Atliq Hardwares

Consumer Goods Domain Ad-hoc Insights

Presented by Karnan

ABOUT OUR
COMPANY

- Company Name: AtliQ Hardware
- Industry: Computer Hardware & Peripherals
- Established: 2011
- Headquarters: Gujarat, India
- Core Business: High-performance computer peripherals (monitors, keyboards, networking devices)
- Global Presence: Operations across Asia, North America, and Latin America
- Mission: To empower businesses and individuals through innovative and reliable hardware solutions

PROBLEM STATEMENT

Atliq Hardwares, a major computer hardware producer, is expanding but faces challenges in making quick, data-informed decisions due to a lack of sufficient insights.

The Data Analytics Director, Tony Sharma, is looking to hire junior data analysts who excel in both technical (SQL) and soft skills. The immediate task is to address a list of 10 ad hoc requests detailed in the document *'ad-hoc-requests.pdf'*, for which the business urgently needs insights.

APPROACH TO SOLVE THE PROBLEM

Data Source and Tools
•Data Source: The data is stored in a MySQL Database.

•Database Name: The data has been imported into a database named atliq_hardware_db.sql.

•Analysis Method: Querying the database using MYSQL to find the necessary insights for the 10 ad hoc requests.

•Visualization Tool: The findings will be presented using Power BI to create clear and compelling visuals suitable for top-level management.

EER Diagram

- **One-to-many relationships between fact and dimension tables**
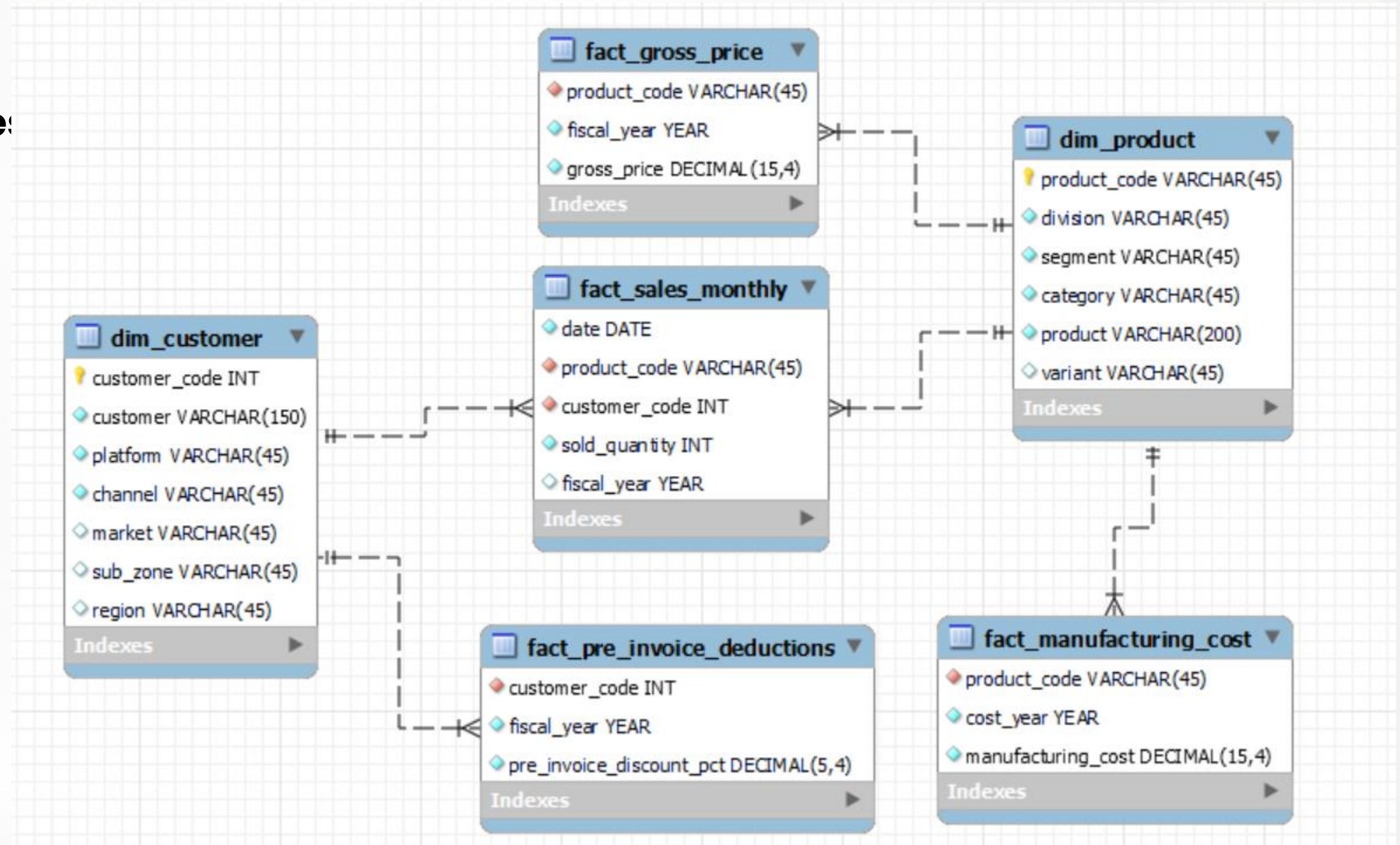
- **Fact Tables:**
  fact_sales_monthly
  fact_gross_price
  fact_pre_invoice_deductions
  fact_manufacturing_cost

- **Dimension Tables:**
  dim_Customer
  dim_Product

fact_gross_price
- product_code VARCHAR(45)
- fiscal_year YEAR
- gross_price DECIMAL(15,4)
- Indexes

dim_product
- product_code VARCHAR(45)
- division VARCHAR(45)
- segment VARCHAR(45)
- category VARCHAR(45)
- product VARCHAR(200)
- variant VARCHAR(45)
- Indexes

fact_sales_monthly
- date DATE
- product_code VARCHAR(45)
- customer_code INT
- sold_quantity INT
- fiscal_year YEAR
- Indexes

dim_customer
- customer_code INT
- customer VARCHAR(150)
- platform VARCHAR(45)
- channel VARCHAR(45)
- market VARCHAR(45)
- sub_zone VARCHAR(45)
- region VARCHAR(45)
- Indexes

fact_pre_invoice_deductions
- customer_code INT
- fiscal_year YEAR
- pre_invoice_discount_pct DECIMAL(5,4)
- Indexes

fact_manufacturing_cost
- product_code VARCHAR(45)
- cost_year YEAR
- manufacturing_cost DECIMAL(15,4)
- Indexes

Request 1

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

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

OUTPUT

market
Australia
Bangladesh
India
India
Indonesia
Japan
Newzealand
Philiphines
South Korea

Insights

The customer "Atliq Exclusive" currently operates its business across 8 out of 48 countries in the APAC region — specifically in Australia, Bangladesh, India, Indonesia, Japan, New Zealand, Philippines, and South Korea.

Recommendation:

Since operations are limited to only 17% of the APAC market, there is significant potential to expand into the remaining 40 markets. Expanding market reach could drive brand visibility, customer base, and revenue growth across untapped APAC regions.

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 cte1 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
    FROM
        fact_sales_monthly)

SELECT
    unique_products_2020,
    unique_products_2021,
    ROUND(
        (unique_products_2021 - unique_products_2020) * 100.0
/ unique_products_2020, 2 ) AS pct_chg
FROM cte1
LIMIT 1;
```

OUTPUT

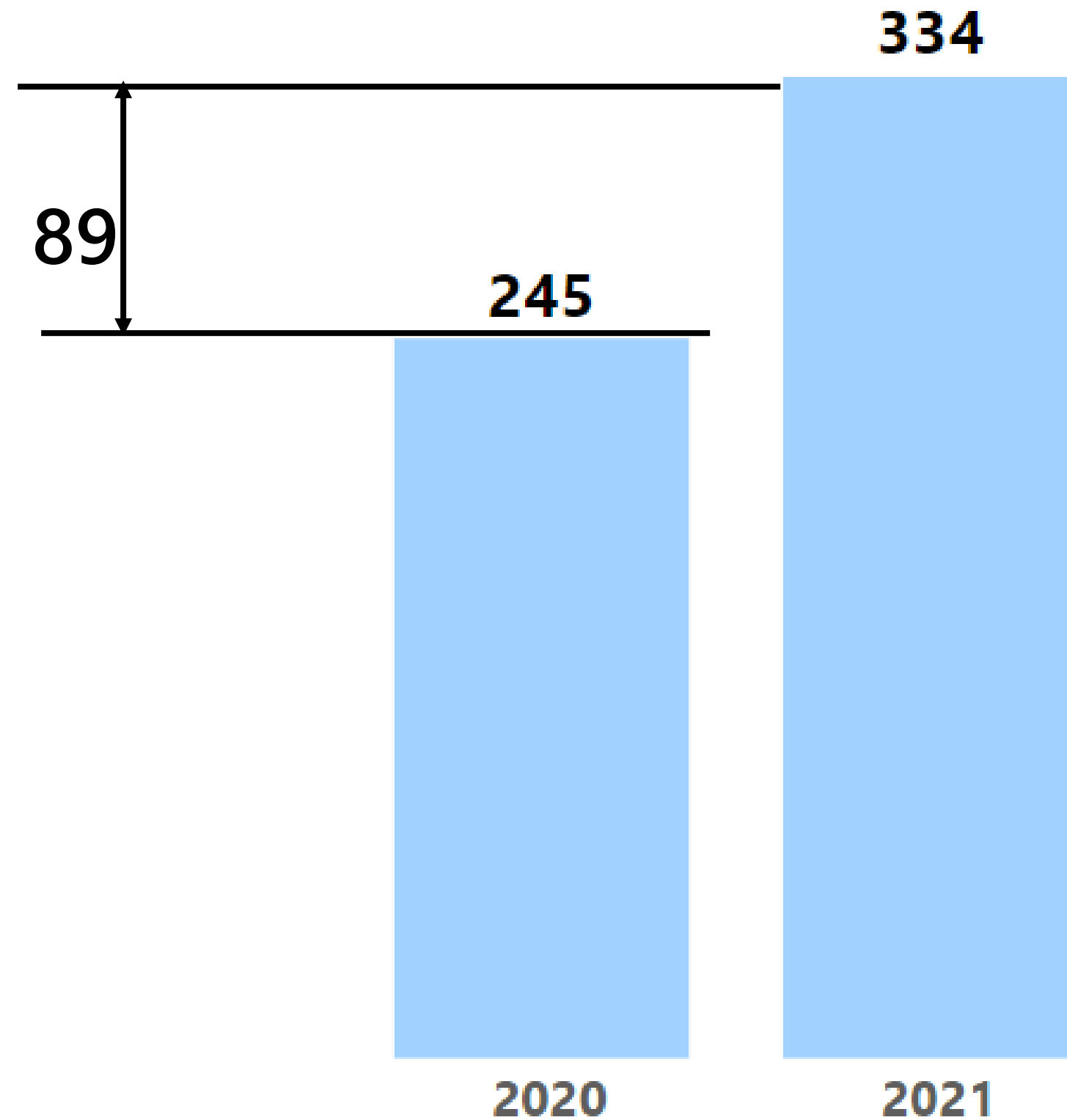| unique_products_2020	unique_products_2021	pct_chg
245	334	36.33

Insight

In 2021, the number of unique products increased by 36.33% compared to 2020 (from 245 to 334).

This significant increase reflects a strategic expansion in product offerings, likely aimed at capturing new market segments and improving competitive advantage.

Unique Product 2020 VS 2021

Request 3

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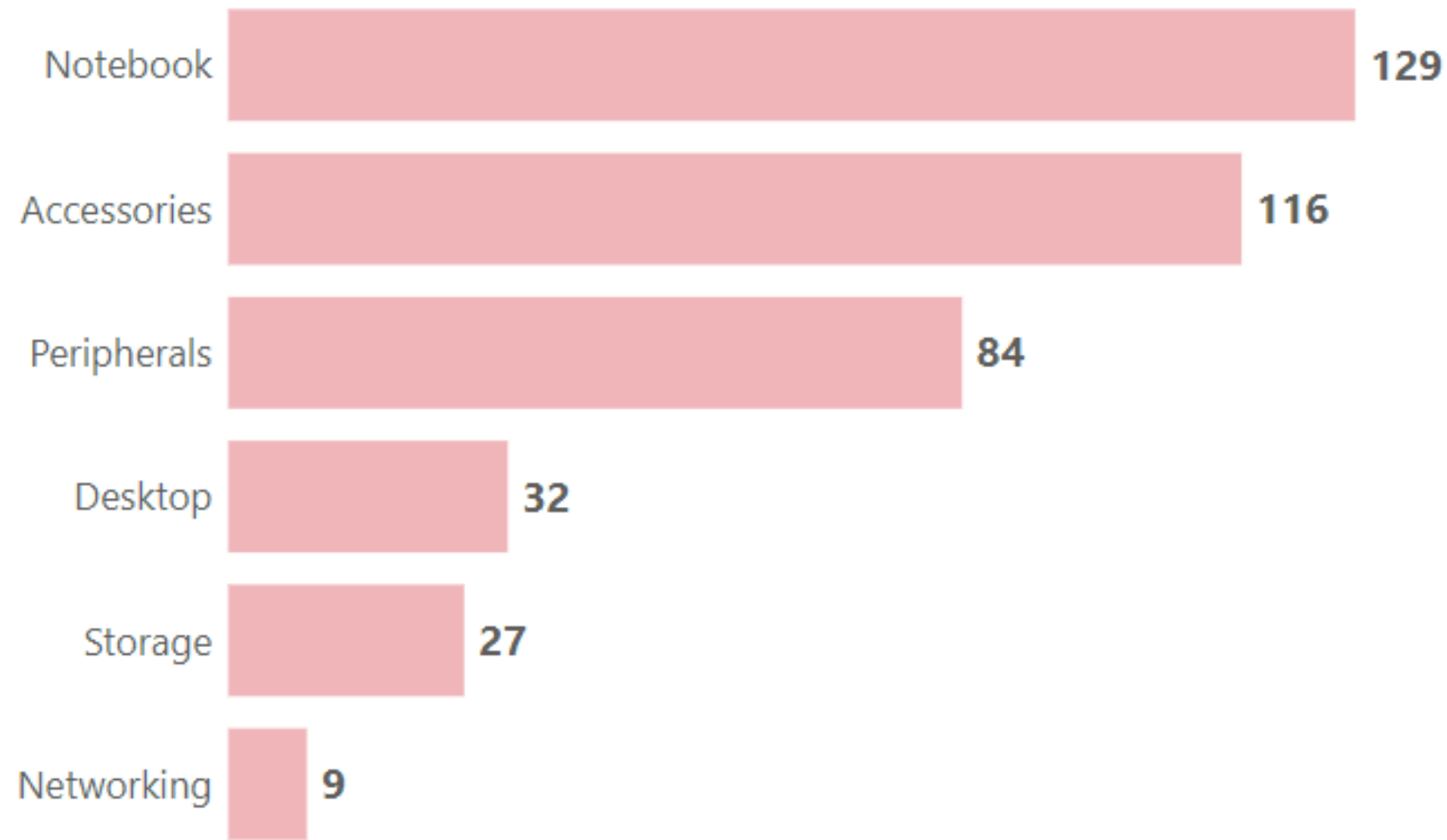The final output contains 2 fields
 segment
 product_count

```
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

Insight

Unique Product by Segment

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

❑ The Notebook and Accessories segments dominate the product portfolio, together contributing approximately 74% of all unique products (129 and 116 respectively out of 397 total). In contrast, Networking, Storage, and Desktop have relatively fewer unique products, indicating limited product diversity in these categories.

❑ This pattern suggests that the company's current strategy is heavily focused on portable and complementary products, while expansion opportunities exist in Networking and Storage segments to balance the portfolio.

Request 4

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 (
    SELECT
        dp.segment,
        COUNT(DISTINCT CASE WHEN fiscal_year = 2020 THEN fsm.product_code END) AS
product_count_2020,
        COUNT(DISTINCT CASE WHEN fiscal_year = 2021 THEN fsm.product_code END) AS
product_count_2021
    FROM
        fact_sales_monthly fsm
    JOIN
        dim_product dp ON dp.product_code = fsm.product_code
    GROUP BY dp.segment)

SELECT
    segment,
    product_count_2020,
    product_count_2021,
    (product_count_2021 - product_count_2020) AS difference
FROM
    cte1;
```
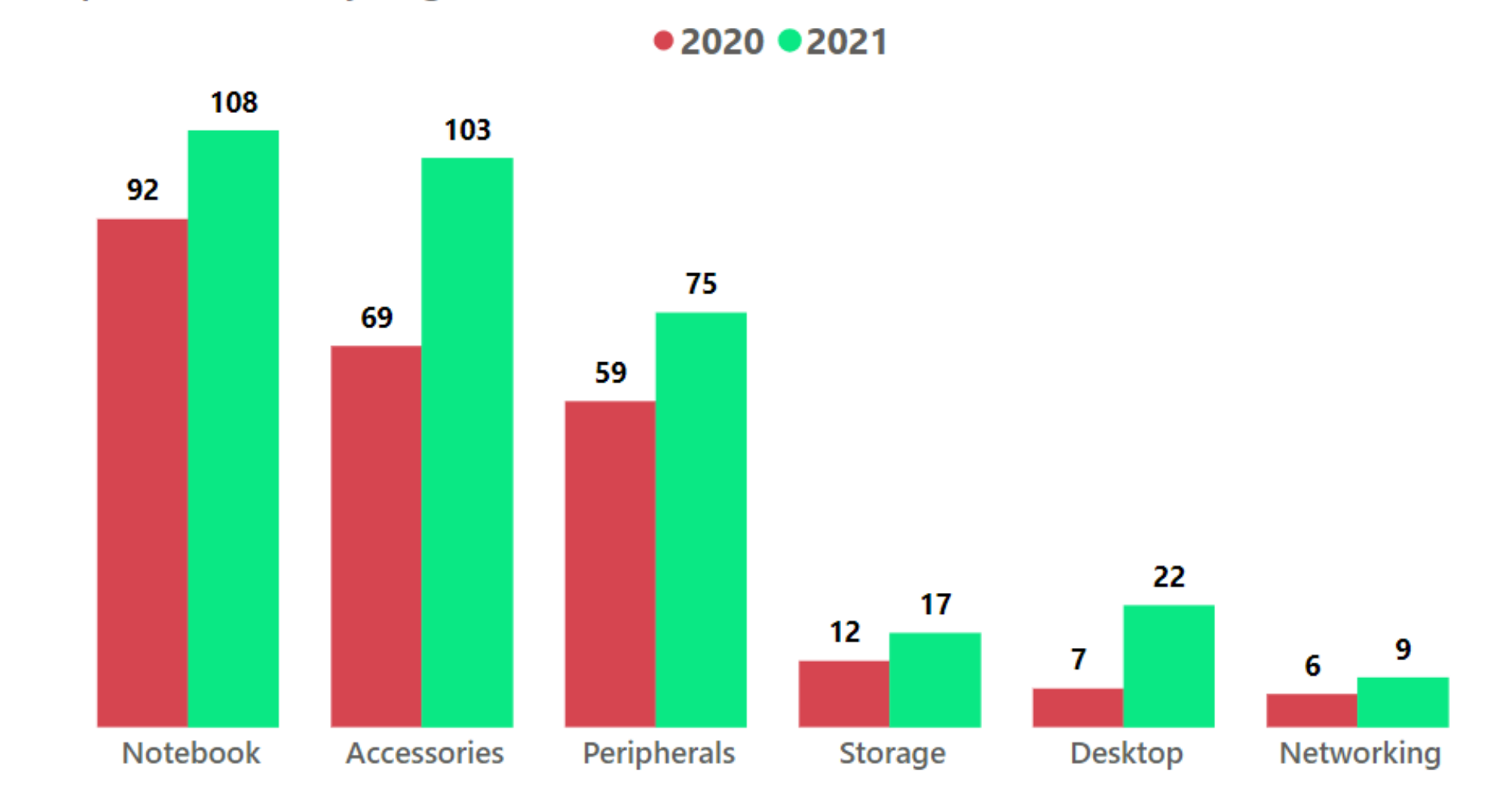
OUTPUT

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

Insights

Accessories (+34, +49.3%)
Strongest performer with the highest product increase, driven by expansion in complementary items like mouse, keyboard and batteries — boosting cross-selling potential.

Desktop (+15, +214%)
Fastest relative growth; products more than tripled, showing renewed demand from enterprise and education sectors post-pandemic.

Notebook (+16, +17.4%)
Largest segment by volume (108 products) with steady growth, maintaining stability in the company's core business line.

Peripherals (+16, +27%)
Consistent growth reflecting demand for supportive devices such as k Internal HDD, Graphic Card, MotherBoard and Processors.

Storage (+5, +42%)
Moderate but healthy expansion aligned with increasing data storage needs and accessory sales.

Networking (+3, +50%)
Slowest expansion with the smallest base (9 products), indicating untapped potential for future diversification.

Unique Products by Segment (2020 vs 2021)

● 2020 ● 2021

Segment	2020	2021
Notebook	92	108
Accessories	69	103
Peripherals	59	75
Storage	12	17
Desktop	7	22
Networking	6	9

Strategic Recommendations

🟩 Strengthen high-growth areas: Continue innovation in Accessories and Desktop.

🟨 Maintain Notebook leadership: Enhance features, drive brand differentiation.

🟦 Expand low-coverage segments: Invest in Networking and Storage to balance portfolio.

🟥 Monitor product overlap: Avoid cannibalization within similar accessory or peripheral lines.

Request 5

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

```
SELECT
    fmc.product_code,
    dp.product,
    fmc.manufacturing_cost
FROM
    fact_manufacturing_cost fmc
JOIN
    dim_product dp
ON dp.product_code =
fmc.product_code
WHERE
    fmc.manufacturing_cost = (
        SELECT MAX(manufacturing_cost)
        FROM fact_manufacturing_cost
    )
    OR fmc.manufacturing_cost = (
        SELECT MIN(manufacturing_cost)
        FROM fact_manufacturing_cost);
```

OUTPUT

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

Insights

The ratio between the highest and lowest cost products is approximately **270:1**, underscoring **extreme cost disparity** across product lines.

Aspect	AQ Master Wired X1	AQ HOME Allin1 Gen 2
Segment	Accessories	Desktop
Category	Keyboard	Personal Desktop
Product Type	Entry-level	Premium integrated system
Manufacturing Cost	$0.89	$240.54
Production Model	High volume, low margin	Low volume, high margin
Strategic Role	Market penetration & cross-selling	Brand leadership & profitability

The lowest-cost product, AQ Master Wired X1 Keyboard ($0.89), offers a great opportunity for bulk sales, while the highest-cost product, AQ HOME Allin1 Gen 2 Desktop ($240.54), should be positioned as a premium offering with focus on quality and performance.

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
SELECT
    pre.customer_code,
    dc.customer,
    ROUND(AVG(pre.pre_invoice_discount_pct), 4) AS average_discount_percentage
FROM
    fact_pre_invoice_deductions pre
JOIN
    dim_customer dc ON dc.customer_code=pre.customer_code
WHERE
    pre.fiscal_year = 2021
    AND dc.market = 'India'
GROUP BY
    pre.customer_code,
    dc.customer
ORDER BY
    average_discount_percentage DESC
LIMIT 5;
```

OUTPUT

customer_code	customer	average_discount_pct
90002009	Flipkart	30.8300
90002006	Viveks	30.3800
90002003	Ezone	30.2800
90002002	Croma	30.2500
90002016	Amazon	29.3300

Insights

- Highest Discount – Flipkart (30.83%): Online-only, high-volume partner; discount likely linked to large-scale sales and promotions.

- Hybrid Retailers – Viveks, Ezone, Croma (~30%): Support both online and offline sales; discounts help maintain presence across channels.

- Amazon (29.33%): Online-only, slightly lower discount; balances volume and profitability.

- Overall Trend: Top 5 customers get similar high discounts (~29–31%), showing a structured strategy for major partners.

Top 5 Customers by Average Pre-Invoice Discount (%) — India, 2021

Customer	Discount (%)
Flipkart	30.83
Viveks	30.38
Ezone	30.28
Croma	30.25
Amazon	29.33

Strategic Implications

- Balances volume-driven online growth with market coverage in offline + online channels
- Explore exclusive campaigns with hybrid retailers to drive online sales.
- Analyze sales uplift per % discount to optimize profitability across channels.

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

```
SELECT
    MONTH(fsm.date) AS sale_month,
    YEAR(fsm.date) AS sale_year,
    ROUND(SUM(fsm.sold_quantity * fgp.gross_price) /
1000000, 2) AS gross_sales_amount_mn
FROM
    gdb023.fact_sales_monthly fsm
JOIN
    fact_gross_price fgp
    ON fgp.product_code = fsm.product_code
    AND fgp.fiscal_year = fsm.fiscal_year
JOIN
    dim_customer dc
    ON dc.customer_code = fsm.customer_code
WHERE
    dc.customer = 'Atliq Exclusive'
GROUP BY
    YEAR(fsm.date),
    MONTH(fsm.date)
ORDER BY YEAR(fsm.date),MONTH(fsm.date);
```
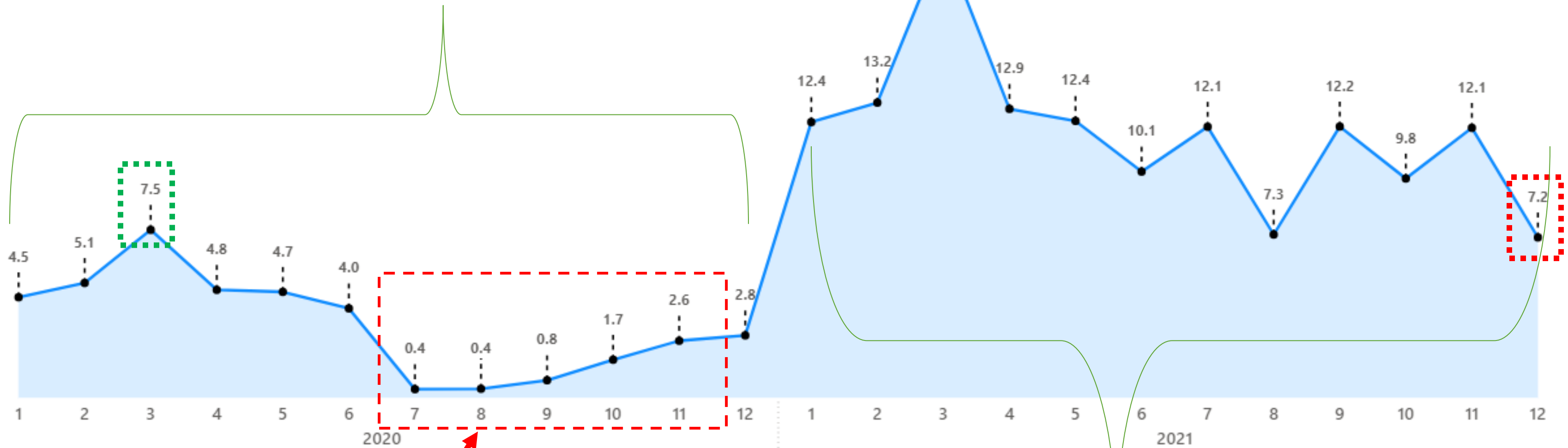
OUTPUT

month	fiscal_year	gross_sales_amount_mn
9	2019	4.50
10	2019	5.14
11	2019	7.52
12	2019	4.83
1	2020	4.74
2	2020	4.00
3	2020	0.38
4	2020	0.40
5	2020	0.78
6	2020	1.70
7	2020	2.55
8	2020	2.79
9	2020	12.35
10	2020	13.22
11	2020	20.46
12	2020	12.94
1	2021	12.40
2	2021	10.13
3	2021	12.14
4	2021	7.31
5	2021	12.15
6	2021	9.82
7	2021	12.09
8	2021	7.18

Insight

Monthly Gross Sales for Atliq Exclusive — FY 2020 and FY 2021

Total Gross Sales in FY2020 = 40.2 Mn

due to Shift to Digital: This rapid growth is largely driven by Atliq's effective expansion of its e-commerce channels during the pandemic.

The sharp drop in Gross Sales from Month 7 to Month 11 in FY 2020 is primarily due to the severe initial impact of COVID-19 and global lockdowns.

Total Gross Sales in FY2021 = 142.0 Mn

Insights

Metric	FY 2020 (Sep '19 - Aug '20)	FY 2021 (Sep '20 - Aug '21)	Comparison
Estimated Total Sales	**40.2 Mn**	**142.0 Mn**	**+253.2% Growth**
Max Monthly Sales	**7.5 Mn** (Nov 2019)	**20.5 Mn** (Nov 2020)	FY21 peak is 2.7 the FY20 peak.
Min Monthly Sales	**0.4 Mn** (Mar 2020)	**7.2 Mn** (Aug 2021)	FY21 minimum is nearly equal to FY20 maximum.
Baseline Sales	Low and volatile (average 3.4 Mn)	High and sustained (average 11.8 Mn)	The baseline significantly increased.

📌 Strategic Implications
- Strengthen digital channels to maintain the strong online-driven growth.
- Prepare for November peaks with higher inventory and targeted promotions.
- Sustain the new high baseline using loyalty programs and product expansion.
- Improve demand forecasting using moving averages and channel-level data.
- Build supply chain resilience to avoid future downturn impacts.
- Boost low-month performance (Apr, Jun, Aug) with mid-year offers and campaigns.

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.

```
SELECT
    get_quarter(date) AS Quarter,
    SUM(sold_quantity) / 1000000 AS
total_sold_quantity
FROM
    fact_sales_monthly
WHERE
    fiscal_year = 2020
GROUP BY
    get_quarter(date)
ORDER BY
    total_sold_quantity DESC;
```

OUTPUT

Quarter	total_sold_quantity
Q1	7.0056
Q2	6.6496
Q4	5.0425
Q3	2.0751

Insights

Demand was strong in the first half of the year.
Q1 and Q2 showed high and steady demand, indicating a healthy   market before disruptions.

Q3 experienced a major demand collapse.
Sales dropped sharply to 2.1 Mn, reflecting the impact of external factors such as lockdowns and reduced consumer activity.
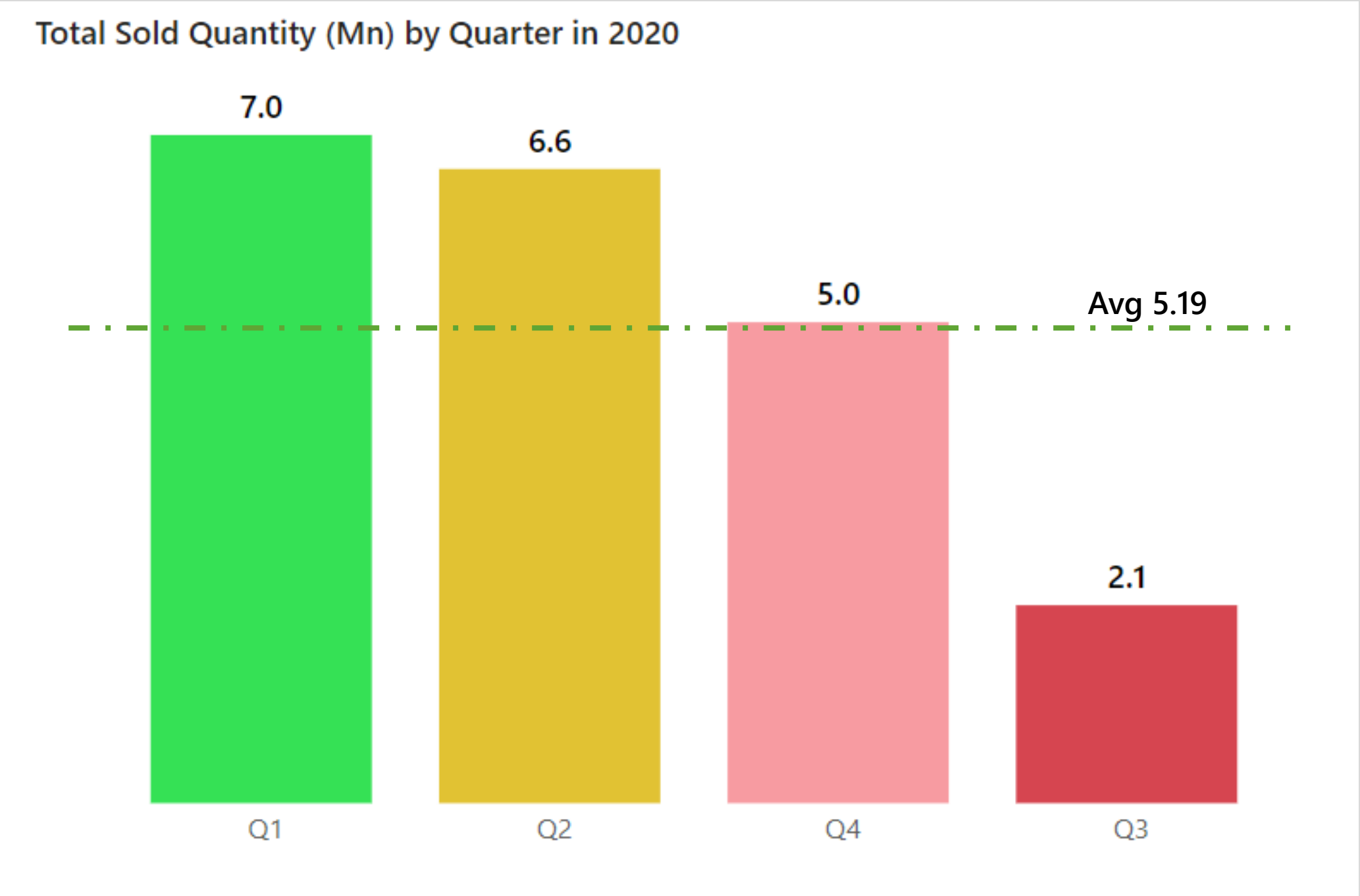
Recovery began in Q4 but not to early-year levels.
Demand improved to 5.0 Mn, showing signs of recovery but still below the strength of Q1 and Q2.

High volatility across quarters.
Quarter-to-quarter shifts were significant, moving from slight decline to steep drop and then strong rebound, highlighting unstable market conditions.

Clear identification of peak and bottom performance.
Q1 recorded the highest sales at 7.0 Mn, while Q3 was the lowest at 2.1 Mn, demonstrating the year's extreme demand fluctuation.

Overall average indicates moderate yearly demand.
The quarterly average of 5.2 Mn shows that despite Q3's slump, overall yearly demand remained reasonably stable.

COVID impact timing:
normal → disrupted → recovering.

Total Sold Quantity (Mn) by Quarter in 2020

7.0   6.6   5.0   Avg 5.19   2.1

Q1   Q2   Q4   Q3

To improve sales, focus on boosting demand during weak periods with targeted promotions, strengthening digital channels, and ensuring better inventory and supply chain planning. Enhance customer retention through loyalty programs, optimize high-performing products, run early festive campaigns, improve channel partnerships, and use demand forecasting to stabilize performance and support steady growth.

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.

```
SELECT
    dc.channel,
    ROUND(SUM(fsm.sold_quantity * fgp.gross_price) / 1000000, 2) AS
gross_sales_amount_Mn,
    ROUND(
        SUM(fsm.sold_quantity * fgp.gross_price) * 100.0 /
        SUM(SUM(fsm.sold_quantity * fgp.gross_price)) OVER (),
        2
    ) AS percentage
FROM
    gdb023.fact_sales_monthly fsm
JOIN
    fact_gross_price fgp
        ON fgp.product_code = fsm.product_code
        AND fgp.fiscal_year = fsm.fiscal_year
JOIN
    dim_customer dc
        ON dc.customer_code = fsm.customer_code
WHERE
    fsm.fiscal_year = 2021
GROUP BY
    dc.channel
ORDER BY
    gross_sales_amount_Mn DESC;
```
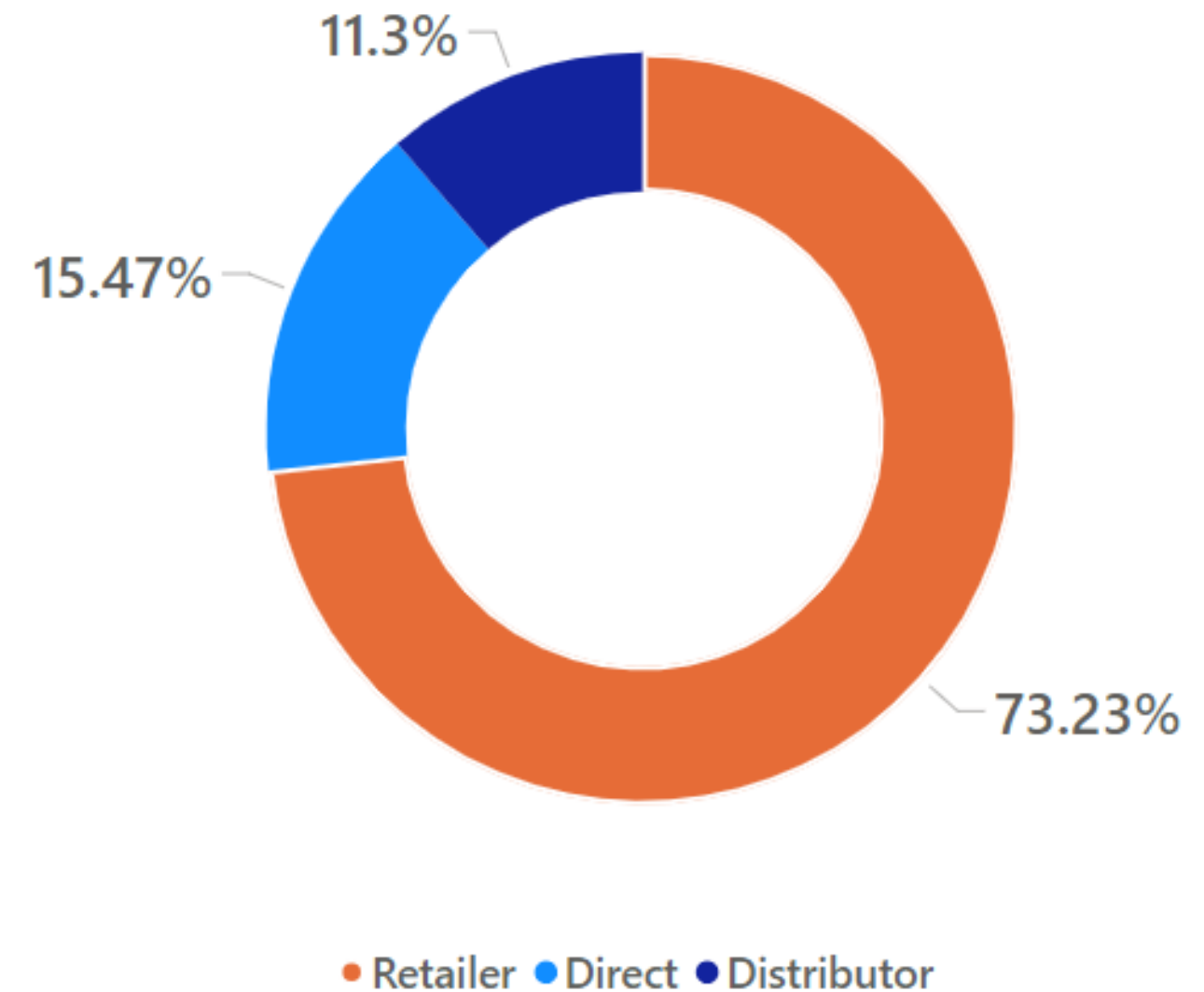
OUTPUT

channel	gross_sales_amount_Mn	percentage
Retailer	1219.08	73.23
Direct	257.53	15.47
Distributor	188.03	11.30

Insights

- Retailer is the dominant channel, contributing 73.23% of total gross sales, showing strong dependency on retail partners for revenue.

- Direct channel contributes 15.47%, indicating moderate performance and potential for scaling through improved digital or direct sales efforts.

- Distributor channel is the smallest at 11.3%, highlighting an underutilized channel that may have growth potential with better incentives or expansion strategies.

Gross Sales Contribution by Channel — FY 2020

11.3%
15.47%
73.23%

● Retailer ● Direct ● Distributor

- ✓ The strong dependence on retailers creates a higher risk if retail performance drops, highlighting the need to diversify revenue across multiple channels.

- ✓ The smaller contribution from Direct and Distributor channels signals clear opportunities to improve margins, strengthen customer relationships, and expand market coverage by developing these channels further.

- ✓ The overall channel mix is imbalanced, indicating the need for a strategic multi-channel approach to reduce dependency and ensure stable, sustainable revenue.

- ✓ Boosting the Direct channel is especially promising because the company can offer better prices to consumers, eliminate middlemen costs, and ultimately generate higher profit margins.

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.

```
WITH cte1 AS (
    SELECT
        dp.division,
        fsm.product_code,
        dp.product,
        SUM(sold_quantity) / 1000000 AS total_sold_quantity,
        DENSE_RANK() OVER (
            PARTITION BY dp.division
            ORDER BY SUM(sold_quantity) / 1000000 DESC) AS
rank_order
    FROM
        fact_sales_monthly fsm
    JOIN
        dim_product dp
            ON dp.product_code = fsm.product_code
    WHERE
        fsm.fiscal_year = 2021
    GROUP BY
        dp.division,
        fsm.product_code,
        dp.product)
SELECT *
FROM  cte1
WHERE rank_order <= 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

Insights

Across all divisions, the top 3 high-selling products follow a *consistent and uniform pattern*.
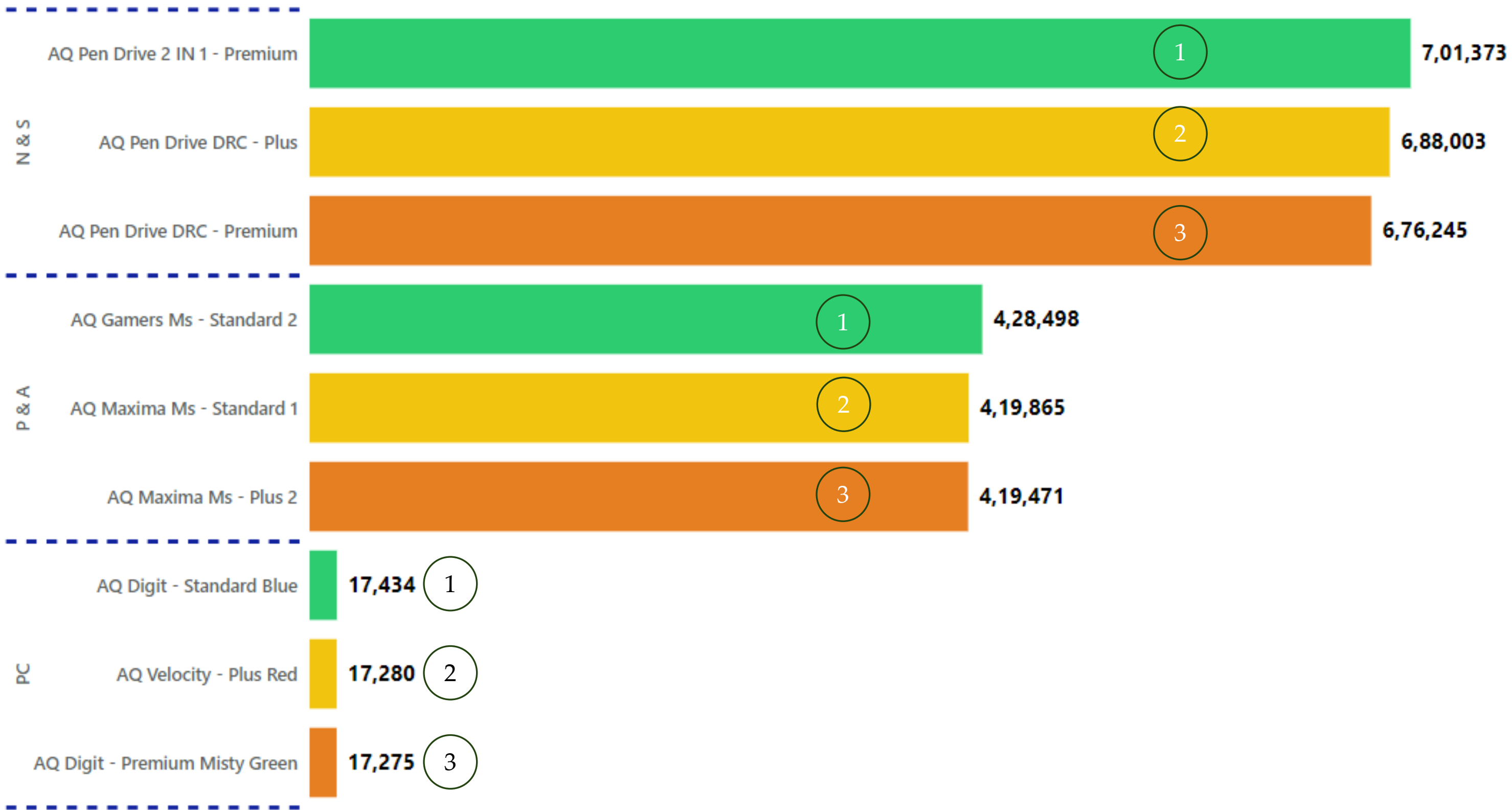
- N & S is dominated entirely by Pen Drives.

- P & A is led consistently by Mice.

- PC shows the same pattern with Personal Laptops taking all top 3 spots.

This repeated pattern across divisions indicates highly concentrated consumer demand, with each division showing strong product dominance rather than a diversified sales mix.

Top 3 High-Selling Products in Each Division — FY 2021

Division	Product	Rank	Value
N & S	AQ Pen Drive 2 IN 1 - Premium	1	7,01,373
N & S	AQ Pen Drive DRC - Plus	2	6,88,003
N & S	AQ Pen Drive DRC - Premium	3	6,76,245
P & A	AQ Gamers Ms - Standard 2	1	4,28,498
P & A	AQ Maxima Ms - Standard 1	2	4,19,865
P & A	AQ Maxima Ms - Plus 2	3	4,19,471
PC	AQ Digit - Standard Blue	1	17,434
PC	AQ Velocity - Plus Red	2	17,280
PC	AQ Digit - Premium Misty Green	3	17,275

THANK YOU