

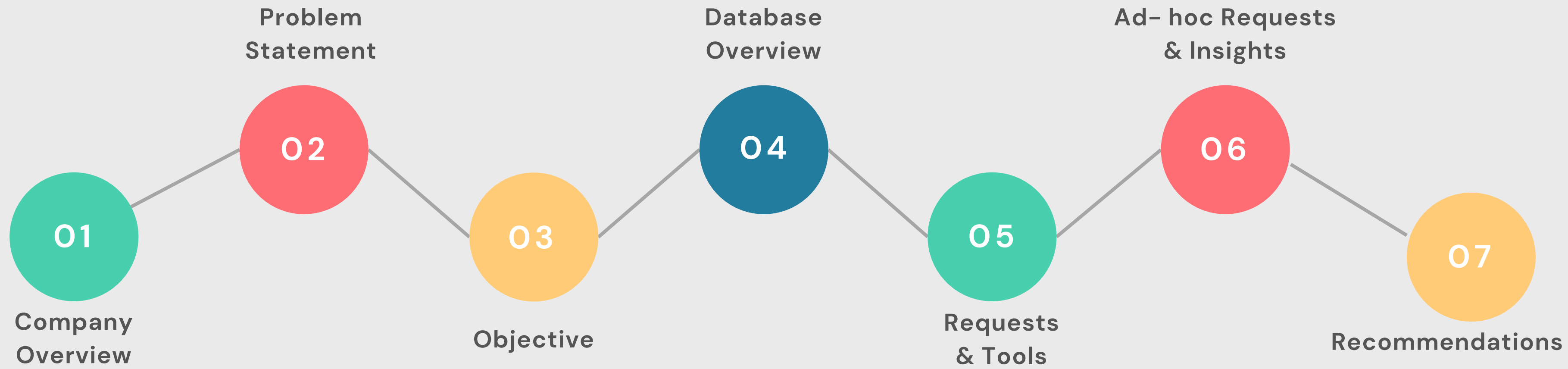


ATLIQ HARDWARE

AD-HOC INSIGHTS

Domain: Consumer Goods

CONTENT



COMPANY OVERVIEW

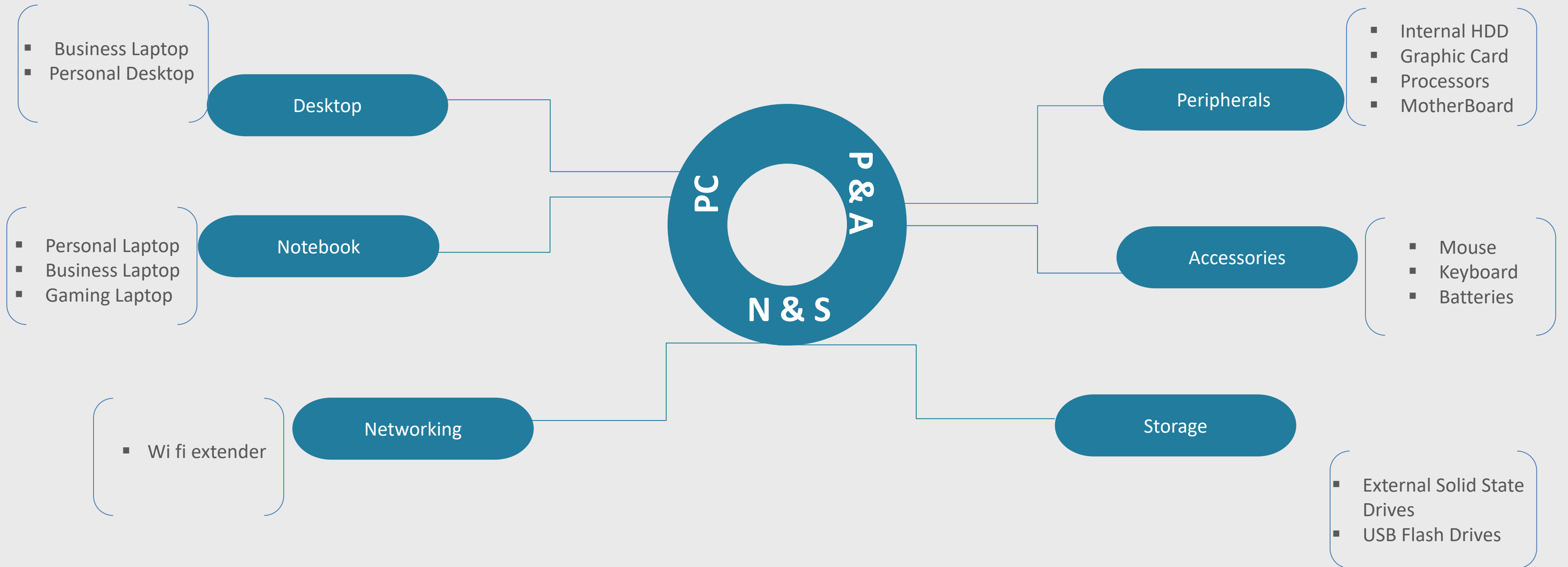


- AtliQ Hardwares (a fictitious company) is a prominent computer hardware manufacturer based in India, with a robust presence in **India** and **international markets**.
- The company specializes in producing a wide range of products including peripherals, accessories, network and storage devices, and personal computers.
- Known for its innovation and quality, AtliQ Hardwares is committed to **delivering superior products** to its customers globally.
- However, the company recognizes the need to enhance its data-driven decision-making capabilities to maintain and grow its competitive edge.

ATLIQ'S MARKET



ATLIQ'S PRODUCT-LINE



PROBLEM STATEMENT



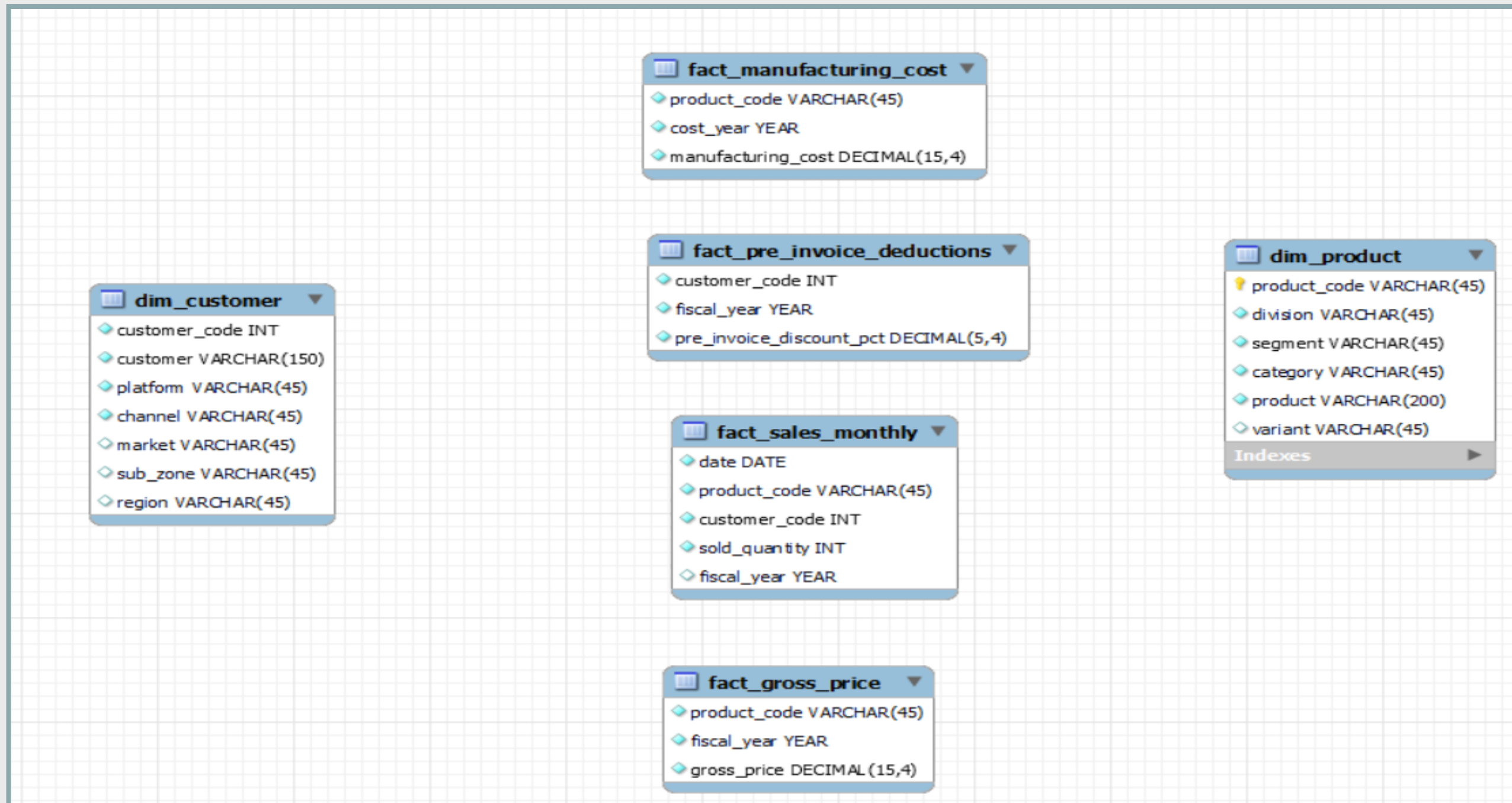
- AtliQ Hardwares faces challenges in making prompt, wise, and data-informed decisions due to a lack of sufficient insights. This gap in actionable data affects the company's ability to optimize its strategies and operations.
- To address this issue, AtliQ Hardwares plans to expand its data analytics team by hiring junior data analysts. **Tony Sharma**, the Data Analytics Director, has designed a **SQL** challenge to evaluate the candidates' technical and soft skills.
- The company aims to gain valuable insights from this challenge, focusing on **10 specific ad hoc requests** to improve their strategic decision-making processes.

OBJECTIVE



- The primary objective of this project is to fulfill 10 specific data requests by employing SQL for data extraction and analysis, complemented by Power BI for data visualization.
- This dual approach is designed to generate actionable insights, thereby enhancing AtliQ Hardwares' strategic decision-making processes and bolstering the company's overall growth and operational efficiency.

DATABASE OVERVIEW



REQUESTS & TOOLS

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_mln
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

For Analysis & Visualisation



The image features a light gray background with decorative geometric elements in the corners. These elements consist of quarter-circles and semi-circles in three colors: teal, orange, and red. In the top-left corner, there is a teal quarter-circle and an orange quarter-circle. In the top-right corner, there is a teal quarter-circle, an orange quarter-circle, and a red quarter-circle. In the bottom-left corner, there is a red quarter-circle, a teal quarter-circle, and a teal semi-circle. In the bottom-right corner, there is a teal quarter-circle, an orange quarter-circle, and a red quarter-circle.

AD- HOC REQUESTS, QUERIED RESULTS, INSIGHTS & VISUALISATIONS

REQUEST- 1

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

INPUT

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



OUTPUT

	market
▶	India
	Indonesia
	Japan
	Philippines
	South Korea
	Australia
	Newzealand
	Bangladesh

INSIGHTS

In the APAC region, our Atliq Exclusive store has established its presence in 8 major markets.



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

INPUT

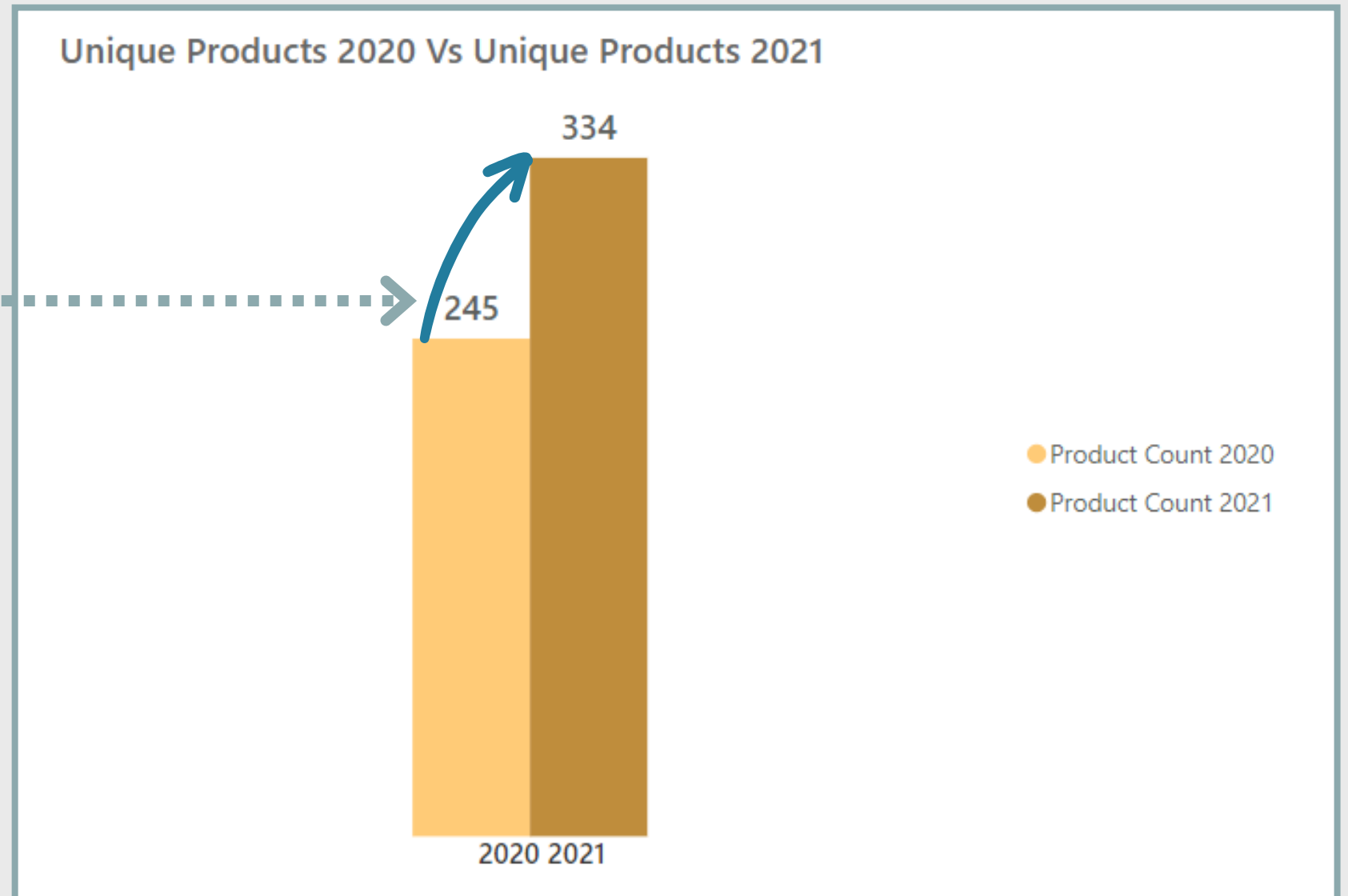
```
WITH CTE AS
(SELECT
    COUNT(DISTINCT product_code) AS unique_products_2020
FROM
    fact_sales_monthly
WHERE
    fiscal_year = 2020),
CTE2 AS
(SELECT
    COUNT(DISTINCT product_code) AS unique_products_2021
FROM
    fact_sales_monthly
WHERE
    fiscal_year = 2021)
SELECT unique_products_2020, unique_products_2021,
ROUND(((unique_products_2021-unique_products_2020)*100.0/unique_products_2020),2) AS percentage_chg
FROM
cte,cte2;
```



OUTPUT

	unique_products_2020	unique_products_2021	percentage_chg
▶	245	334	36.33

Percentage Change
36.33%



INSIGHTS

- The number of unique products grew from 245 in 2020 to 334 in 2021, marking a **36.33%** increase.
- This significant increase highlights the company's commitment to innovation and meeting diverse customer needs.

REQUEST- 3

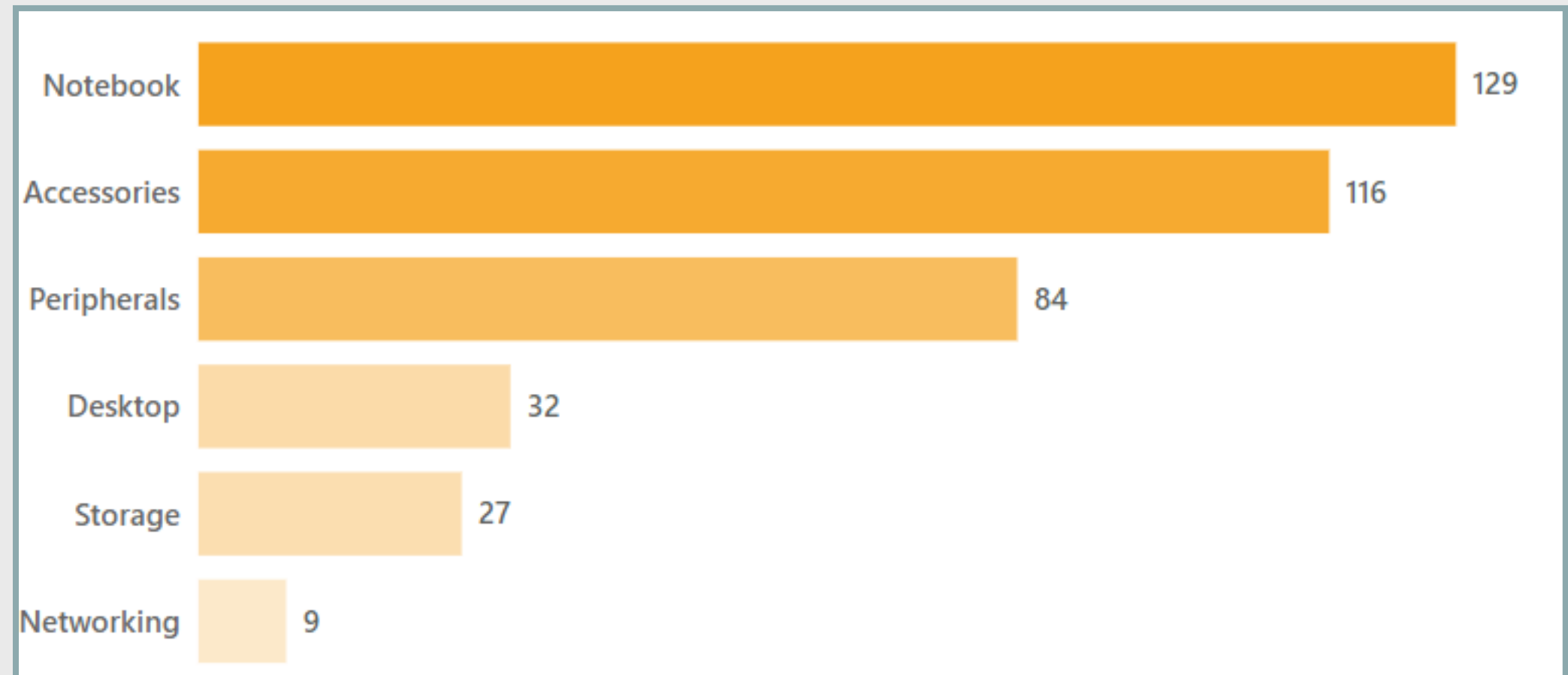
Provide a report with all the unique product counts for each segment and sort them in descending order of product counts. The final output contains 2 fields: segment & product_count

INPUT

```
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



INSIGHTS

- Notebooks, Accessories, and Peripherals constitute the core of AtliQ's product line, comprising a substantial **82.87%** of the product portfolio.
- Desktops, Storage, and Networking currently represent a smaller **17.13%** share.
- To optimize growth, AtliQ should prioritize product offerings within the dominant segment that resonate with current market trends.

REQUEST- 4

Follow-up: Which segment had the most increase in unique products in 2021 vs 2020? The final output contains these fields:

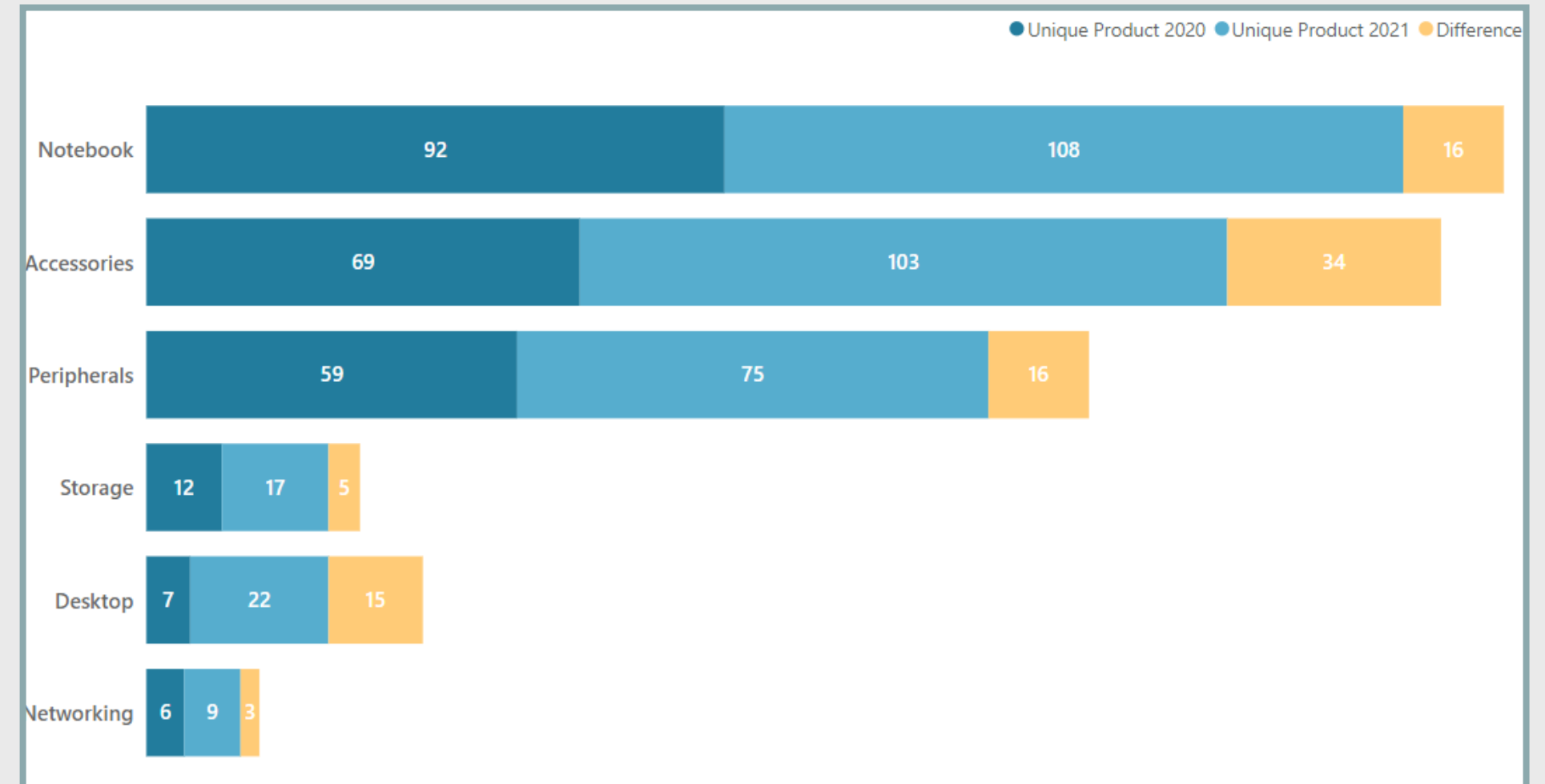
segment, product_count_2020, product_count_2021 & difference

INPUT

```
WITH x AS
(SELECT segment,
      COUNT(DISTINCT dp.product_code) AS product_count_2020
FROM dim_product dp
JOIN fact_sales_monthly fsm ON dp.product_code = fsm.product_code
WHERE fiscal_year = 2020
GROUP BY segment
ORDER BY product_count_2020 DESC),
y AS
(SELECT segment,
      COUNT(DISTINCT dp.product_code) AS product_count_2021
FROM dim_product dp
JOIN fact_sales_monthly fsm ON dp.product_code = fsm.product_code
WHERE fiscal_year = 2021
GROUP BY segment
ORDER BY product_count_2021 DESC)
SELECT x.segment, product_count_2020, product_count_2021, (product_count_2021-product_count_2020) AS difference
FROM x
JOIN y ON x.segment = y.segment;
```

OUTPUT

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



INSIGHTS

- Each division has seen an increase in the number of unique products from 2020 to 2021, indicating expansion and diversification in product offerings across all categories.
- Accessories have the most increased products from 2020 to 2021, with an increase of **34** new products.

REQUEST- 5

Get the products that have the highest and lowest manufacturing costs. The final output should contain these fields:

product_code, product & product manufacturing_cost

INPUT

```
(SELECT
    dp.product_code, dp.product, manufacturing_cost
FROM
    dim_product dp
    JOIN
        fact_manufacturing_cost fmc ON dp.product_code = fmc.product_code
ORDER BY manufacturing_cost DESC
LIMIT 1)
UNION
(SELECT
    dp.product_code, dp.product, manufacturing_cost
FROM
    dim_product dp
    JOIN
        fact_manufacturing_cost fmc ON dp.product_code = fmc.product_code
ORDER BY manufacturing_cost ASC
LIMIT 1);
```

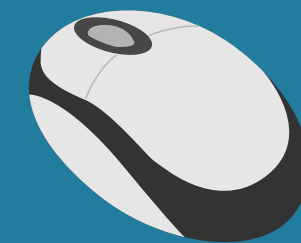
OUTPUT

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



AQ Home
Allin1 Gen2

Highest
Manufacturing
Cost Product



AQ Master
wired x1 Ms

Lowest
Manufacturing
Cost Product

INSIGHTS

- Personal Desktop: AQ Home Allin1 Gen2 (Variant: Plus3) has the **highest** manufacturing cost.
- Mouse: AQ Master wired x1 Ms (Variant: Standard1) has the **lowest** manufacturing cost.

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

INPUT

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

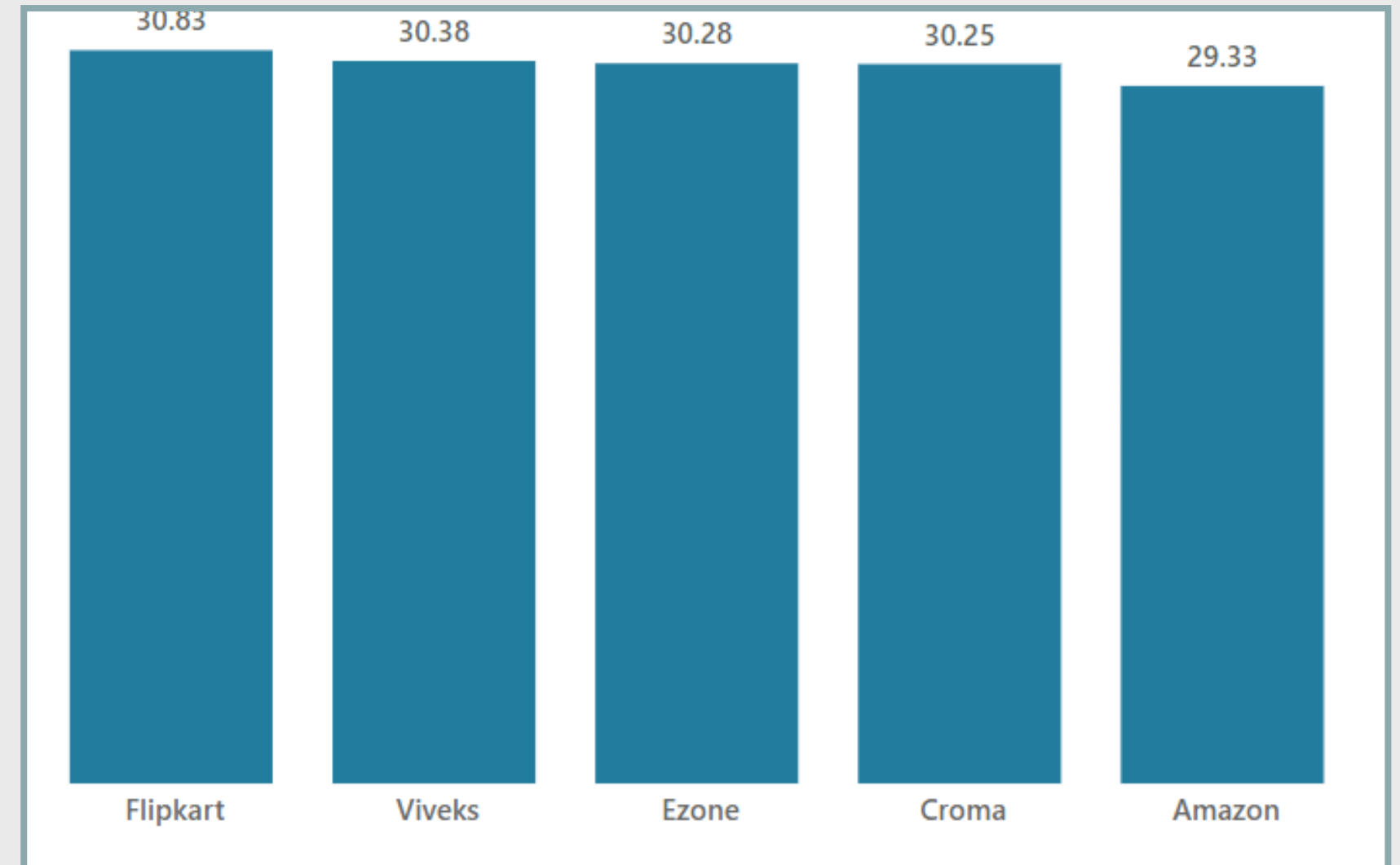
OUTPUT

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

INSIGHTS

- **Flipkart** is the most heavily discounted customer in the Indian market, with a pre-invoice discount percentage of **30.63%**
- The least average pre-invoice discount percentage of **29.33%** was given to **Amazon**.

Top 5 Indian customers with **highest** average percentage discount for **FY 2021**



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

INPUT

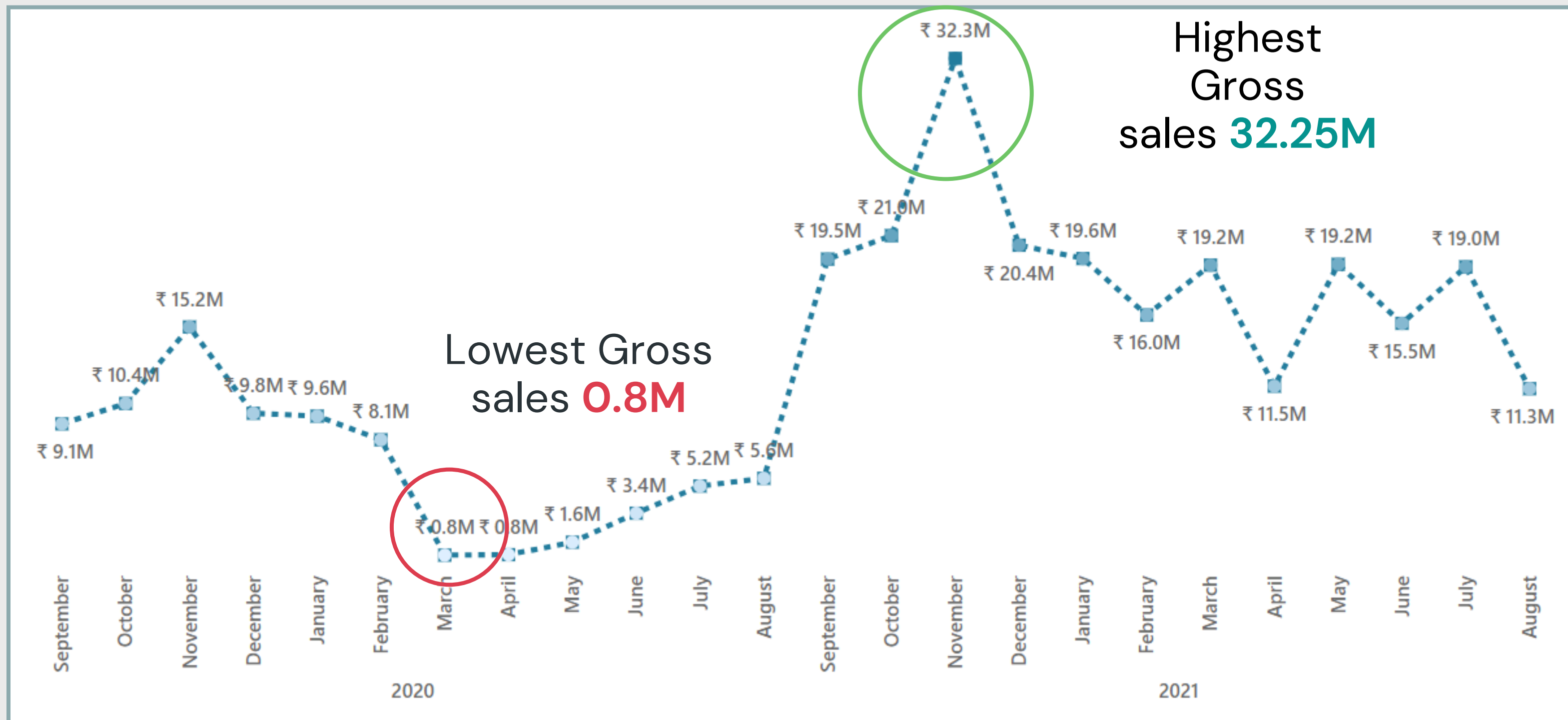
```
SELECT MONTHNAME(fsm.date) AS MONTH,
fsm.fiscal_year as YEAR,
CONCAT(FORMAT(SUM(fsm.sold_quantity*fgp.gross_price)/1000000,2),'M')
AS Gross_Sales_Amount
FROM fact_sales_monthly fsm
JOIN dim_customer c
ON fsm.customer_code = c.customer_code
JOIN fact_gross_price fgp
ON fsm.product_code = fgp.product_code
WHERE c.customer = 'Atliq Exclusive'
GROUP BY MONTH, YEAR
ORDER BY fsm.fiscal_year;
```

OUTPUT

INSIGHTS

- Atliq Exclusive saw the **highest** Gross sales in the month of **November 2021** and **lowest** sales in the month of **March & April 2020**

MONTH	YEAR	Gross_Sales_Amount
September	2020	9.09M
October	2020	10.38M
November	2020	15.23M
December	2020	9.76M
January	2020	9.58M
February	2020	8.08M
March	2020	0.77M
April	2020	0.80M
May	2020	1.59M
June	2020	3.43M
July	2020	5.15M
August	2020	5.64M
September	2021	19.53M
October	2021	21.02M
November	2021	32.25M
December	2021	20.41M
January	2021	19.57M
February	2021	15.99M
March	2021	19.15M
April	2021	11.48M
May	2021	19.20M
June	2021	15.46M
July	2021	19.04M
August	2021	11.32M



INSIGHTS

- The decline in sales between **March and August** can be attributed to the impact of COVID-19.
- However, it's encouraging to see that sales have steadily **climbed** since the pandemic and remain strong compared to 2020.

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

INPUT

```
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,
    ROUND(SUM(sold_quantity) / 1000000, 2) AS total_sold_quantity_in_mln
FROM
    fact_sales_monthly
WHERE
    fiscal_year = 2020
GROUP BY quarters
ORDER BY total_sold_quantity_in_mln DESC;
```

OUTPUT

Quarters	total_sold_quantity_in_mln
Q1	7.01
Q2	6.65
Q4	5.04
Q3	2.08

INSIGHTS

- **Q1** of FY 2020 marked the peak sales period, demonstrating exceptional performance at the start of the financial year.
- AtliQ encountered a significant decline in sales during **Q3** (March, April, May), possibly due to the COVID-19 pandemic, reflecting challenging market conditions and shifting consumer behavior.

Quarter 1 has the
maximum
total sold quantity



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

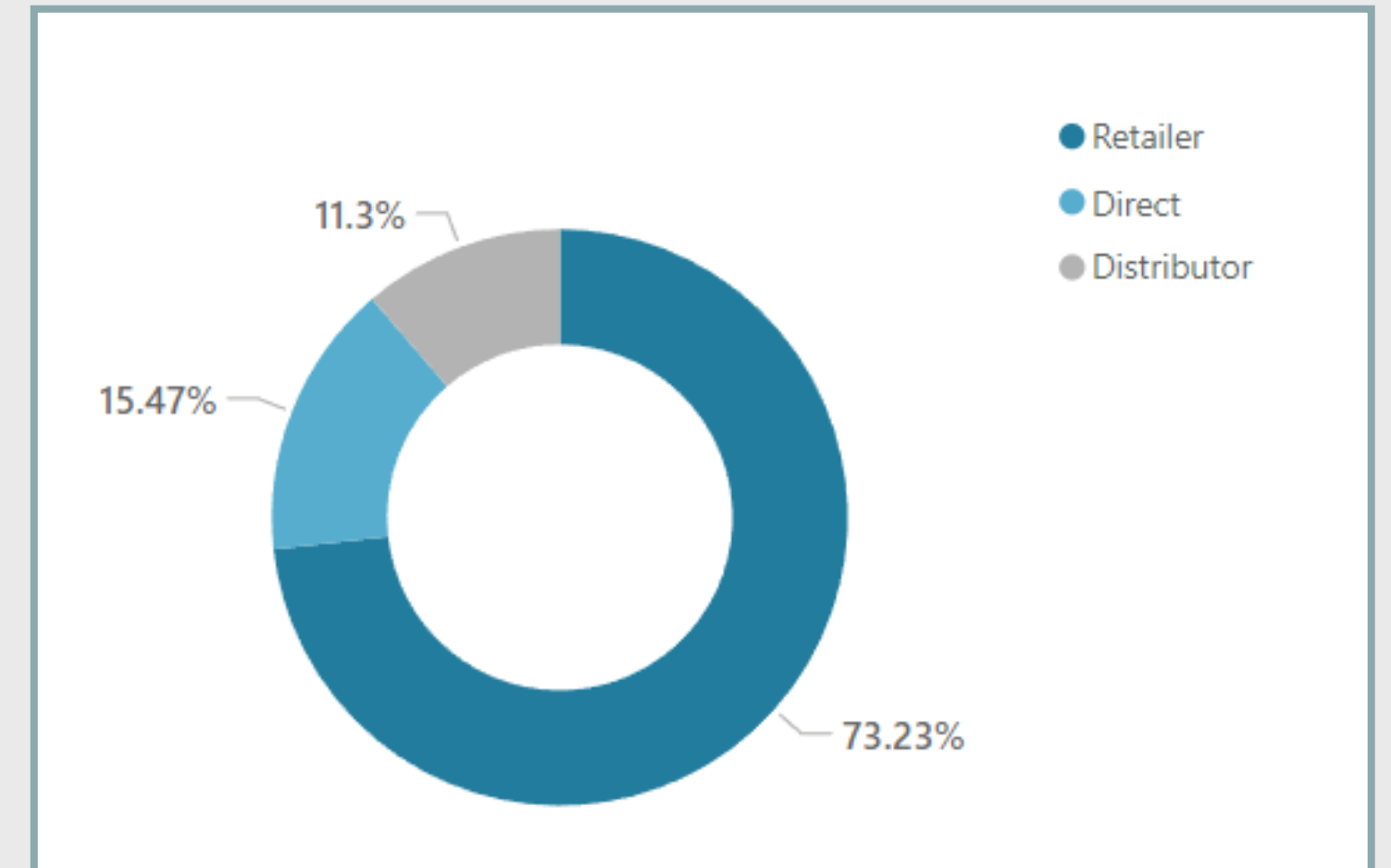
INPUT

```
WITH cte AS (  
    SELECT  
        channel,  
        ROUND(SUM(gross_price * sold_quantity) / 1000000, 2) AS gross_sales_mln  
    FROM  
        fact_sales_monthly s  
    JOIN  
        fact_gross_price g USING (product_code, fiscal_year)  
    JOIN  
        dim_customer c USING (customer_code)  
    WHERE  
        fiscal_year = 2021  
    GROUP BY  
        channel  
)  
SELECT  
    channel,  
    gross_sales_mln,  
    ROUND((gross_sales_mln * 100) / SUM(gross_sales_mln) OVER (), 2) AS pct  
FROM  
    cte  
ORDER BY  
    pct DESC;
```



OUTPUT

channel	gross_sales_mln	pct
Retailer	1219.08	73.23
Direct	257.53	15.47
Distributor	188.03	11.30



INSIGHTS

- Retailers account for **73.23%** of total sales which is the highest, indicating they are the primary sales channel for AtliQ Hardwares.
- Direct sales contribute **15.47%**, while distributor sales make up **11.3%** of the total sales.

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

INPUT

```
WITH cte1 AS (  
    SELECT p.division,  
           s.product_code,  
           CONCAT(p.product, " (", p.variant, ")") AS product,  
           SUM(s.sold_quantity) AS total_sold_qty,  
           ROW_NUMBER() OVER (PARTITION BY p.division ORDER BY SUM(s.sold_quantity) DESC) AS rank_order  
    FROM dim_product p  
    JOIN fact_sales_monthly s  
      ON p.product_code = s.product_code  
    WHERE s.fiscal_year = 2021  
    GROUP BY p.division, s.product_code, p.product, p.variant  
)  
SELECT division, product_code, product, total_sold_qty, rank_order  
FROM cte1  
WHERE rank_order IN (1, 2, 3)  
ORDER BY division, rank_order ASC;
```

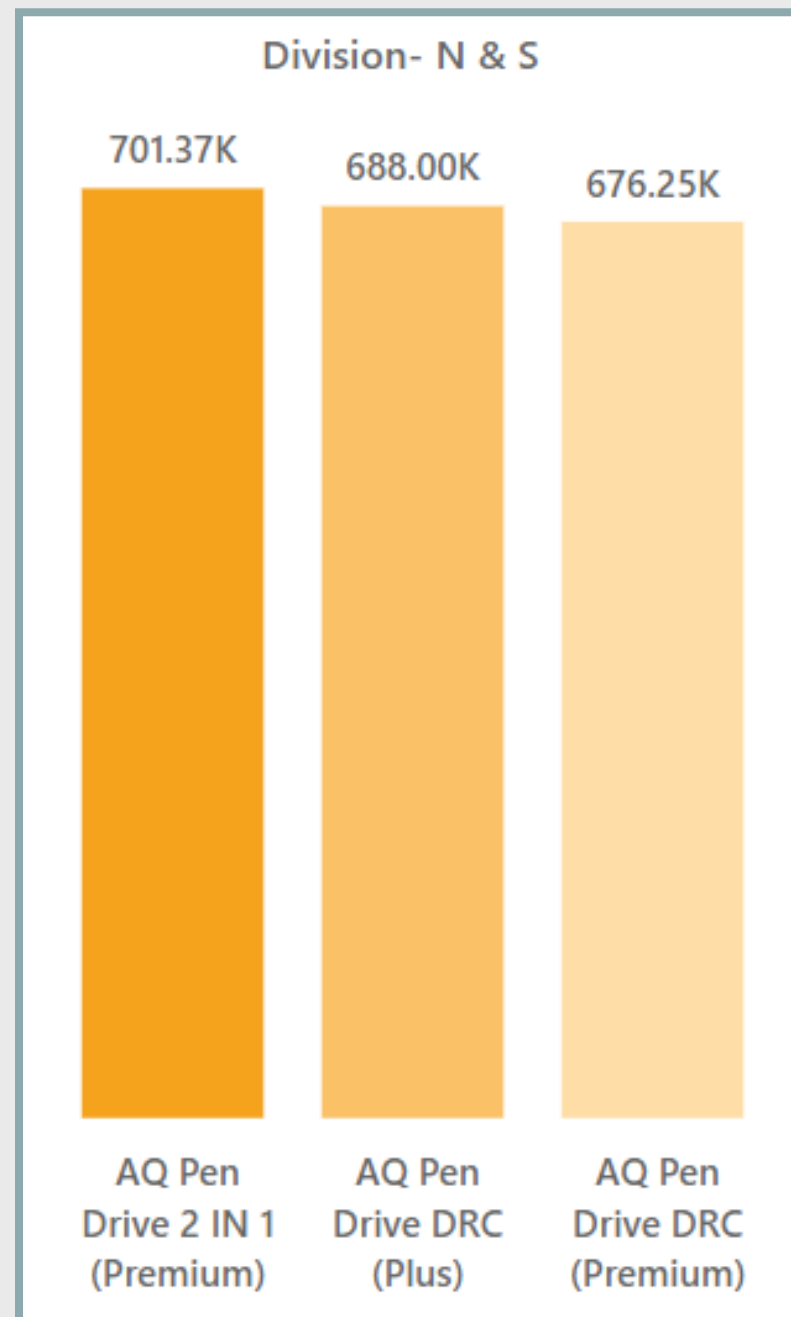


OUTPUT

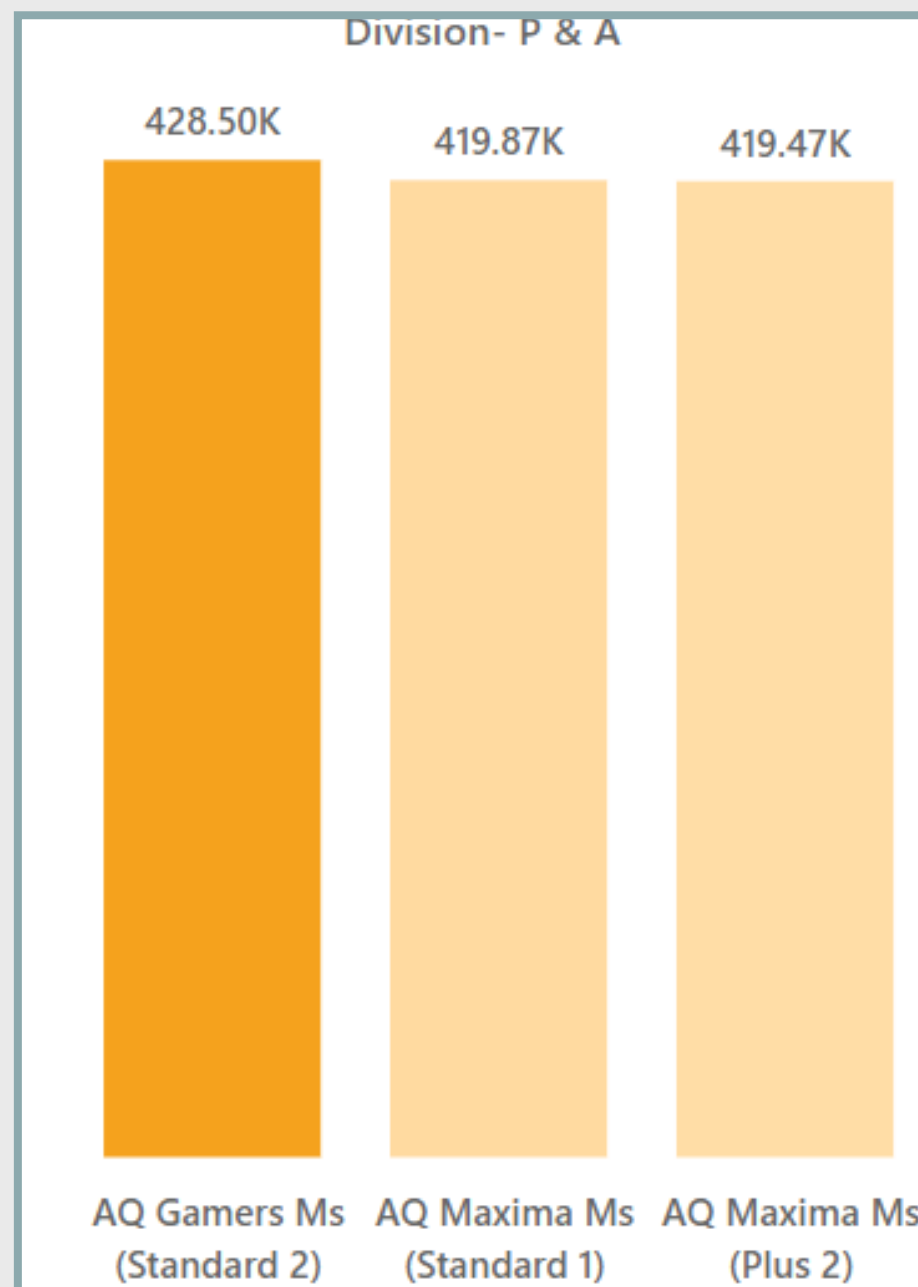
	division	product_code	product	total_sold_qty	rank_order
	N & S	A6720160103	AQ Pen Drive 2 IN 1 (Premium)	701373	1
	N & S	A6818160202	AQ Pen Drive DRC (Plus)	688003	2
	N & S	A6819160203	AQ Pen Drive DRC (Premium)	676245	3
	P & A	A2319150302	AQ Gamers Ms (Standard 2)	428498	1
	P & A	A2520150501	AQ Maxima 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

INSIGHTS

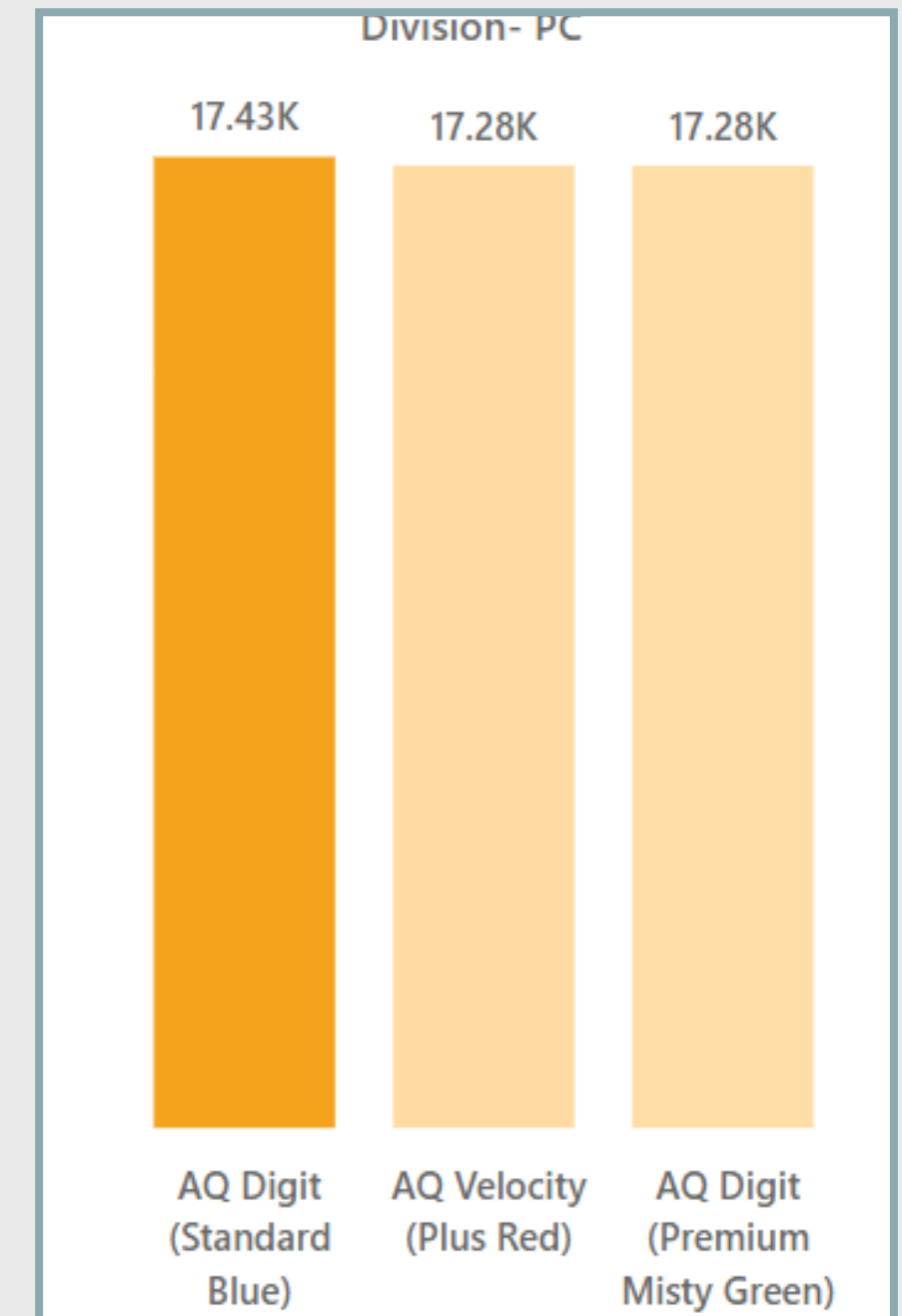
The **top 3** selling products in N&S division were **pen drives**, which were around **7 lakh** in quantity.



The **top 3** selling products in P&A division were **mouse**, which were around **4 lakh** in quantity.



The **top 3** selling products in PC were personal **laptops**, which were around **17000** in quantity.



RECOMMENDATIONS

- Concentrate on expanding product lines within Notebooks, Accessories, and Peripherals, which comprise a significant portion of the product portfolio.
- Since retailers account for the majority of sales, it is crucial to maintain and enhance relationships with retail partners.
- Increase direct sales efforts to capture a larger market share, focusing on customer experience and personalized service.
- Conduct regular market analysis to stay informed about changing market conditions and consumer behavior.
- Adjust marketing strategies based on insights gained from market analysis to remain competitive and responsive to customer needs.
- Implement targeted marketing and promotional campaigns during high-performing months to maximize sales.
- Strengthen the supply chain to ensure stability and reliability during unforeseen events.
- Continuously review and optimize manufacturing costs to maintain competitive pricing without compromising quality.

The background features four decorative geometric patterns in the corners. Top-left: A series of parallel diagonal lines in a light teal color, with a larger teal arc intersecting them. Top-right: A cluster of overlapping semi-circles in teal, orange, and red. Bottom-left: A cluster of overlapping semi-circles in red, teal, and dark teal. Bottom-right: A series of parallel diagonal lines in a light teal color, with a larger teal arc intersecting them.

THANK YOU!