



AtliQ Hardware

Consumer Goods Ad-Hoc Insights



Presented by -
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◆ Agenda ◆

- ➔ About Company
- ➔ Problem Statement
- ➔ Objective
- ➔ Datasets and Modeling
- ➔ Ad-Hoc Requests and Insights

About Company

Atliq Hardware (imaginary company) is one of the leading computer hardware producers in India and well expanded in other countries too. The company specializes in producing high-quality hardware components and devices, catering to both consumer and enterprise needs.



Problem Statement

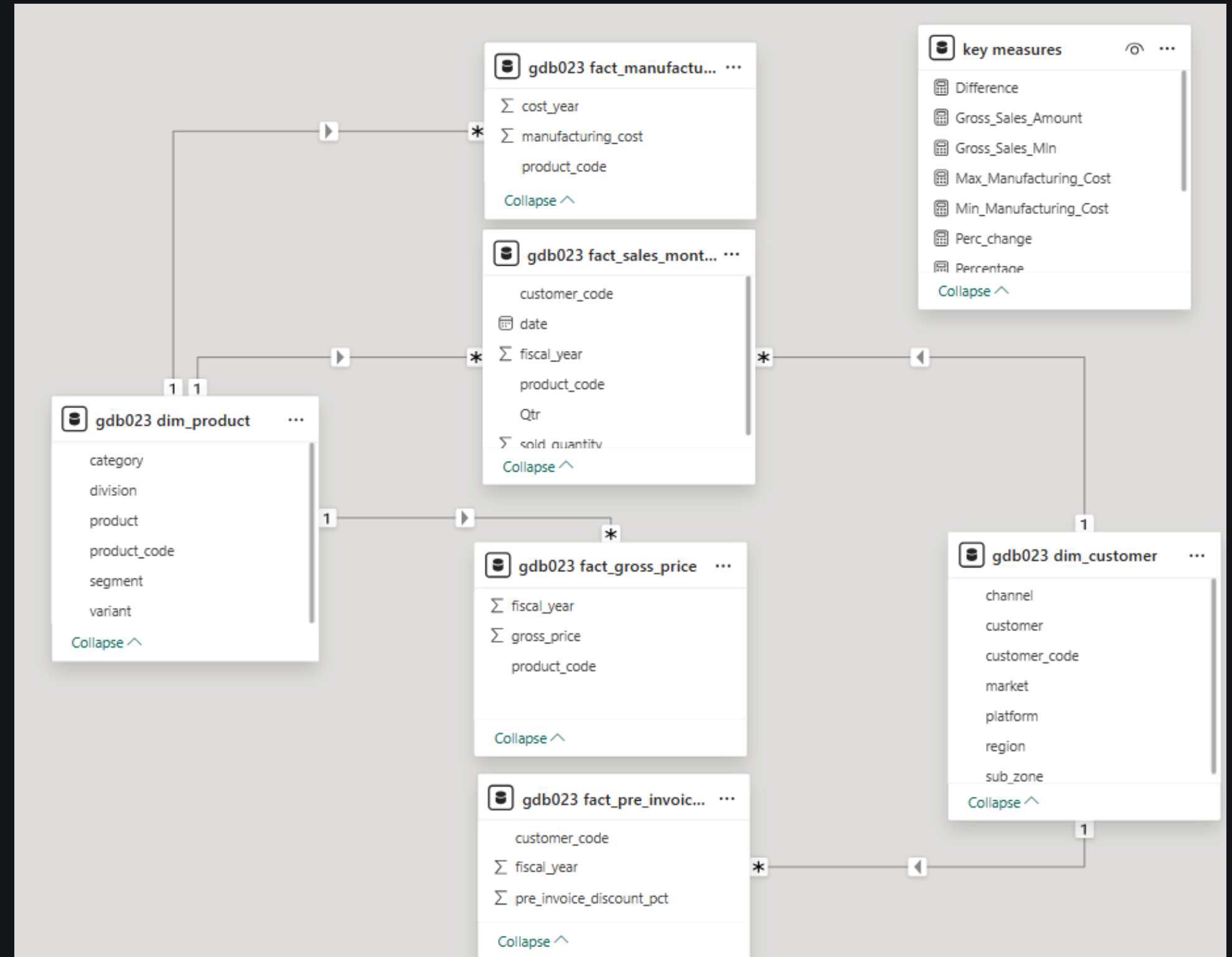
- The management noticed that they **do not get enough insights** to make **quick and smart data-informed** decisions.
- They want to expand their data analytics team by adding several junior data analysts.
- Tony Sharma, their data analytics director wanted to hire someone who is good at both tech and soft skills.

Objective

- To address **10 ad-hoc business requests** outlined in ad-hoc-requests.pdf by executing SQL queries to extract relevant data and generate actionable insights.
- The findings will be presented in a **dashboard** tailored for **top-level management**, to support data-driven decision-making effectively.

Datasets and Modeling

1. gdb023 dim_customer
2. gdb023 dim_product
3. gdb023 fact_gross_price
4. gdb023 fact_manufacturing_cost
5. gdb023 fact_pre_invoice_deductions
6. gdb023 fact_sales_monthly



Ad-Hoc Requests



Codebasics SQL Challenge

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

codebasics.io



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

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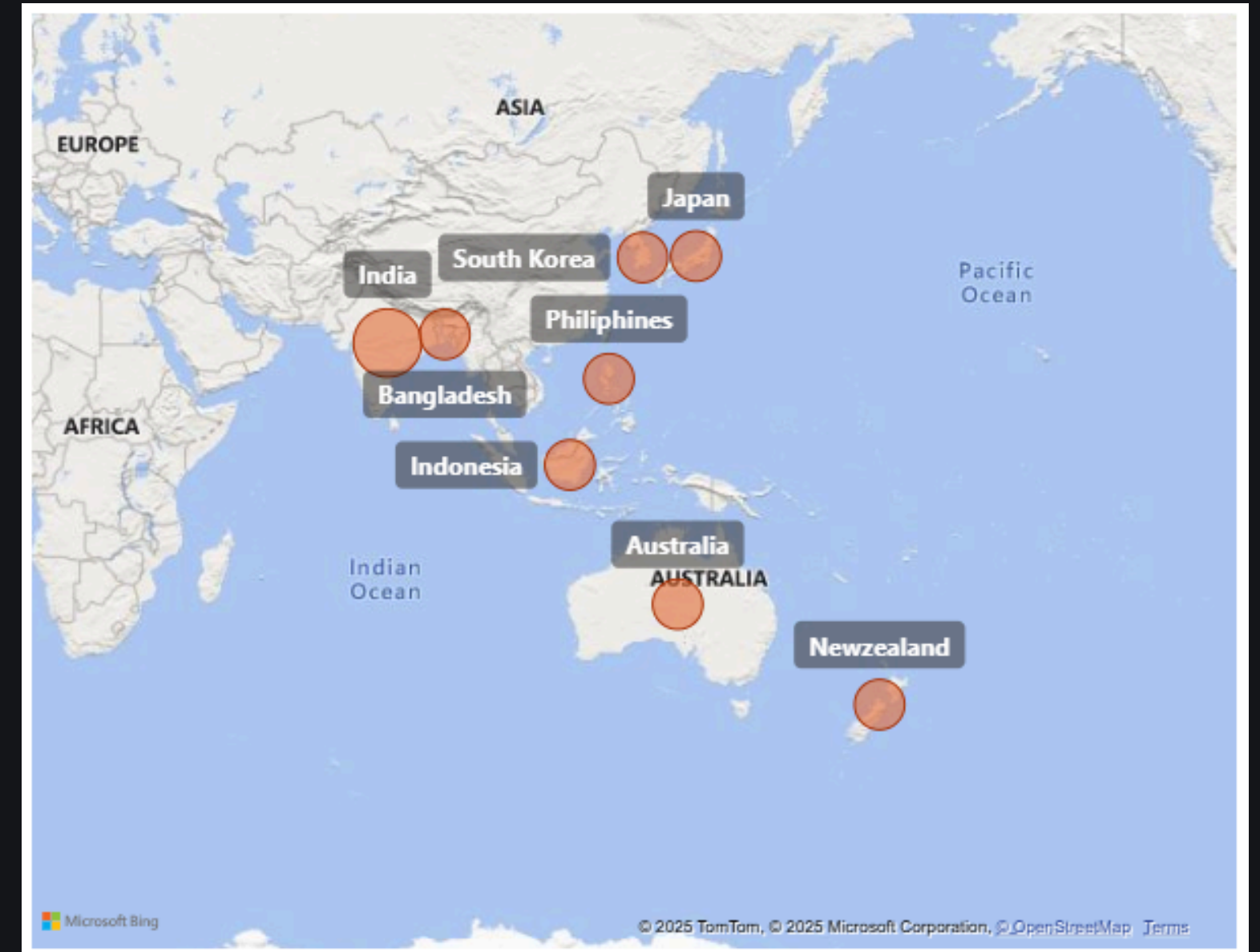
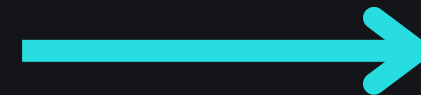
1. Provide the list of markets in which customer "Atliq Exclusive" operates its business in the APAC region.

SQL Query:

```
SELECT DISTINCT(market) FROM dim_customer  
WHERE customer = "Atliq Exclusive" AND region = "APAC";
```

Output:

	market
▶	India
	Indonesia
	Japan
	Philippines
	South Korea
	Australia
	Newzealand
	Bangladesh



Insight:

Atliq Exclusive has a strong presence in 8 markets across the APAC region, including India, Indonesia, Japan, Philippines, South Korea, Australia, New Zealand, and Bangladesh.

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,

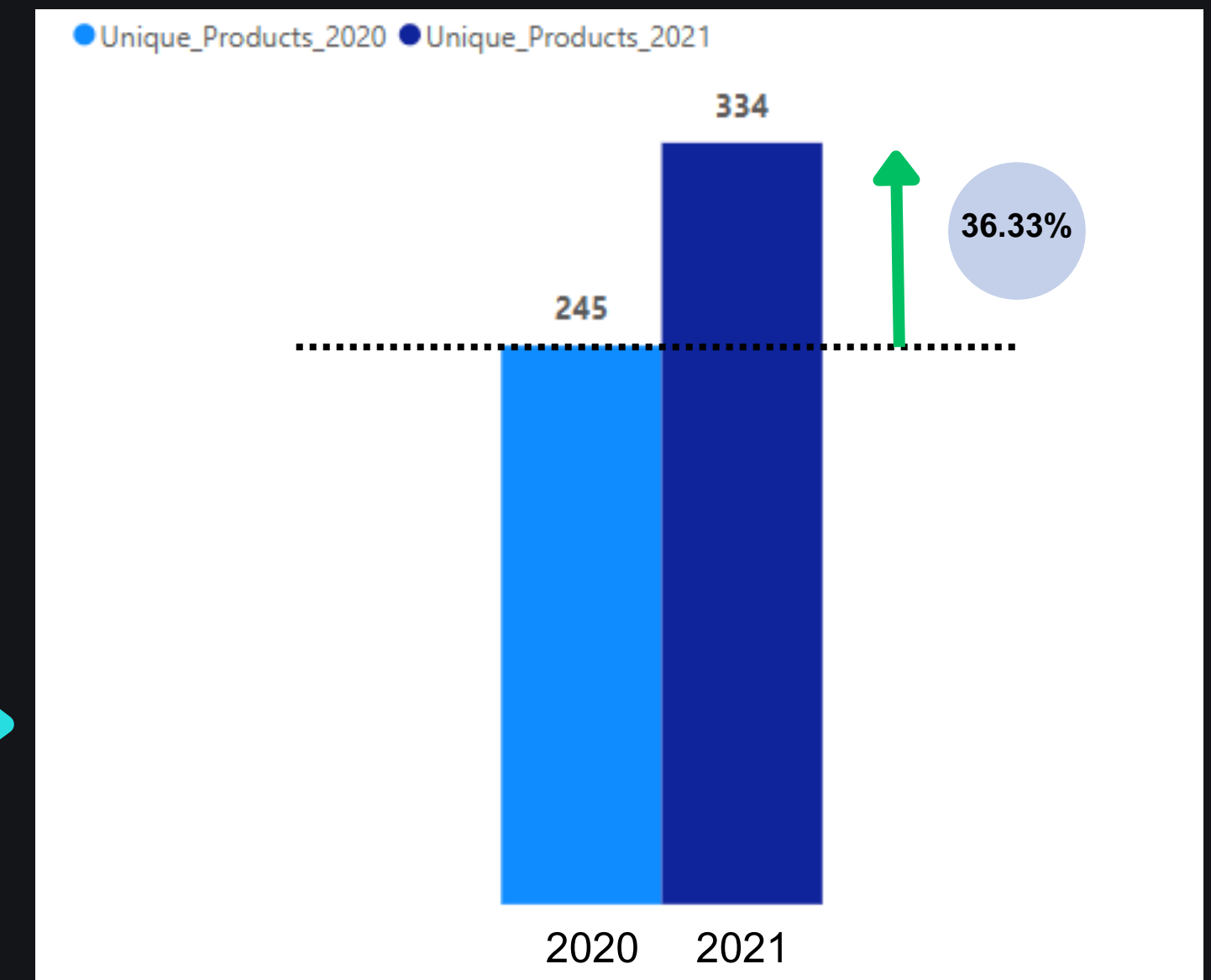
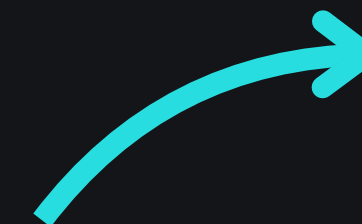
percentage_chg

SQL Query:

```
WITH Unique_Products AS (  
  SELECT  
    COUNT(DISTINCT CASE WHEN fiscal_year = 2020 THEN product_code END) AS unique_products_2020,  
    COUNT(DISTINCT CASE WHEN fiscal_year = 2021 THEN product_code END) AS unique_products_2021  
  FROM fact_sales_monthly  
)  
SELECT  
  unique_products_2020,  
  unique_products_2021,  
  round(((unique_products_2021 - unique_products_2020) * 100 / NULLIF(unique_products_2020, 0)), 2) AS percentage_chg  
FROM Unique_Products;
```

Output:

	unique_products_2020	unique_products_2021	percentage_chg
▶	245	334	36.33



Insight:

The number of unique products increased from 245 in 2020 to 334 in 2021, showing a 36.33% growth, with 89 new products introduced in the fiscal year 2021.

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,

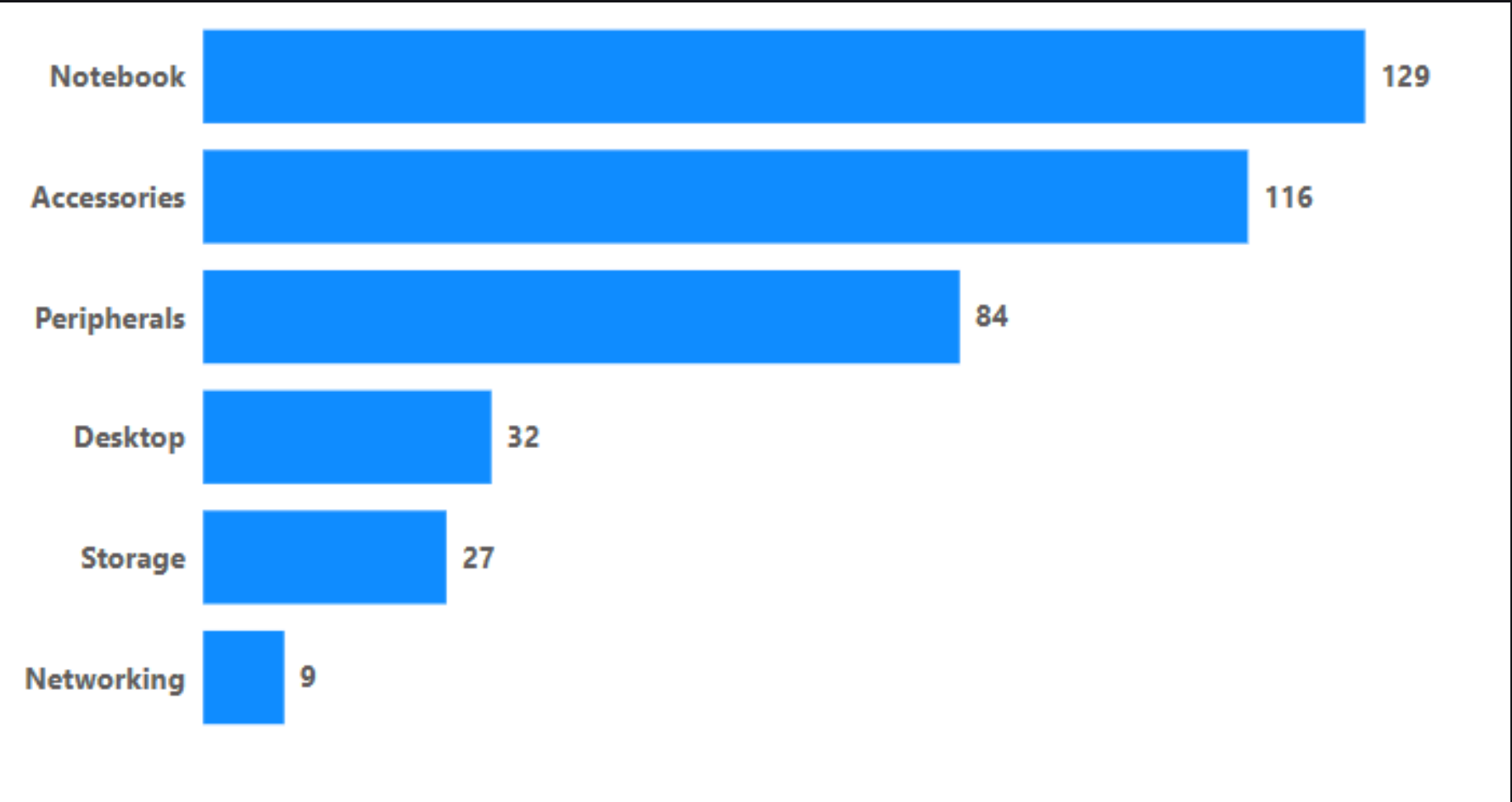
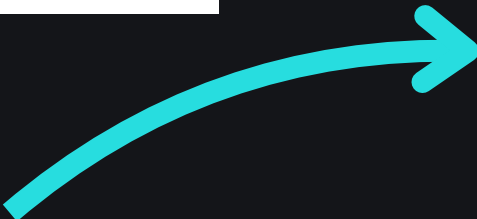
segment,
product_count

SQL Query:

```
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



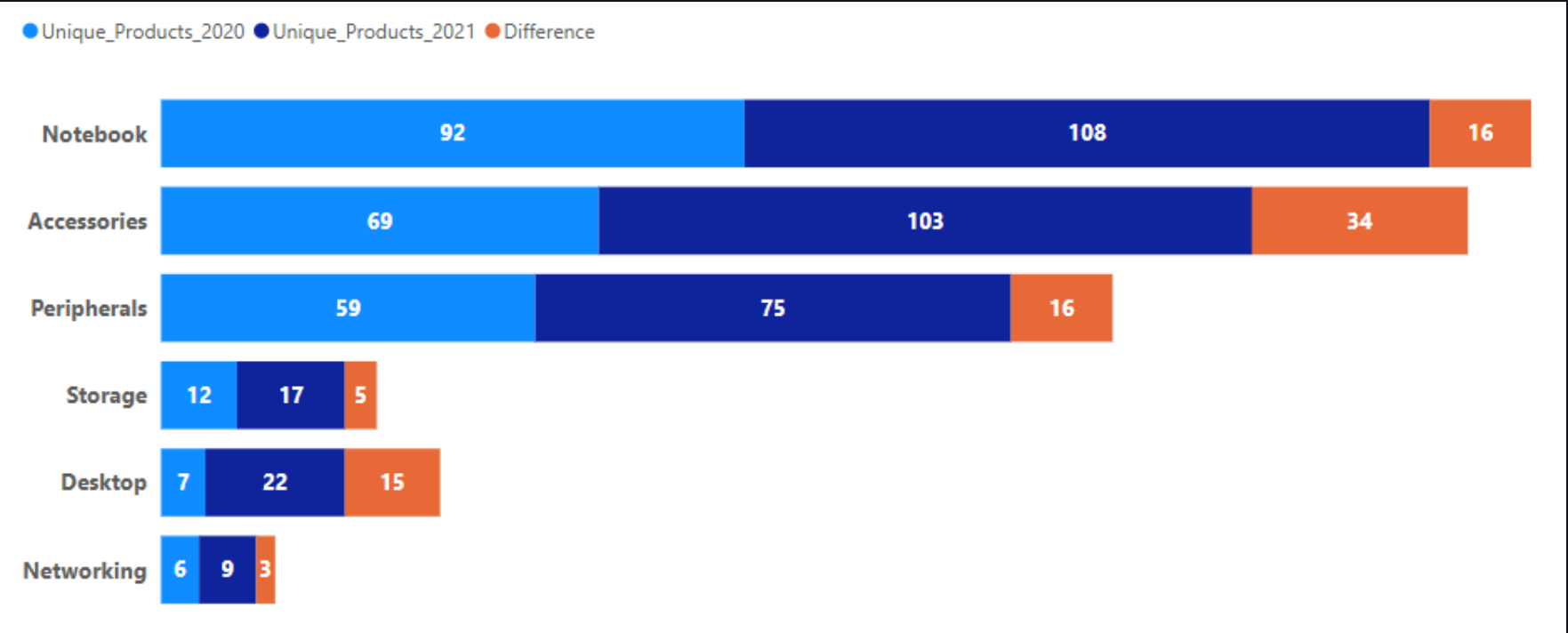
Insights:

- The Notebook segment has the highest number of unique products (129), followed by Accessories (116) and Peripherals (84), while Networking lags behind with just 9.
- These insights highlight key product trends, helping optimize inventory management and sales strategies for better market positioning.

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

SQL Query:

```
WITH Unique_Products_by_Segment AS (  
  SELECT  
    p.segment,  
    COUNT(DISTINCT CASE WHEN fiscal_year = 2020 THEN s.product_code END) AS product_count_2020,  
    COUNT(DISTINCT CASE WHEN fiscal_year = 2021 THEN s.product_code END) AS product_count_2021  
  FROM fact_sales_monthly s  
  JOIN dim_product p  
  ON p.product_code = s.product_code  
  GROUP BY p.segment  
)  
SELECT  
  segment,  
  product_count_2020,  
  product_count_2021,  
  ABS(product_count_2021 - product_count_2020) AS difference  
FROM Unique_Products_by_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

Insight:

The Accessories segment saw the highest growth, adding 34 new unique products from 2020 to 2021. Notebook (16) and Peripherals (16) followed, while Networking had the least change, increasing by just 3 products.

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

- product_code,
- product,
- manufacturing_cost

SQL Query:

```
SELECT
    p.product_code,
    p.product,
    m.manufacturing_cost
FROM fact_manufacturing_cost m
JOIN dim_product p
    ON m.product_code = p.product_code
WHERE m.manufacturing_cost IN (
    (SELECT MAX(manufacturing_cost) FROM fact_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

Highest manufacturing cost



AQ HOME Allin 1 Gen 2
(A6120110206)

\$ 240.54

Lowest manufacturing cost



AQ Master wired x1 Ms
(A2118150101)

\$ 0.89

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,

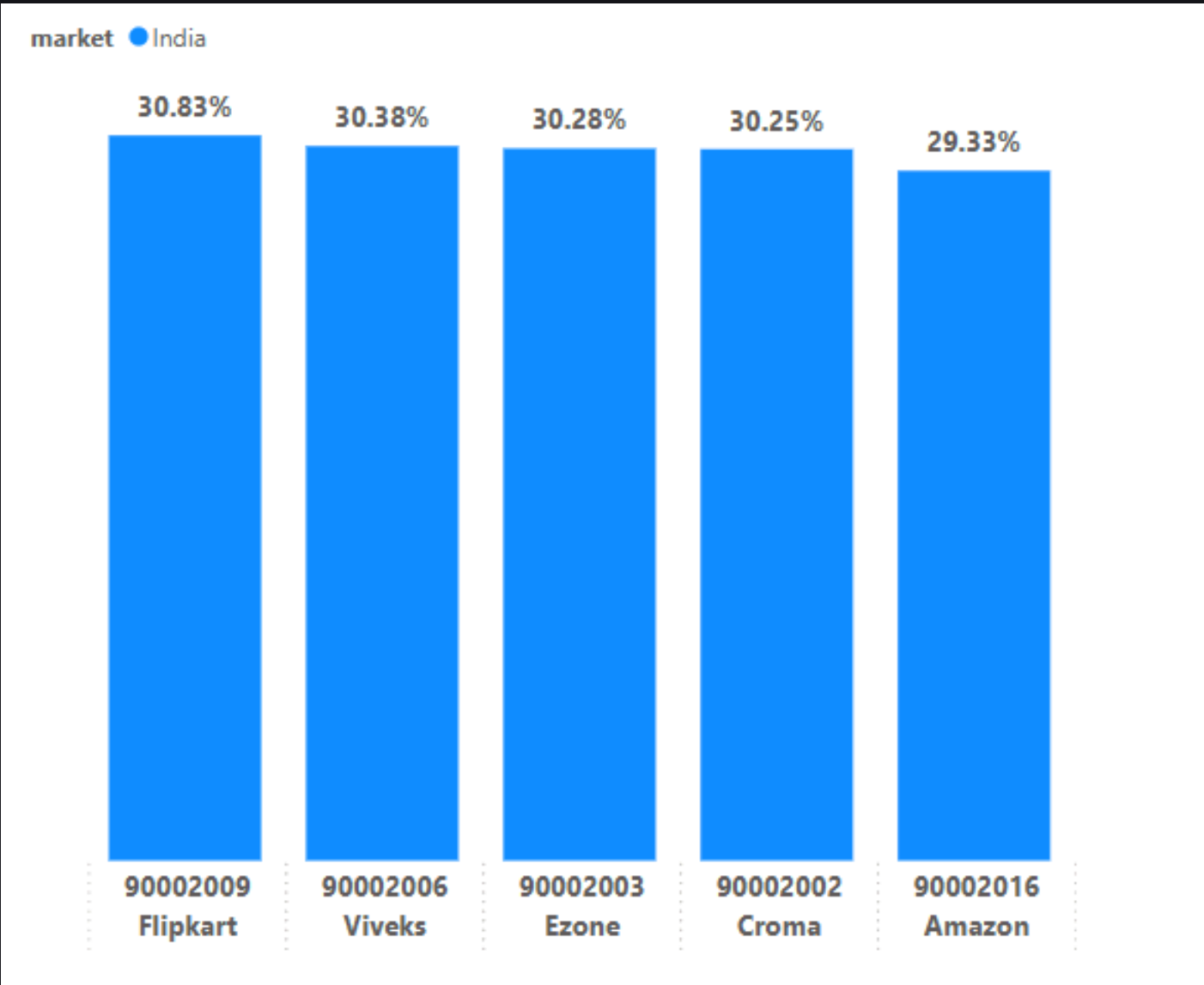
customer_code,
customer,
average_discount_percentage

SQL Query:

```
SELECT
    c.customer_code,
    c.customer,
    ROUND(AVG(i.pre_invoice_discount_pct * 100), 2) AS average_discount_percentage
FROM fact_pre_invoice_deductions i
JOIN dim_customer c
ON i.customer_code = c.customer_code
WHERE i.fiscal_year = 2021 AND c.market = "India"
GROUP BY c.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



Insight:
Flipkart received the highest average pre-invoice discount (30.83%) in the Indian market for 2021, closely followed by Viveks (30.38%) and Ezone (30.28%). These insights help identify key customers receiving high discounts, impacting pricing and profitability strategies.

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

Output:

SQL Query:

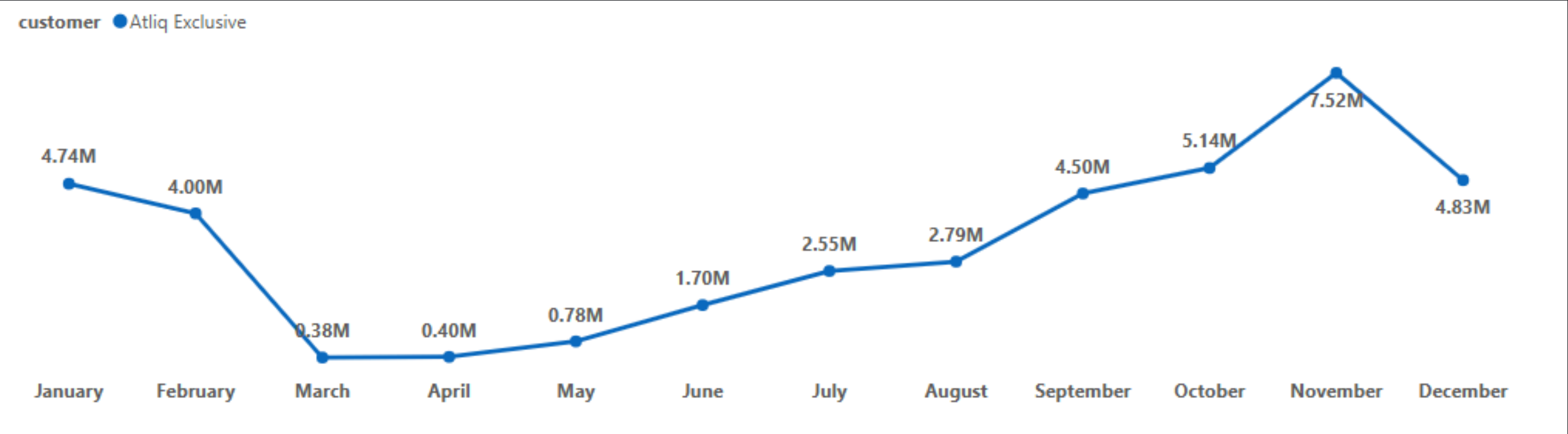
```
SELECT
    DATE_FORMAT(s.date, '%M') AS month,
    s.fiscal_year AS year,
    CONCAT(ROUND(SUM(g.gross_price * s.sold_quantity) / 1000000, 2), "M") AS gross_sales_mln
FROM fact_sales_monthly s
JOIN dim_customer c
ON s.customer_code = c.customer_code
JOIN fact_gross_price g
ON s.product_code = g.product_code AND g.fiscal_year = s.fiscal_year
WHERE customer = "Atliq Exclusive"
GROUP BY month, year
ORDER BY year ASC;
```

Insights:

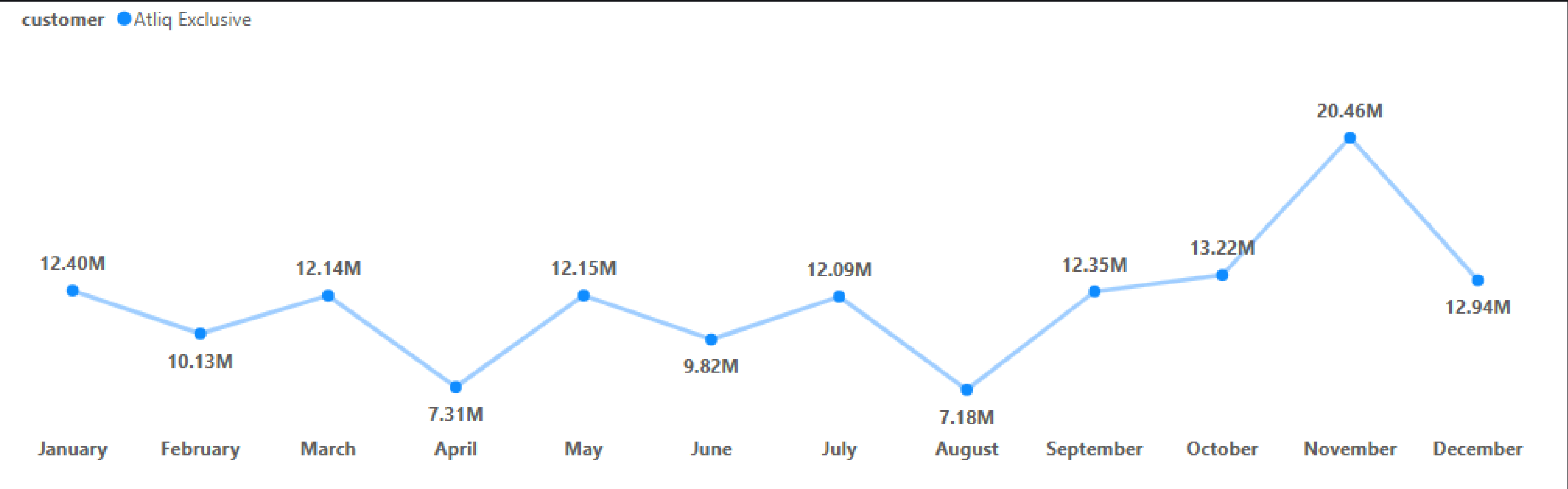
- In 2021, gross sales for "Atliq Exclusive" saw a substantial increase compared to 2020.
- The highest sales month in 2021 was November (20.46M), nearly 3 times higher than November 2020 (7.52M).
- This trend highlights seasonal demand variations and helps optimize sales strategies for peak months.

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

FY 2020



FY 2021



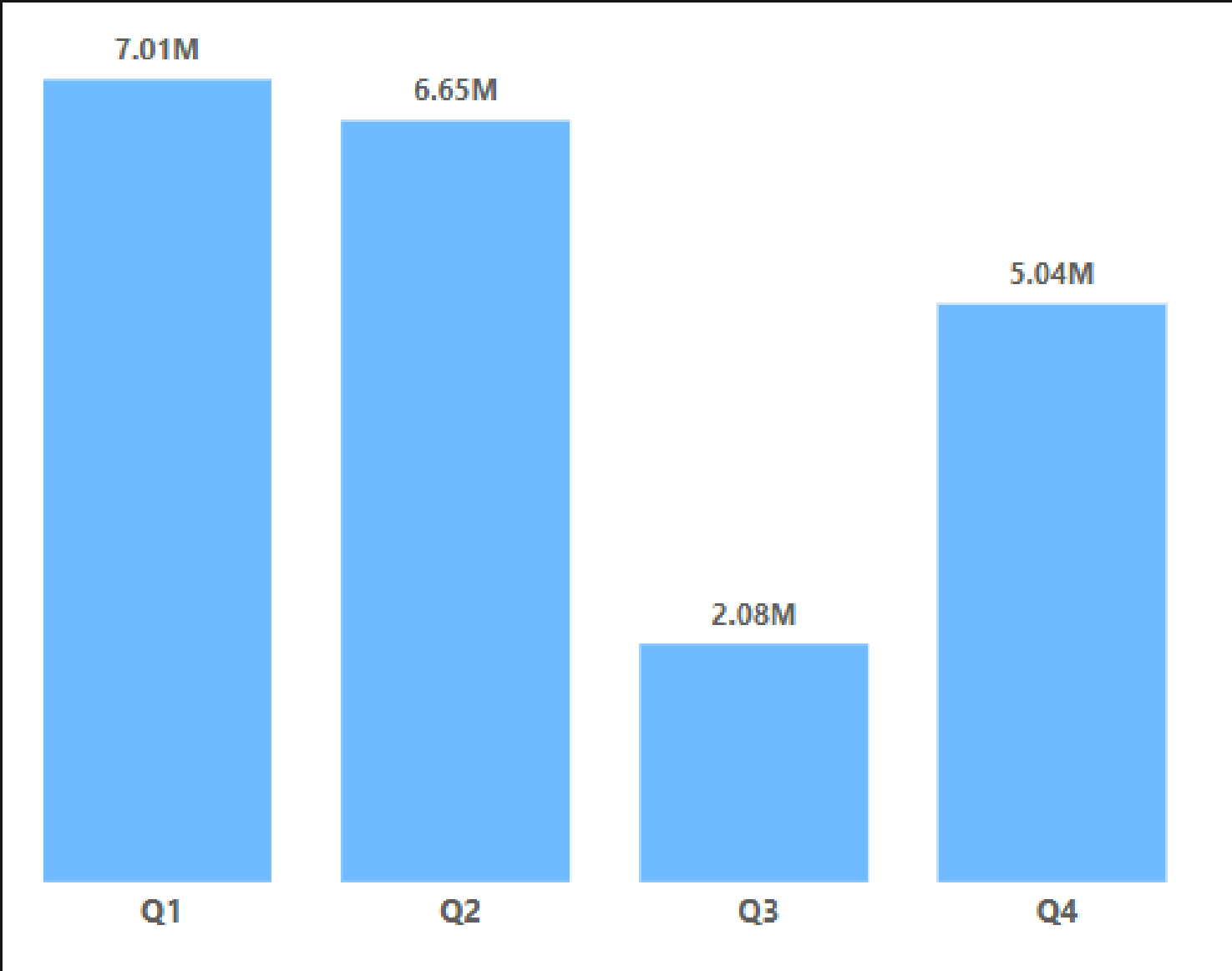
8. In which quarter of 2020, got the maximum total_sold_quantity? The final output contains these fields sorted by the total_sold_quantity, Quarter, total_sold_quantity

SQL Query:

```
WITH quarterly_sales AS (  
  SELECT  
    CASE  
      WHEN month(s.date) IN (9, 10, 11) THEN 'Q1'  
      WHEN month(s.date) IN (12, 1, 2) THEN 'Q2'  
      WHEN month(s.date) IN (3, 4, 5) THEN 'Q3'  
      WHEN month(s.date) IN (6, 7, 8) THEN 'Q4'  
    END AS quarter,  
    SUM(s.sold_quantity) AS total_sold_quantity  
  FROM fact_sales_monthly s  
  WHERE s.fiscal_year = 2020  
  GROUP BY quarter  
)  
SELECT  
  quarter,  
  total_sold_quantity  
FROM quarterly_sales  
ORDER BY total_sold_quantity DESC;
```

Output:

	quarter	total_sold_quantity
►	Q1	7005619
	Q2	6649642
	Q4	5042541
	Q3	2075087



Insights:

- In 2020, Q1 recorded the highest total sold quantity (7.01M), followed by Q2 (6.65M).
- Sales dropped significantly in Q3 (2.08M) but recovered in Q4 (5.04M).
- Sales declined in Q3 (2.08M) due to the impact of COVID-19 pandemic and market slowdowns.

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,

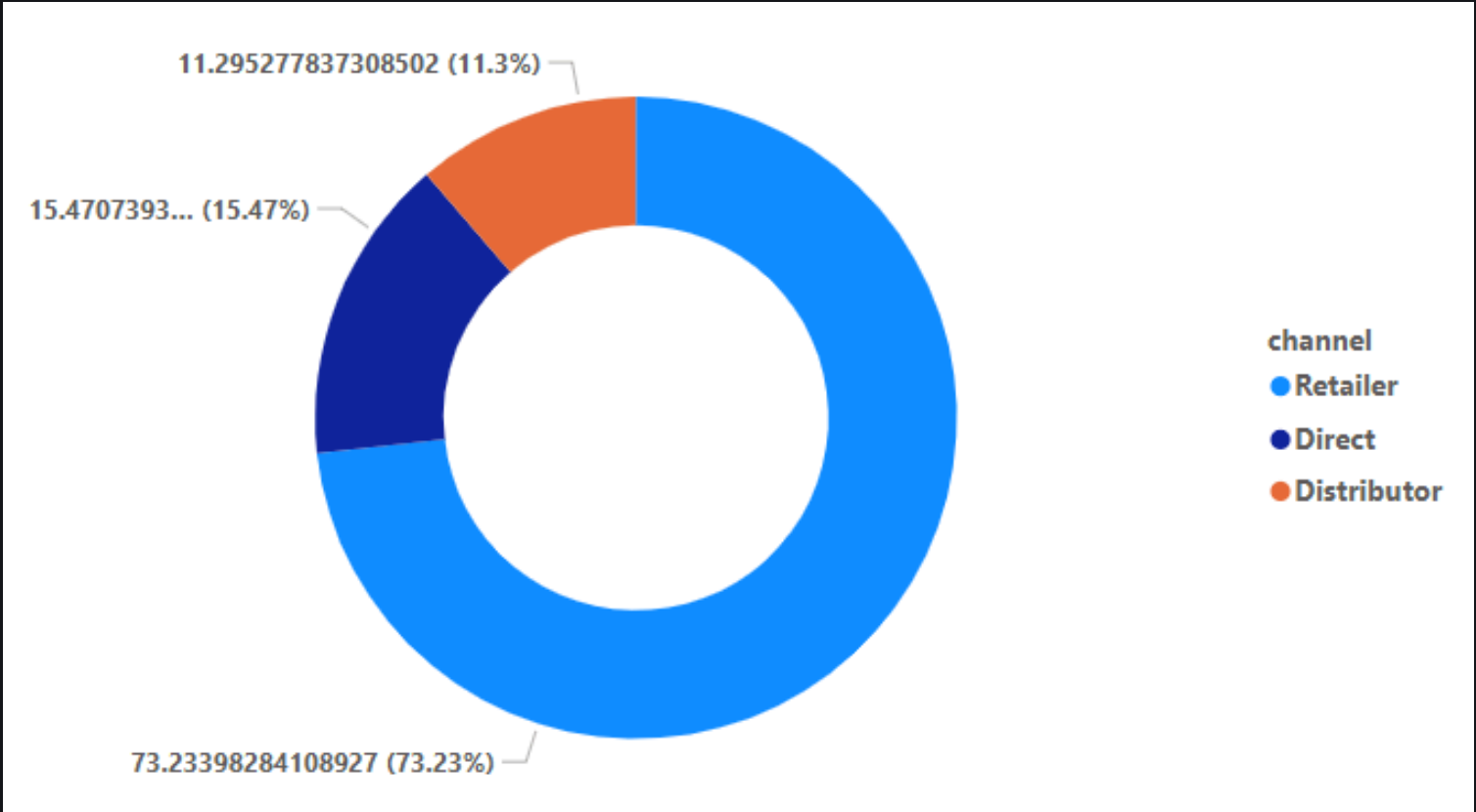
- channel,
- gross_sales_mln,
- percentage

SQL Query:

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

Output:

	channel	gross_sales_mln	pct_contribution
►	Retailer	1219.08	73.23
	Direct	257.53	15.47
	Distributor	188.03	11.30



Insights:

- Retailers led gross sales with 73.23%, while Direct (15.47%) and Distributor (11.30%) had significantly lower contributions.
- Optimizing retail-focused strategies can further boost revenue and market reach.

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

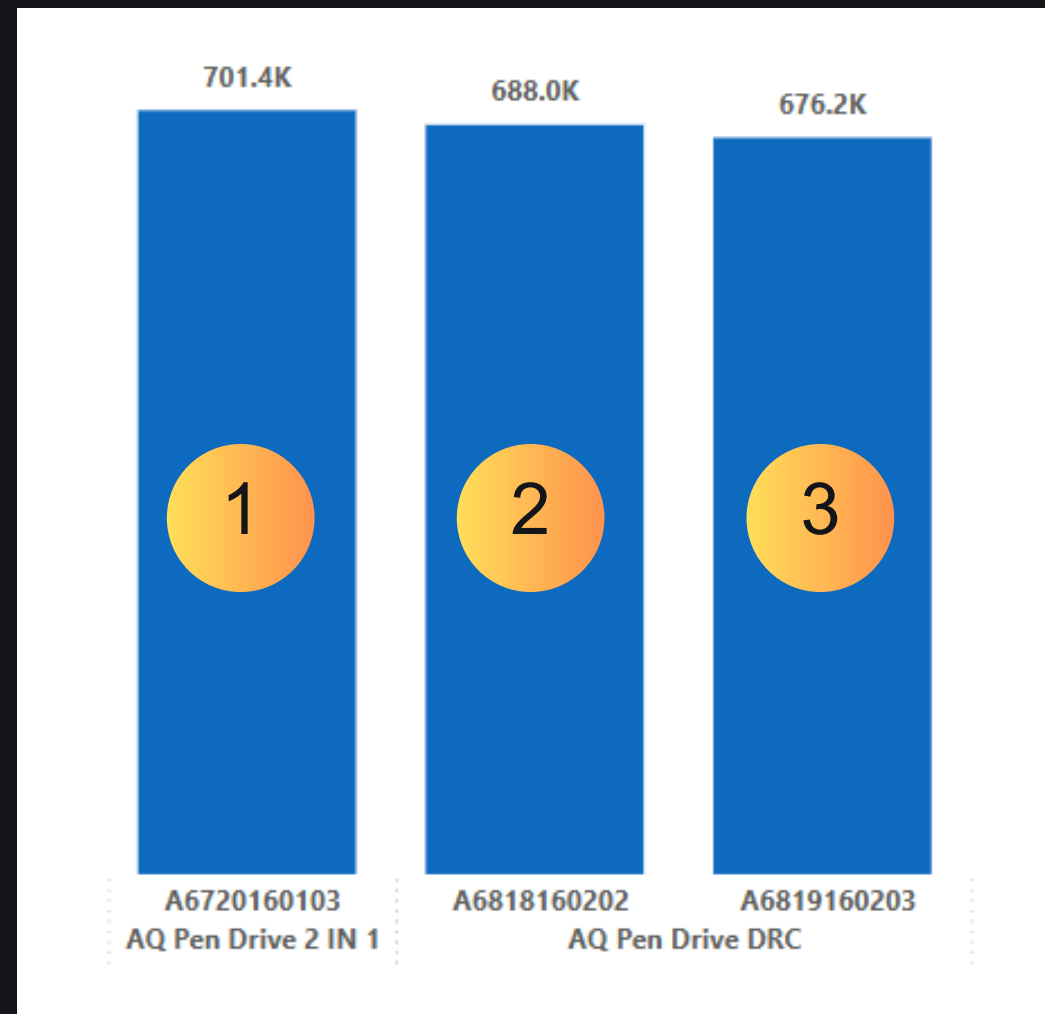
SQL Query:

```
WITH product_sales AS (  
    SELECT  
        p.division,  
        s.product_code,  
        p.product,  
        SUM(s.sold_quantity) AS total_sold_quantity,  
        RANK() OVER (PARTITION BY p.division ORDER BY SUM(s.sold_quantity) DESC) AS rank_order  
    FROM fact_sales_monthly s  
    JOIN dim_product p ON s.product_code = p.product_code  
    WHERE s.fiscal_year = 2021  
    GROUP BY p.division, s.product_code, p.product  
)  
SELECT  
    division,  
    product_code,  
    product,  
    total_sold_quantity,  
    rank_order  
FROM product_sales  
WHERE rank_order <= 3  
ORDER BY division, rank_order;
```

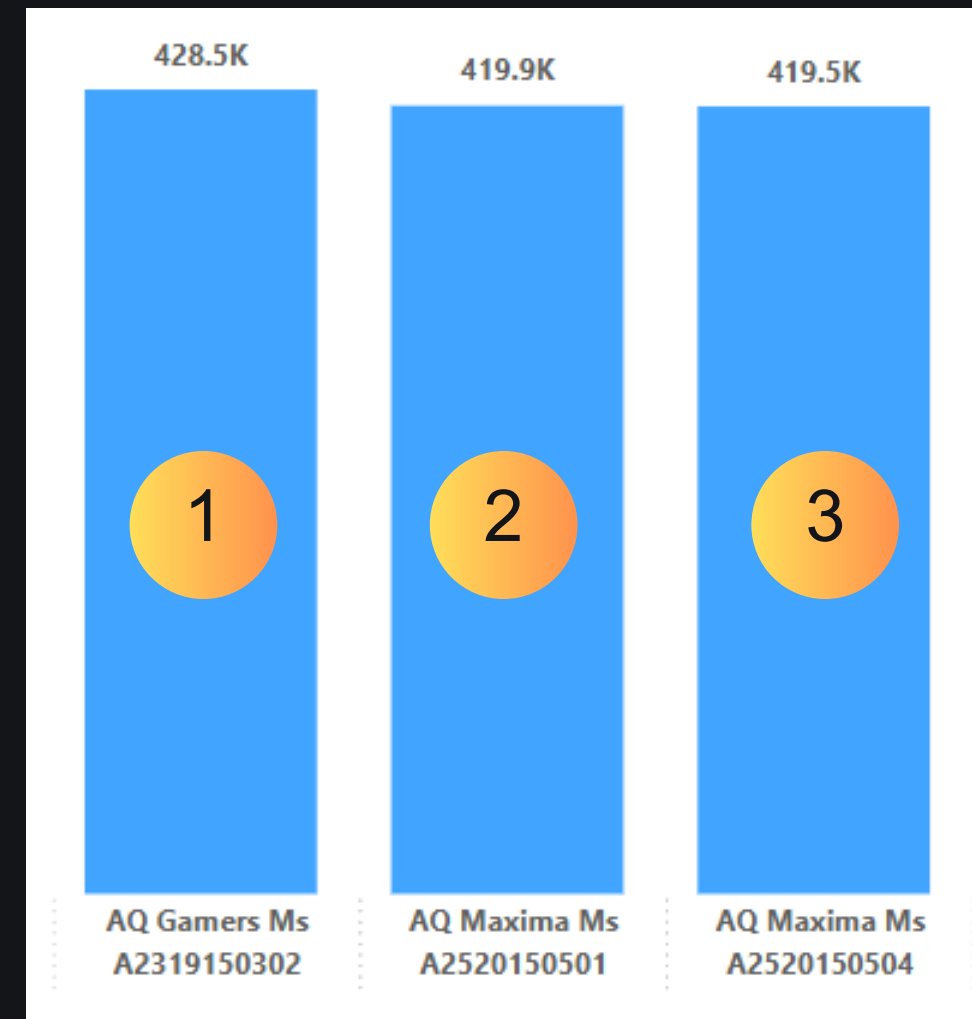
Output:

	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

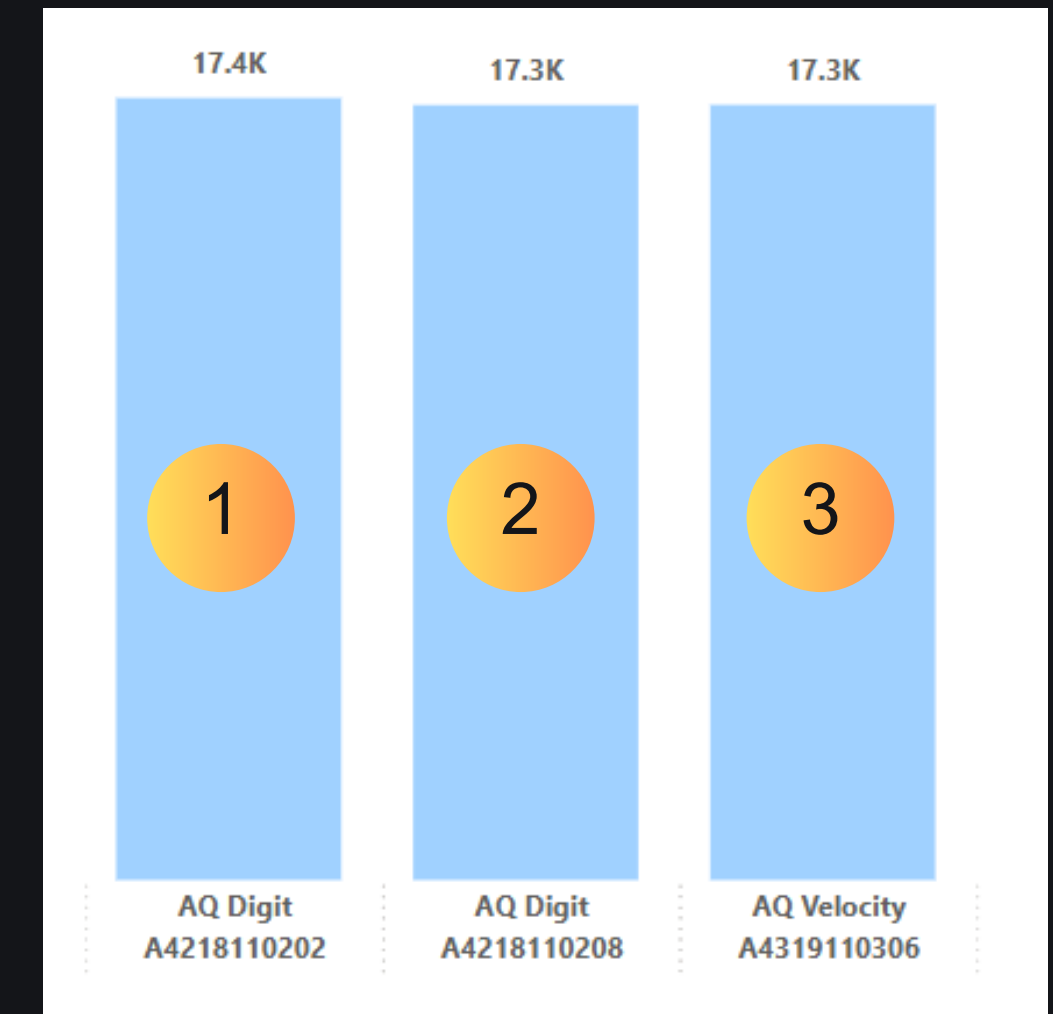
N & S



P & A



PC



Insights:

- **N & S Division:** "AQ Pen Drive 2 IN 1" leads with 701.4K units sold, highlighting strong demand for storage devices.
- **P & A Division:** "AQ Gamers Ms" tops with 428.5K units, indicating high interest in gaming accessories.
- **PC Division:** "AQ Digit" and "AQ Velocity" have the lowest sales (17.4K - 17.3K), suggesting limited market demand.
- Diverse product demand across divisions can guide inventory optimization and targeted marketing strategies.

Thank you