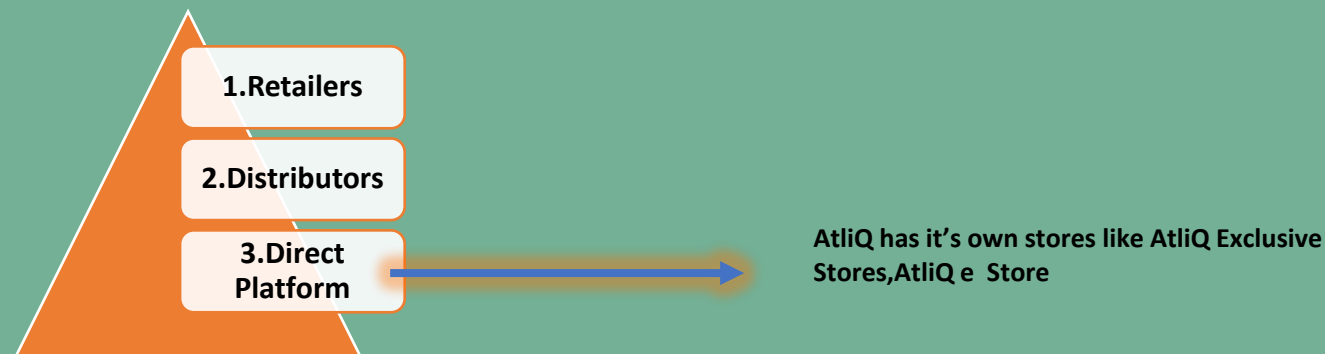# About AtliQ Hardware Company

❑ **Atliq Hardware is a prominent player in India's computer hardware market, with a robust global presence spanning 27 countries, Serving 74 customers, the company caters to two customer types:**

1.Brick-and-Mortar	2.E-Commerce

❑ **operating through platforms like**

1.Retailers

2.Distributors

3.Direct Platform

AtliQ has it's own stores like AtliQ Exclusive Stores,AtliQ e Store

❑ **Divided into three product divisions (PC, P& A, N&S), encompassing six segments and fifteen categories.**

❑ **Atliq Hardware delivers innovative technology solutions. With a commitment to quality and a diversified sales approach, the company continues to redefine the user experience in the ever-evolving hardware industry.**

Project Overview

1 Atliq Hardwares (imaginary company) is one of the leading computer hardware producers in India and well expanded in other countries too. However, the management noticed that they do not get enough insights to make quick and smart data-informed decisions.

2 To enhance data-informed decision-making at Atliq Hardwares, the project aims to evaluate potential junior data analysts' proficiency in both technical and soft skills.

3 Through a SQL challenge, the project seeks to identify candidates who can effectively extract insights from data, empowering the company's expansion efforts and contributing to smarter business choices.

Overview Of Data Set

dim_customer Table:

Columns: customer_code, customer, platform, channel, market, region, sub_zone

Purpose: Tracks customer data, sales history, and demographics.

Insight: Understand customer behavior, sales distribution, and geographic performance.

dim_product Table:

Columns: product_code, division, segment, category, product, variant

Purpose: Stores product details, categorizing by type, segment, and attributes.

Insight: Analyze product popularity, segment performance, and version preferences.

fact_gross_price Table:

Columns: product_code, fiscal_year, gross_price

Purpose: Captures initial product price before reductions or taxes.

Insight: Evaluate pricing trends, seasonality, and product profitability.

Overview Of Data Set

fact_manufacturing_cost

Columns: product_code, cost_year, manufacturing_cost

Purpose: Records total cost for product production.

Insight: Assess production expenses, cost fluctuations, and manufacturing efficiency.

fact_pre_invoice_deductions

Columns: customer_code, fiscal_year, pre_invoice_discount_pct

Purpose: Tracks pre-invoice discounts applied before generating invoices.

Insight: Analyze discount patterns, customer relationships, and sales negotiation strategies.

fact_sales_monthly

Columns: date, product_code, customer_code, sold_quantity, fiscal_year

Purpose: Records monthly sales quantities per product, customer, and date.

Insight: Examine sales trends, peak months, and product/customer performance.

AD-HOC-REQUEST:1

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

❑ **Atliq Hardware has a presence in 27 countries, with customer locations categorized into distinct 'regions.'**

❑ **These broader geographic divisions include "APAC" (Asia Pacific), "EU" (Europe), "NA" (North America), and "LATAM" (Latin America).**

❑ **Within these regions, the 'sub_zones' further delineate specific areas, such as "India," "ROA" (Rest of Asia), "ANZ" (Australia and New Zealand), "SE" (Southeast Asia), "NE" (Northeast Asia), "NA" (North America), and "LATAM" (Latin America).**

❑ **This organizational framework offers a structured approach to understanding customer distribution based on geographical tiers.**

SQL QUERY

```
Select DISTINCT market from dim_customer
where customer="Atliq Exclusive"
 and region="APAC"
```

OUTPUT

market
India
Indonesia
Japan
Philiphines
South Korea
Australia
Newzealand
Bangladesh

OUTPUT VISUALS

market	total_gross_sales	total_sold_quantity
India	$99670780.45	3326313
Bangladesh	$7846410.30	260356
New Zealand	$6730807.69	223009
Japan	$3270224.82	110360
South Korea	$26638619.44	886165
Indonesia	$23752006.88	777623
Australia	$18420952.36	610559
Philippines	$14726747.46	484708

AD-HOC-REQUEST: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.

```
WITH UP1 AS (
            SELECT
              COUNT(DISTINCT product_code) AS unique_products_2020
            FROM  fact_sales_monthly   WHERE      fiscal_year = 2020),
      UP2 AS (
            SELECT
              COUNT(DISTINCT product_code) AS unique_products_2021
            FROM fact_sales_monthly   WHERE      fiscal_year = 2021)


SELECT
 UP1.unique_products_2020,
UP2.unique_products_2021,
ROUND(((UP2.unique_products_2021 - UP1.unique_products_2020) /
UP1.unique_products_2020) * 100, 2) AS Percentage_Chg
FROM    UP1, UP2;
```

unique_products_2020	unique_products_2021	Percentage_Chg
245	334	36.33

OUTPUT VISUALS AND INSIGHTS

YEARLY GROWTH IN UNIQUE PRODUCTS-2020 vs 2021

245

334

- unique_products_2020
- unique_products_2021
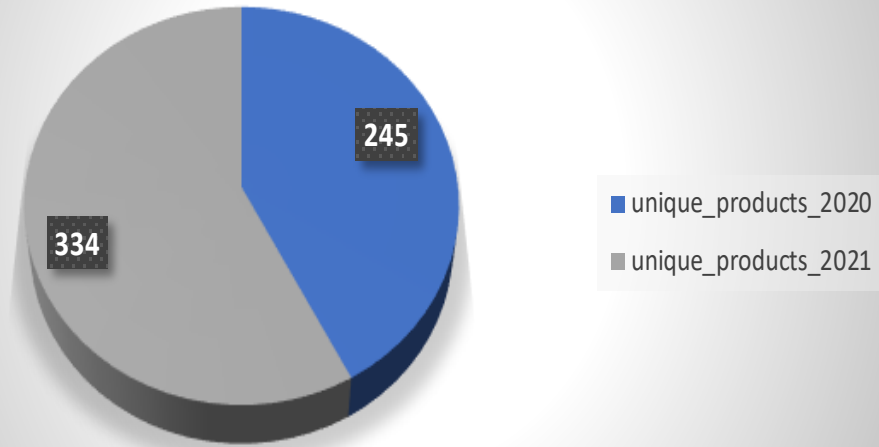
❑ **The rise from 245 to 334 unique products in 2021 showcases product line growth, possibly through innovations to meet evolving market demands.**

❑ **A 36.33% increase in unique products between 2020 and 2021 highlights a strategic focus on innovation, aiming to capture new markets and outpace competitors.**

❑ **The uptick in unique products signifies market responsiveness, addressing emerging trends and consumer preferences effectively.**

AD-HOC-REQUEST: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 .
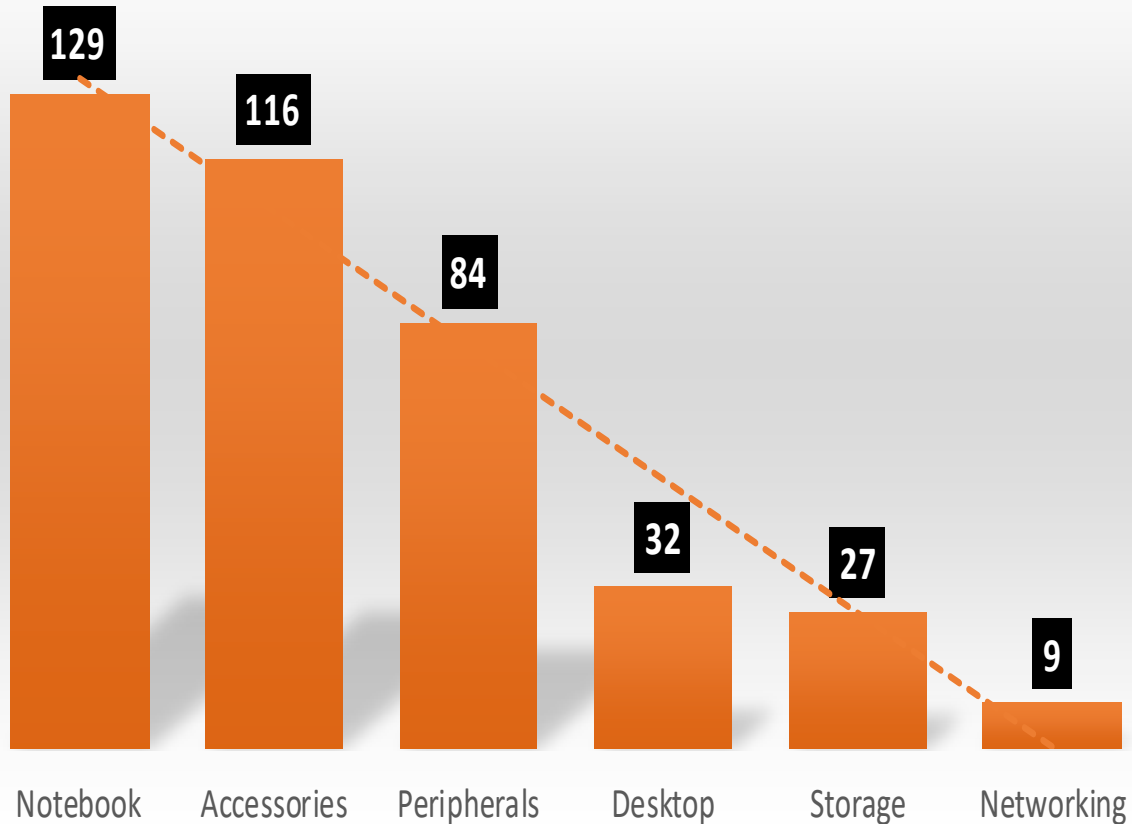
```
Select
Segment,
Count(DISTINCT product_code)AS product_count
from dim_product
Group BY segment
Order By product_count DESC;
```

OUTPUT

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

OUTPUT VISUALS AND INSIGHTS

Product Distribution by Segment

- ❑ Notebook holds the highest product count i.e. 129 indicating strong focus & likely higher customer demand in this segment category.

- ❑ Compared to the segment with the highest product count i.e. Notebook,the Networking segment lags significantly with a 88.37% lower count i.e.9.

- ❑ The product range is diverse,spanning segements like Notebook,Accessories & Peripherals which collectively make up significant portion of the offerrings.

- ❑ On average, there are around 66 unique products per segment.

- ❑ The unique product counts' spread from the average is about 48.26, suggesting some variability among segments.

- ❑ The "Notebook" and "Accessories" segments have product counts above the calculated average of around 66 products per segment, indicating a strong presence and a relatively diverse range of offerings.

- ❑ On the other hand, the "Peripherals," "Desktop," "Storage," and especially "Networking" segments have product counts below the average, suggesting potential areas for expansion or further product development.

AD-HOC-REQUEST: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 ProductCounts2020 AS (
SELECT
 dp.segment,
COUNT(DISTINCT fsm.product_code) AS product_count  FROM  dim_product dp
JOIN   fact_sales_monthly fsm
ON
dp.product_code = fsm.product_code
 WHERE       fsm.fiscal_year = 2020
GROUP BY   dp.segment),
ProductCounts2021 AS (
SELECT
dp.segment,
COUNT(DISTINCT fsm.product_code) AS product_count    FROM
dim_product dp    JOIN
 fact_sales_monthly fsm
ON
dp.product_code = fsm.product_code    WHERE      fsm.fiscal_year = 2021
GROUP BY      dp.segment),
ProductDifference AS (
SELECT      PC20.segment,
PC20.product_count AS product_count_2020,      PC21.product_count AS
product_count_2021,     PC21.product_count - PC20.product_count AS difference    FROM
ProductCounts2020 PC20
JOIN
ProductCounts2021 PC21 ON PC20.segment = PC21.segment)
SELECT    *
FROM    ProductDifference
ORDER BY   difference DESC;
```

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

OUTPUT VISUALS AND INSIGHTS

Unique Product Count Trends by Segment
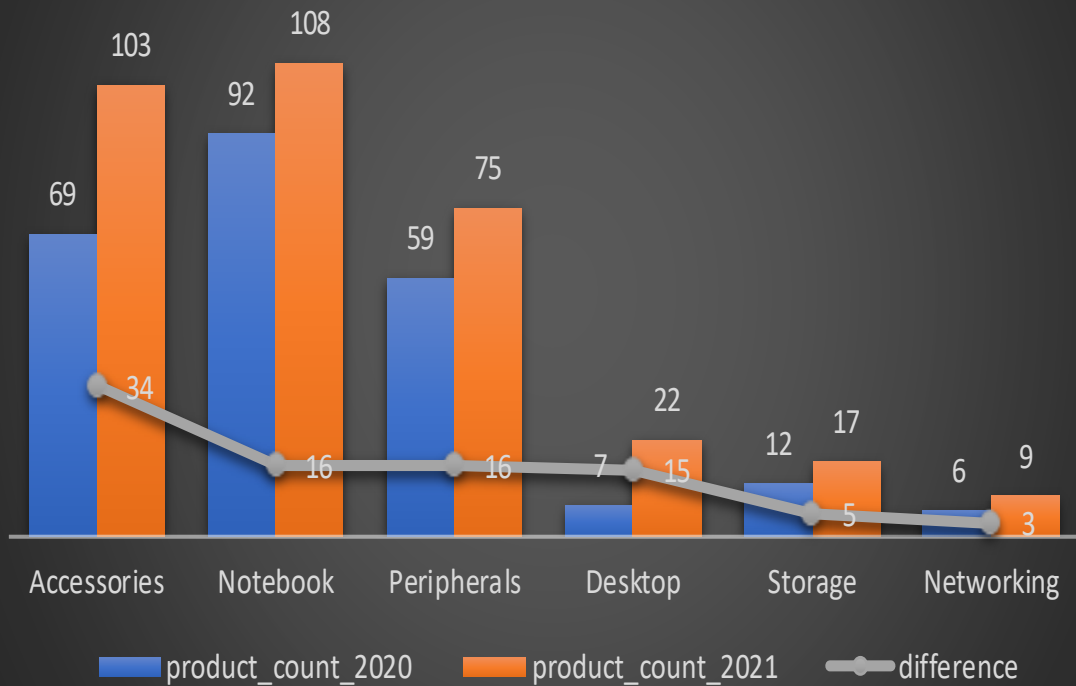
❑ The substantial increase in the total unique product count from 2020 (245) to 2021 (334) by 36.73% clearly highlights Atliq Hardware's growth and diversification efforts. This surge signifies the company's commitment to expanding its product offerings.

❑ All segments experienced increases, reflecting strategic expansion across categories.

❑ The "Accessories" segment's 34-unit surge is pivotal for growth, while steady 16-unit growth in "Notebook" and "Peripherals" underscores sustained interest in portable computing solutions and peripherals.

❑

"Desktop" boasts remarkable 15-unit expansion, reflecting emphasis on desktop computing demand. "Storage" and "Networking" exhibit moderate growth, catering to evolving data and connectivity needs.

AD-HOC-REQUEST:5

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

```
With ProductCosts As(
        Select
            f.product_code,
            p.product,
            f.manufacturing_cost
     FROM fact_manufacturing_cost f
     JOIN
     dim_product p ON f.product_code=p.product_code)
     Select
            pc.product_code,
            pc.product,
            pc.manufacturing_cost
     FROM ProductCosts pc
     WHERE
            pc.manufacturing_cost= (Select MAX(manufacturing_cost)
             FROM Productcosts)
      or
     pc.manufacturing_cost=(Select MIN(manufacturing_cost)
     FROM Productcosts)
     ORDER BY   pc.manufacturing_cost DESC;
```

OUTPUT

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

VISUALS AND INSIGHTS

product_code	division	segment	category	product	variant
A2118150101	P & A	Accessories	Mouse	AQ Master wired x1 Ms	Standard 1
A6120110206	PC	Desktop	Personal Desktop	AQ HOME Allin1 Gen 2	Plus 3

❑ **This is the classification of those two products with highest & lowest manufacturing cost**

AD-HOC-REQUEST: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

SQL QUERY

```
Select
      f.customer_code,
      c.customer,
ROUND(AVG(f.pre_invoice_discount_pct) * 100,2)
AS Average_discount_percentage
FROM fact_pre_invoice_deductions f
 JOIN
dim_customer c
ON
f.customer_code=c.customer_code
 WHERE fiscal_year =2021 AND c.market='India'
Group By f.customer_code,c.customer
Order By Average_discount_percentage DESC
LIMIT 5;
```

OUTPUT

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

OUTPUT VISUALS AND INSIGHTS

Customer Discount Comparison

Customer	Discount
AMAZON	29.33
CROMA	30.25
EZONE	30.28
VIVEKS	30.38
FLIPKART	30.83
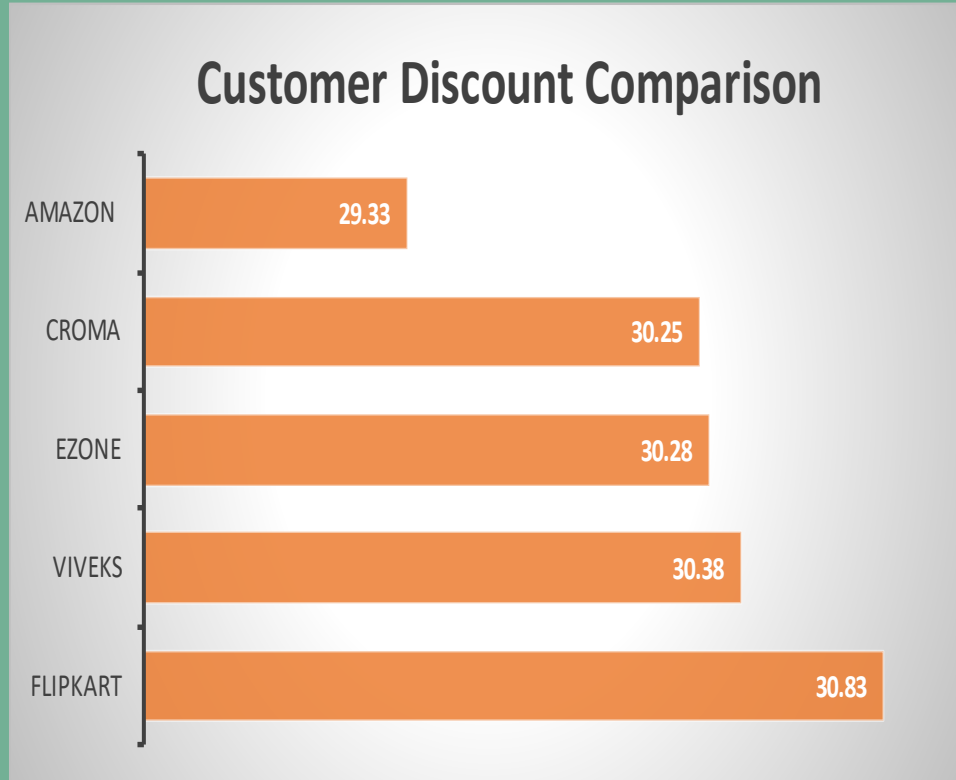
❑ **The top 5 customers' average discount percentages range from 29.33% (Amazon) to 30.83% (Flipkart), indicating a moderate variation in their discounting strategies.**

❑ **The discounts offered by the top 5 customers remain within a normal range, showing consistent discounting patterns and a lower chance of extreme or unusual cases.**

AD-HOC-REQUEST: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

```
WITH MonthlySales AS (
        SELECT
          MONTHNAME(S.DATE) AS Month,s.fiscal_year,
           SUM(g.gross_price * s.sold_quantity)
           AS Gross_sales_amount
           FROM       dim_customer c
           JOIN
           fact_sales_monthly s
          ON c.customer_code = s.customer_code
          JOIN
          fact_gross_price g
          ON s.product_code = g.product_code
          WHERE c.customer = "Atliq Exclusive"
          GROUP By MONTHNAME(s.date),fiscal_year)
SELECT Month,
fiscal_year,   R
ROUND(Gross_sales_amount, 2) AS Gross_sales_amount
FROM    MonthlySales
ORDER BY    fiscal_year;
```

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

OUTPUT VISUALS AND INSIGHTS

Fiscal_Year_2020

Comparison of Gross Sales (Lakhs) — Fiscal_Year_2020, Fiscal_Year_2021
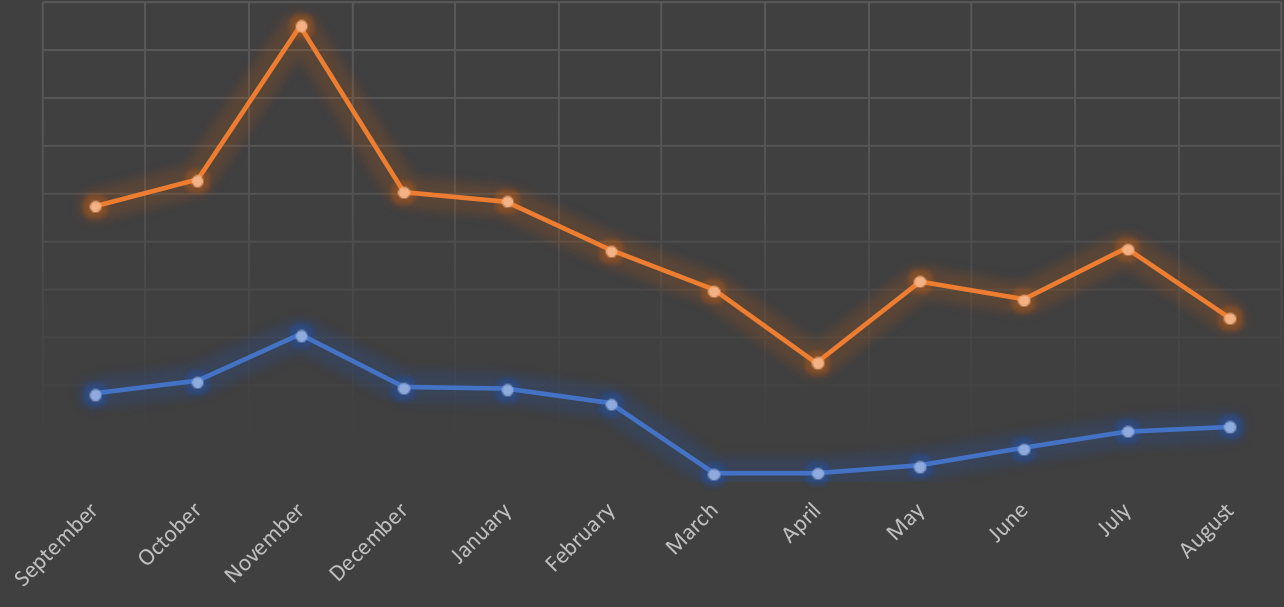
Month	Gross_sales_amount	Month	Gross_sales_amount
September	90.93Lakhs	September	195.30Lakhs
October	103.79Lakhs	October	210.16Lakhs
November	152.32Lakhs	November	322.47Lakhs
December	97.56Lakhs	December	204.09Lakhs
January	95.85Lakhs	January	195.71Lakhs
February	80.84Lakhs	February	159.87Lakhs
March	7.67Lakhs	March	191.50Lakhs
April	8.00Lakhs	April	114.84Lakhs
May	15.87Lakhs	May	192.04Lakhs
June	34.30Lakhs	June	154.58Lakhs
July	51.52Lakhs	July	190.45Lakhs
August	56.38Lakhs	August	113.25Lakhs
Total	795.02Lakhs	Total	2244.25Lakhs

❑ **The comparison of gross sales between the fiscal years 2020 and 2021 clearly indicates a consistent increase in sales for every month in 2021 compared to 2020.**

❑ **This positive trend across all months suggests a steady and overall growth in the company's sales performance during the fiscal year 2021. It's a strong indicator of the company's progress and success in boosting its sales efforts.**

AD-HOC-REQUEST: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, 1, 2) THEN 'Q2'
      WHEN MONTH(date) IN (3, 4, 5) THEN 'Q3'
      ELSE 'Q4'
      END AS Quarter,
      SUM(sold_quantity) AS total_sold_quantity
      FROM fact_sales_monthly
      WHERE fiscal_year = 2020
      GROUP BY Quarter
      ORDER BYtotal_sold_quantity DESC;
```

OUTPUT

Quarter	total_sold_quantity
Q1	7005619
Q2	6649642
Q4	5042541
Q3	2075087

OUTPUT VISUALS AND INSIGHTS

Quarterly Sold Quantity Analysis

Quarter	Value
Q1	7005619
Q2	6649642
Q4	5042541
Q3	2075087
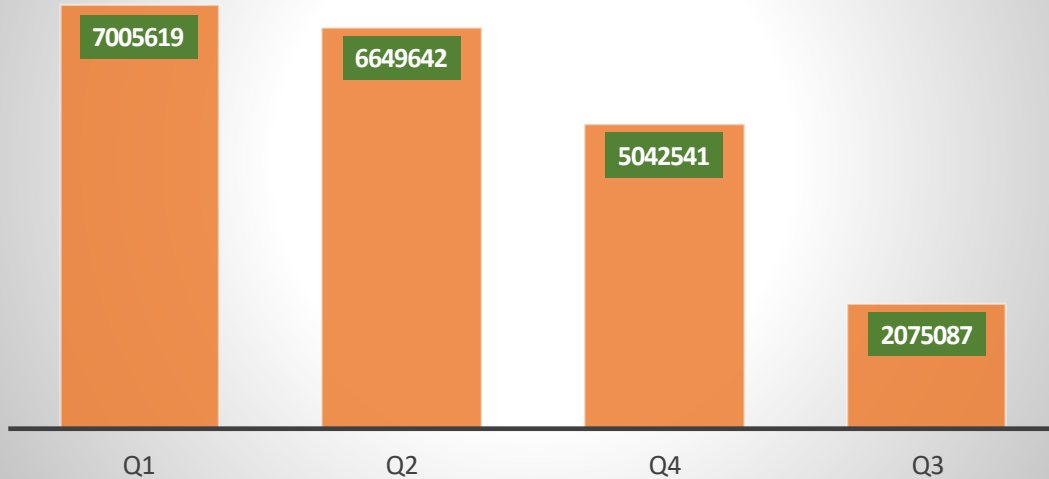
❑ **Upon analyzing the quarterly sold quantity data for Atliq Company, where the quarters are defined as follows:**
- **Q1: Sep, Oct, Nov**
- **Q2: Dec, Jan, Feb**
- **Q3: Mar, Apr, May**
- **Q4: Jun, Jul, Aug**
- **Here Fiscal Year 2020 :September 2019 – August 2020 is taken into consideration for this visulas.**

❑ **Quarter 1 (Sep, Oct, Nov) recorded the highest total sold quantity of 7,005,619 units.**

❑ **The fluctuation in sales among the quarters indicates that the company may need to strategize its inventory management, production, and marketing efforts to meet the varying demand patterns throughout the year.**

AD-HOC-REQUEST: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
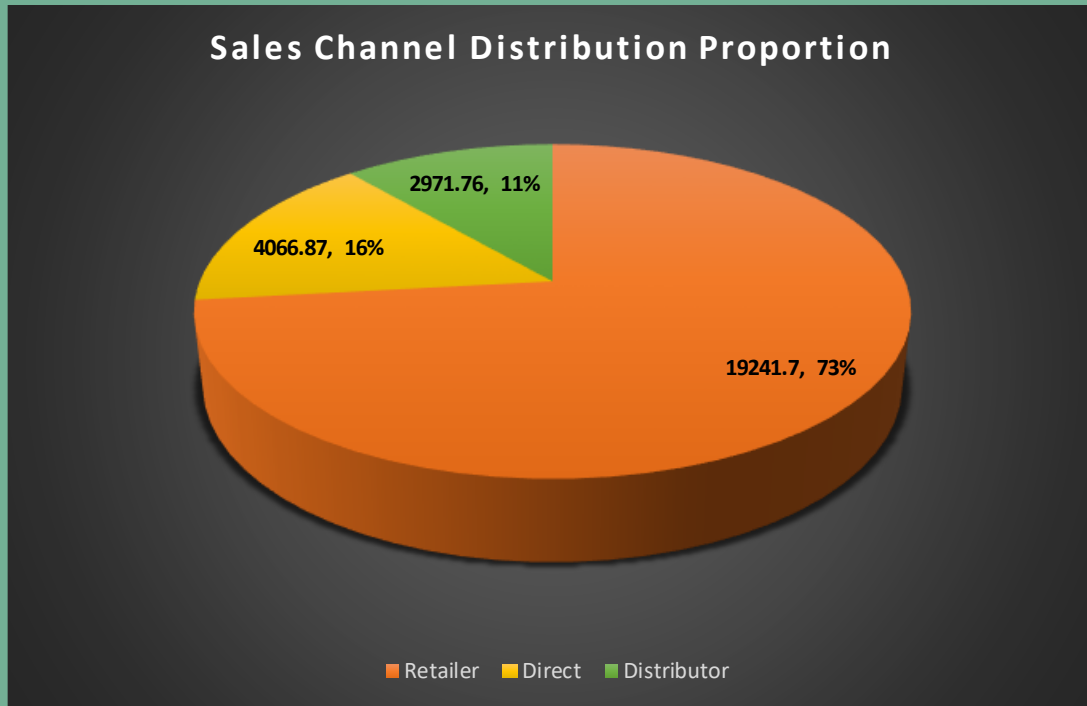
SQL QUERY

```
WITH cte AS (
SELECT
dc.channel,
round(SUM(fg.gross_price*fs.sold_quantity)/100000,2)   as
gross_sales_mln
FROM
dim_customer as dc
JOIN
fact_sales_monthly as fs
ON fs.customer_code = dc.customer_code
JOIN
fact_gross_price fg ON fs.product_code = fg.product_code
WHERE fs.fiscal_year = 2021
GROUP BY dc.channel)
SELECT channel, gross_sales_mln,
ROUND((gross_sales_mln / (SELECT SUM(gross_sales_mln)
FROM cte)) * 100, 2) as percentage
FROM cte
ORDER BY gross_sales_mln DESC;
```

OUTPUT

channel	gross_sales_mln	percentage
Retailer	19241.70	73.22
Direct	4066.87	15.47
Distributor	2971.76	11.31

OUTPUT VISUALS AND INSIGHTS

Sales Channel Distribution Proportion

2971.76, 11%

4066.87, 16%

19241.7, 73%

■ Retailer ■ Direct ■ Distributor

❑ **Atliq Hardwares uses various sales paths that is called Channel like Retailer, Direct, and Distributor.**

❑ **Remarkably, Retailers lead, making 19241.7 Million(73% of total sales). Next, Direct is strong at 4066.87 million. Distributors also play a part. This balance sets up a strong, growing sales strategy.**

AD-HOC-REQUEST: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.
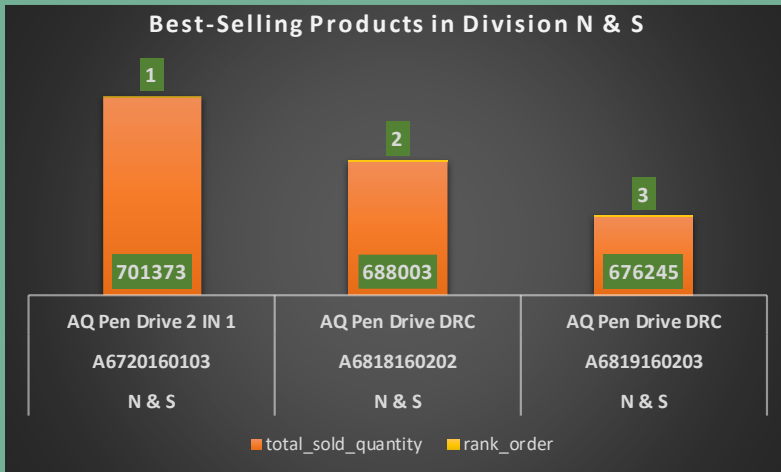
SQL QUERY

```
WITH RankedProducts AS (

    SELECT dp.division,

    fsm.product_code,

    dp.product,

        SUM(fsm.sold_quantity) AS total_sold_quantity,

    ROW_NUMBER() OVER(PARTITION BY dp.division ORDER BY

    SUM(fsm.sold_quantity) DESC) AS rank_order

    FROM  fact_sales_monthly fsm

    JOIN

    dim_product dp

    ON fsm.product_code = dp.product_code

    WHERE fsm.fiscal_year = 2021

        GROUP BY  dp.division, fsm.product_code,

    dp.product)SELECT   division, product_code,   product,

    total_sold_quantity, rank_order

    FROM    RankedProducts

    WHERE    rank_order <= 3

    ORDER BY    division, rank_order;
```

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

OUTPUT VISUALS AND INSIGHTS

Best-Selling Products in Division N & S

1		
	2	
		3
701373	688003	676245
AQ Pen Drive 2 IN 1	AQ Pen Drive DRC	AQ Pen Drive DRC
A6720160103	A6818160202	A6819160203
N & S	N & S	N & S

■ total_sold_quantity ■ rank_order

Best-Selling Products in Division P & A

1		
	2	**3**
428498	419865	419471
AQ Gamers Ms	AQ Maxima Ms	AQ Maxima Ms
A2319150302	A2520150501	A2520150504
P & A	P & A	P & A

■ total_sold_quantity ■ rank_order

Best-Selling Products in Division PC

1		
	2	**3**
17434	17280	17275
AQ Digit	AQ Velocity	AQ Digit
A4218110202	A4319110306	A4218110208
PC	PC	PC

■ total_sold_quantity ■ rank_order


❑ At Atliq, the company operates within three divisions: P & A, PC, and N & C.

❑ Notably, the top three products in the N & C division belong to the storage segment, showcasing its prominence among the six segments.

❑ Specifically, these three products fall under the USB flash drives category.

❑ Within these top products, two stand out as premium choices: AQ Pen Drive 2 IN 1 and AQ Pen Drive DRC.(A6819160203)

❑ Remarkably, AQ Pen Drive 2 IN 1 leads the sales, while the second-ranking product, AQ Pen Drive DRC, presents itself as a plus variant of the premium product of AQ Pen Drive DRC with a different product code (A6818160202).
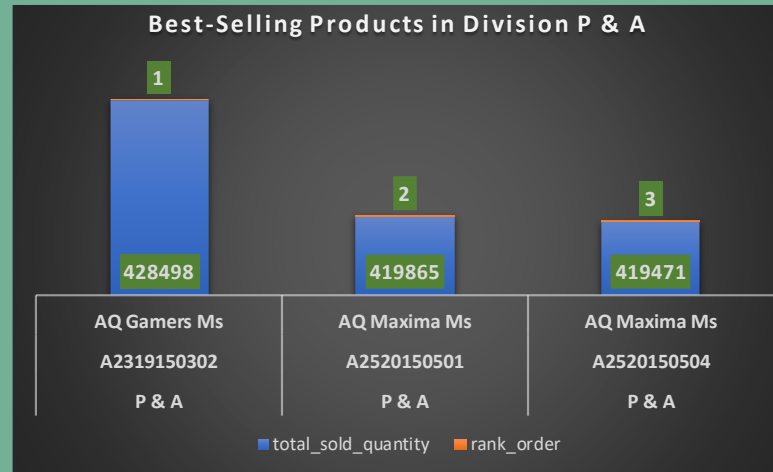
❑ Within Atliq's diverse divisions, let's look into the P & A division.

❑ Notably, the mouse category emerges as a frontrunner, encompassing the top three best-selling products. "AQ Gamers Ms" commands the lead with 428,498 units sold, followed closely by "AQ Maxima Ms" in its standard 1 variant, boasting 419,865 units.

❑ The third spot is secured by the plus 2 variant of "AQ Maxima Ms," contributing 419,471 units.

❑ All these three products comes under the segment called Accessories.

❑ This diversity within the mouse category showcases P & A's ability to cater to varied preferences, mirroring Atliq's commitment to customer satisfaction.
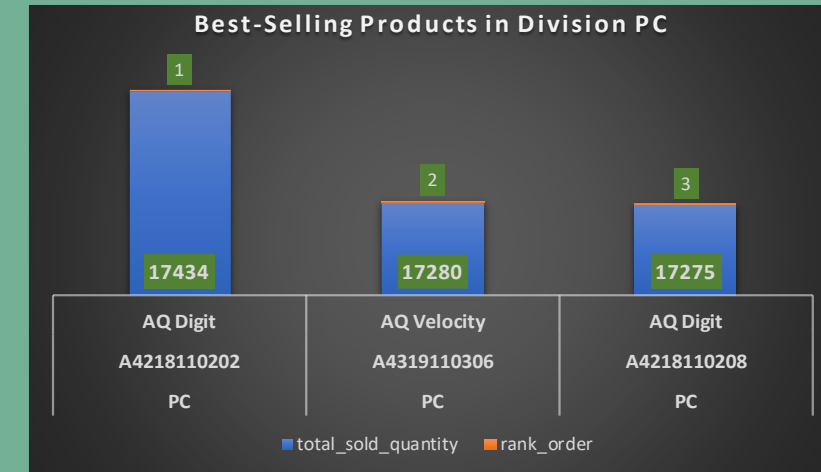
❑ Within the PC division, the notebook segment takes the spotlight, showcasing the best-selling products in the personal laptop category.

❑ "AQ Digit," with a total of 17,434 units sold, captures the lead position and is notable for its standard blue variant (A4218110202).

❑ Another iteration of "AQ Digit" in the premium misty green variant (A4218110208) secures the third spot with 17,275 units sold.

❑ This analysis highlights the strength of "AQ Digit" in both its standard blue and premium misty green variants, suggesting positive performance and customer engagement across these product variations in the notebook segment.

THANK YOU