

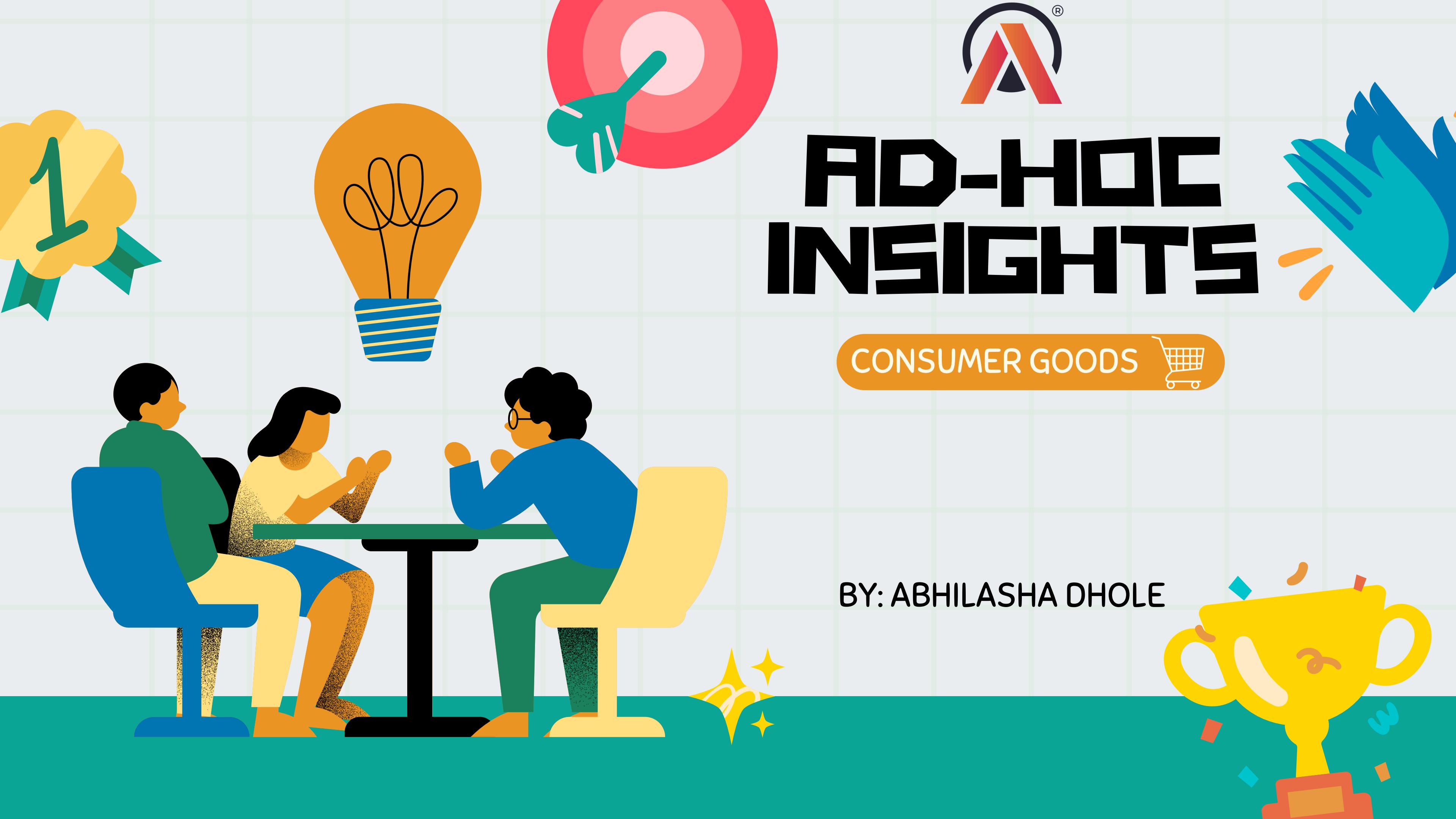


AD-HOC INSIGHTS

CONSUMER GOODS



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Objectives



- **Atliq Hardware**, an imaginary company, representing a leading Indian computer hardware producer with a global presence.
- The management observed a **lack of sufficient insights** for making quick and informed data-driven decisions.
- To address this, they plan to **expand** their data analytics team by recruiting junior data analysts.
- **Tony Sharma**, the Data Analytics Director, seeks candidates proficient in both technical and soft skills.
- To evaluate these skills effectively, he decided to organize an **SQL challenge** consisting of 10 ad hoc requests.



Company Background

Atliq Hardware is a **computer hardware & accessory** manufacturer.

They operate in four major Regions:

- ◆ **Asia Pacific (APAC)**
- ◆ **Europe (EU)**
- ◆ **North America (NA)**
- ◆ **Latin America (LATAM)**

The company's fiscal year starts in **September** and ends in **August**
(e.g., **September 2020** to **August 2021** = **FY 2021**).



Product Lineup



AtiliQ Hardware

Networking & Storage (N & S)

Networking



Storage



Peripheral & Accessories (P & A)

Accessories



Peripherals



PC

Desktop

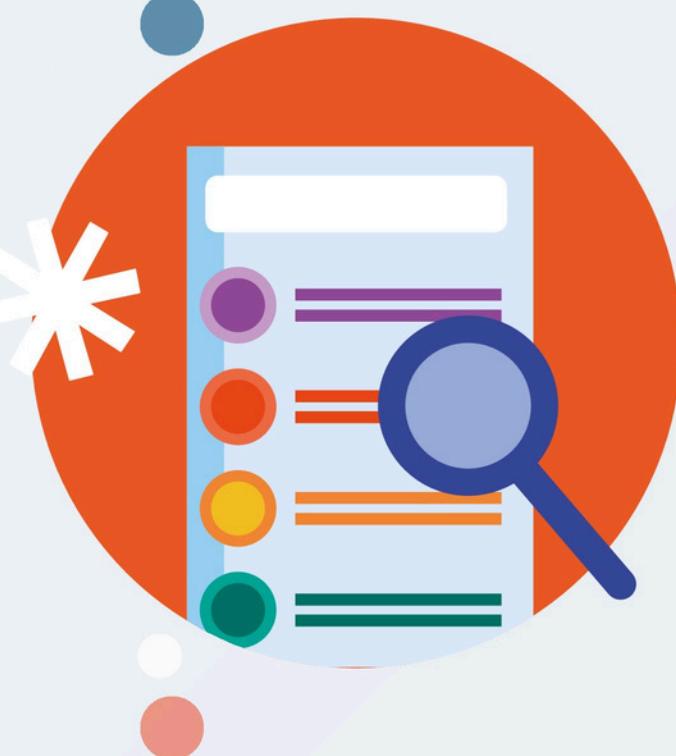


Notebook





Ad-Hoc Requests



- Q1.** Provide the list of markets in which customer "Atliq Exclusive" operates its business in the APAC region.
- Q2.** What is the percentage increase in unique products from 2020 to 2021, including unique_products_2020, unique_products_2021, and percentage_chg?
- Q3.** Provide a report of unique product counts per segment, sorted in descending order, with fields: segment and product_count.
- Q4.** Which segment had the highest increase in unique products from 2020 to 2021? Output fields: segment, product_count_2020, product_count_2021, difference.
- Q5.** Retrieve products with the highest and lowest manufacturing costs, including fields: product_code, product, and manufacturing_cost.
- Q6.** Generate a report of the top 5 customers in the Indian market who received the highest average pre_invoice_discount_pct in fiscal year 2021, with fields: customer_code, customer, and average_discount_percentage.
- Q7.** Generate a monthly gross sales report for 'Atliq Exclusive' to analyze performance trends, with fields: Month, Year, and Gross Sales Amount.
- Q8.** Find the 2020 quarter with the highest total_sold_quantity, sorted by total_sold_quantity. Output fields: Quarter, total_sold_quantity.
- Q9.** Identify the channel that generated the highest gross sales in FY 2021 and its contribution percentage. Output fields: channel, gross_sales_mln, percentage.
- Q10.** Retrieve the top 3 products in each division with the highest total_sold_quantity in fiscal year 2021, including fields: division, product_code, product, total_sold_quantity, and rank_order.

TOOLS USED



for Ad-Hoc Queries



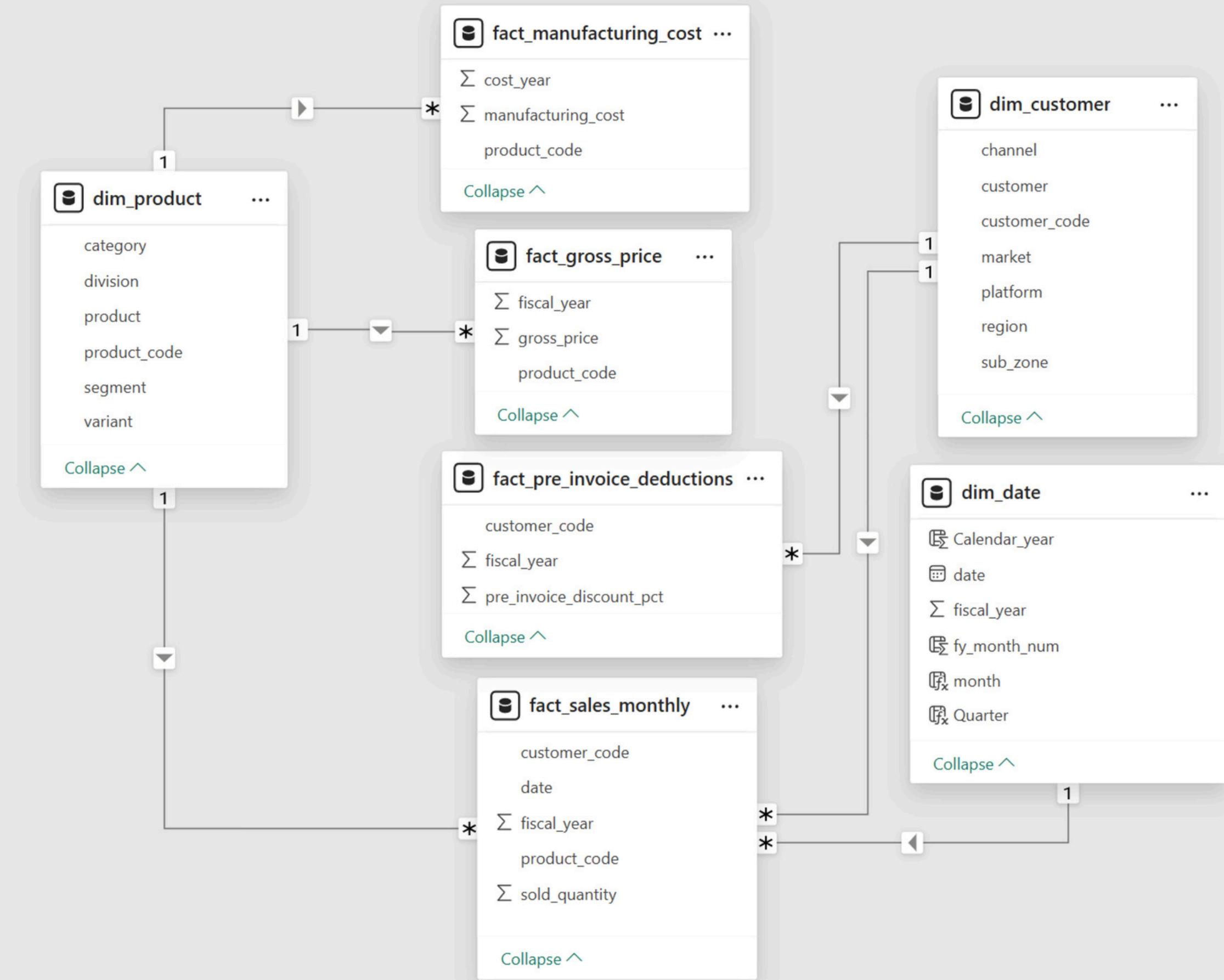
for Visualizations



for Presentation



Data Model



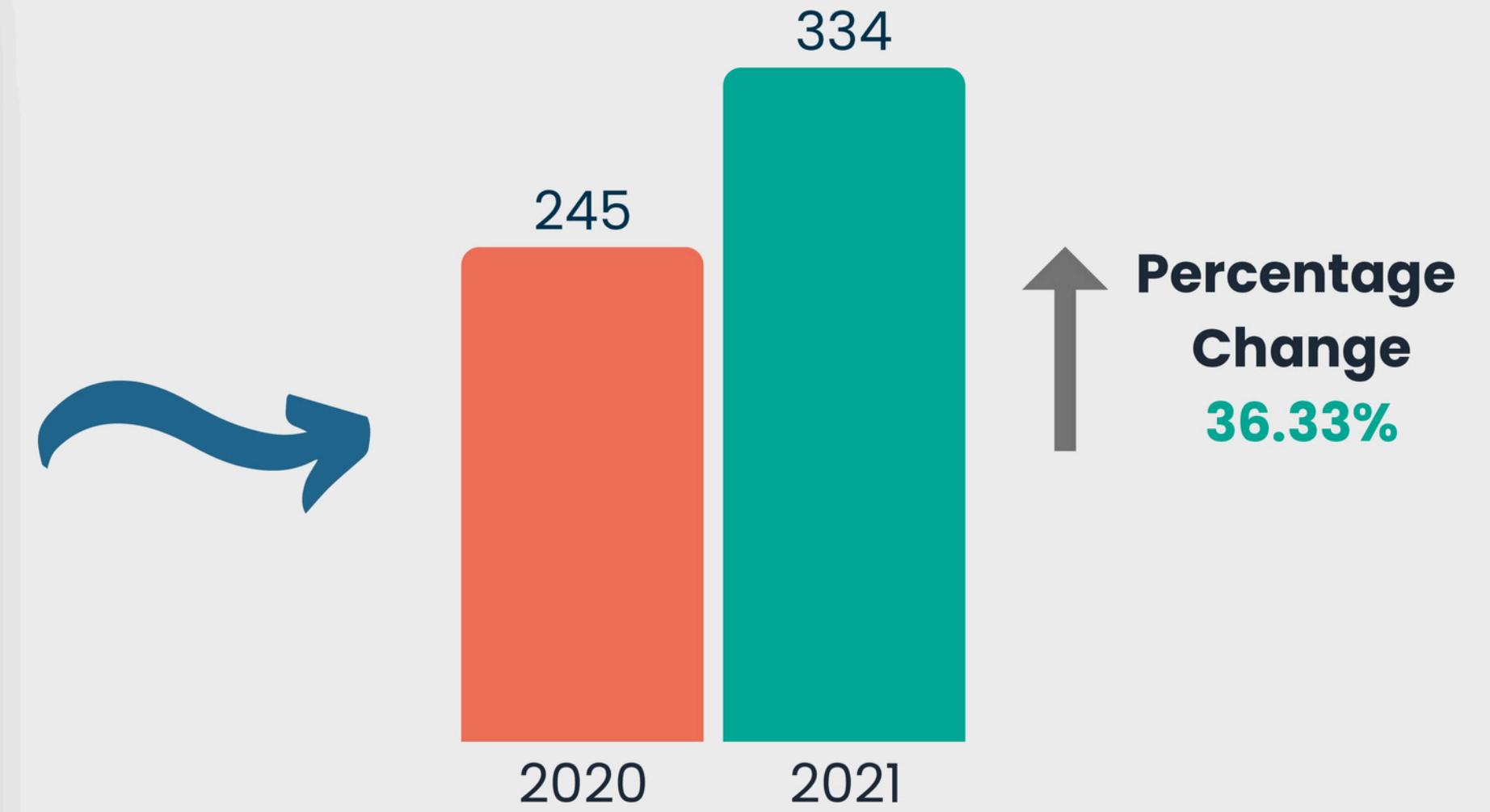
Q1. Provide the list of markets in which customer "Atliq Exclusive" operates its business in the APAC region.

```
1 SELECT DISTINCT market  
2 FROM dim_customer  
3 WHERE customer = 'Atliq Exclusive'  
4 AND region = 'APAC'  
5 ORDER BY market ASC;
```



Q2. What is the percentage increase in unique products from 2020 to 2021, including `unique_products_2020`, `unique_products_2021`, and `percentage_chg`?

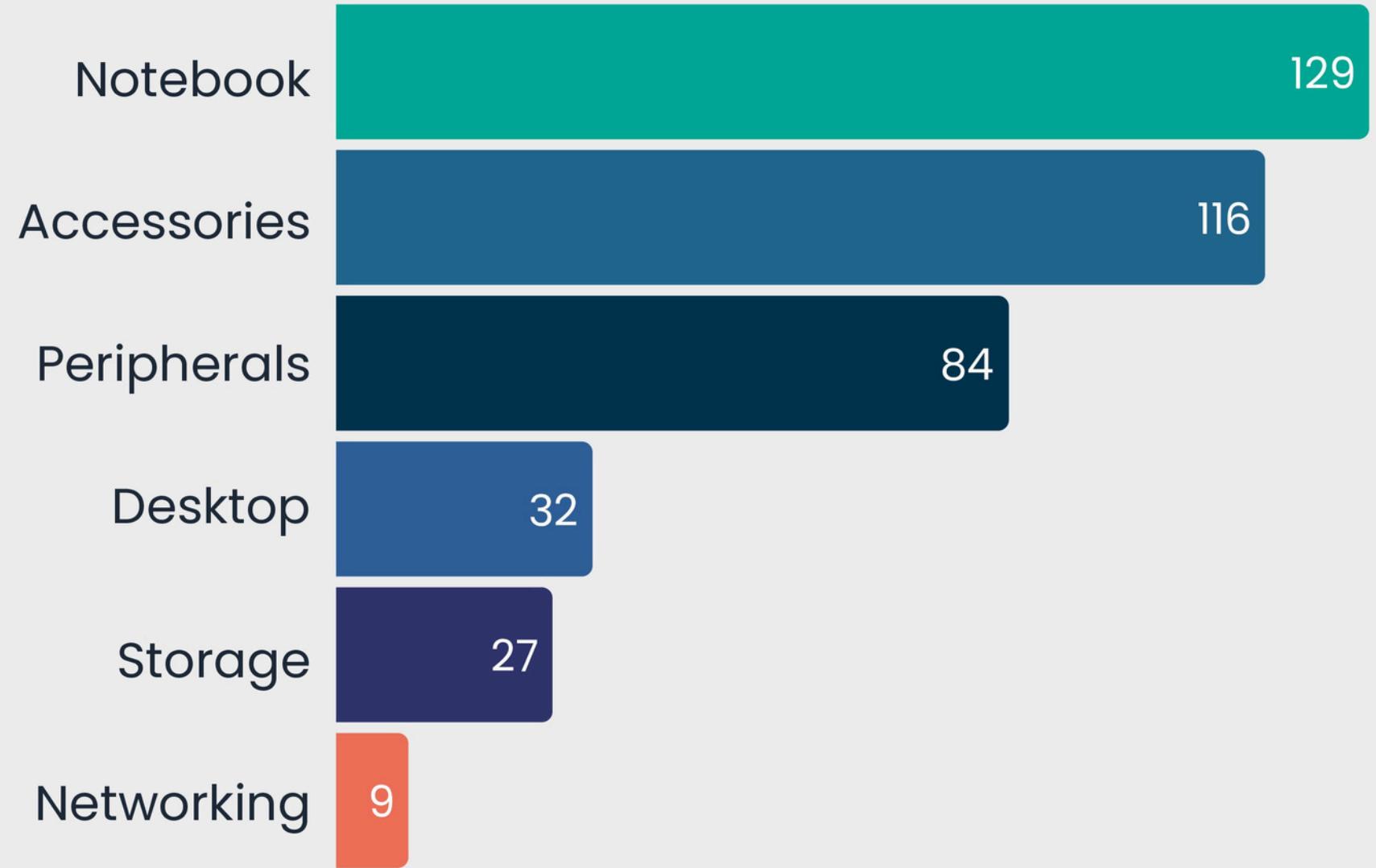
```
1 WITH up_20
2 AS (
3     SELECT COUNT(DISTINCT product_code) unique_products_20
4     FROM fact_sales_monthly
5     WHERE fiscal_year = 2020
6 )
7 , up_21
8 AS (
9     SELECT COUNT(DISTINCT product_code) unique_products_21
10    FROM fact_sales_monthly
11    WHERE fiscal_year = 2021
12 )
13 SELECT unique_products_20
14 , unique_products_21
15 , ROUND(((unique_products_21 - unique_products_20) /
16 unique_products_20) * 100, 2) AS pct_change
17 FROM up_20
18 , up_21;
```



The percentage increase in unique products from 2020 to 2021 was 36.33%

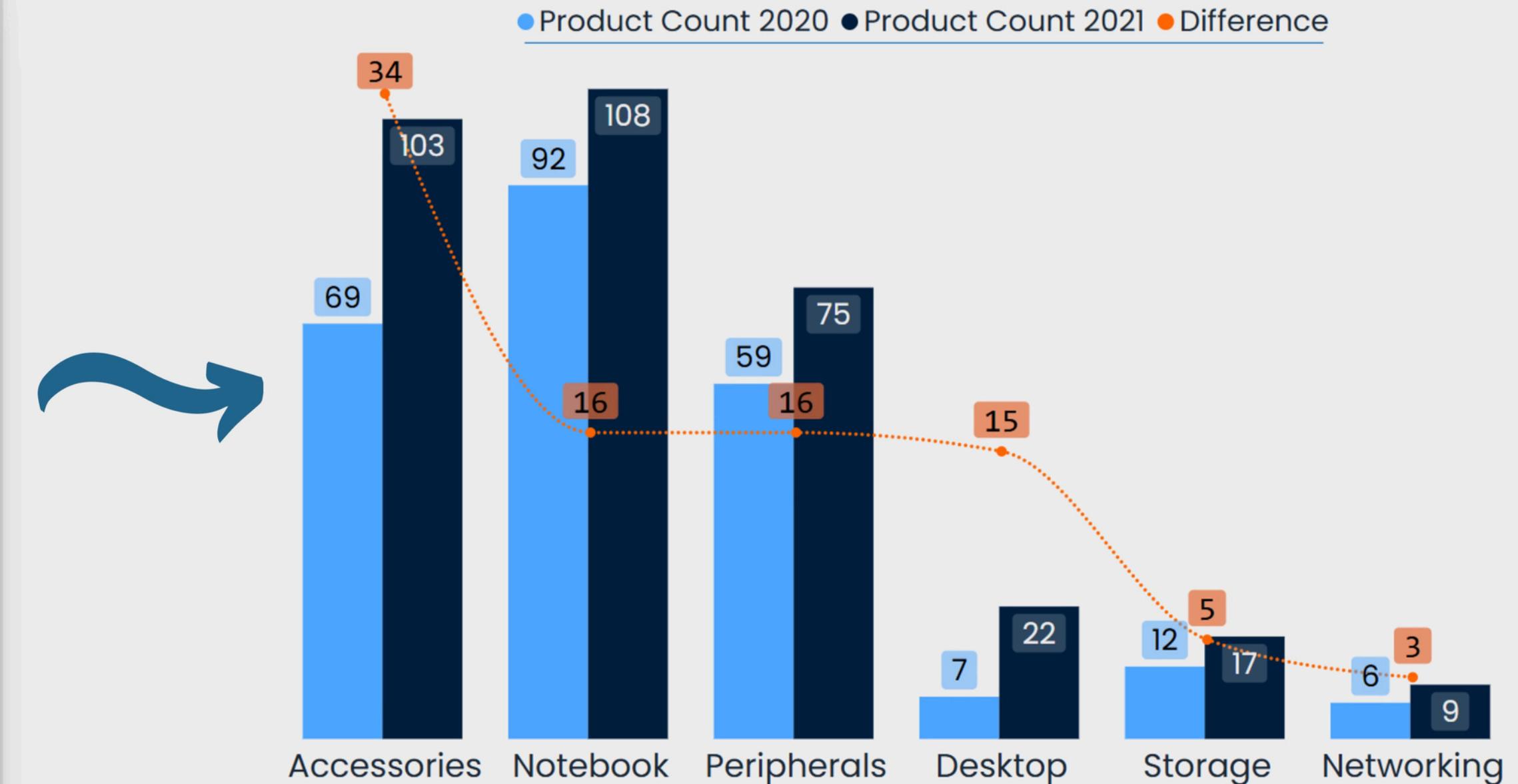
Q3. Provide a report of unique product counts per segment, sorted in descending order, with fields: segment and product_count

```
1 SELECT segment  
2   , COUNT(DISTINCT product_code) AS product_count  
3 FROM dim_product  
4 GROUP BY segment  
5 ORDER BY product_count DESC;
```



Q4. Which segment had the highest increase in unique products from 2020 to 2021? Output fields: **segment, product_count_2020, product_count_2021, difference**

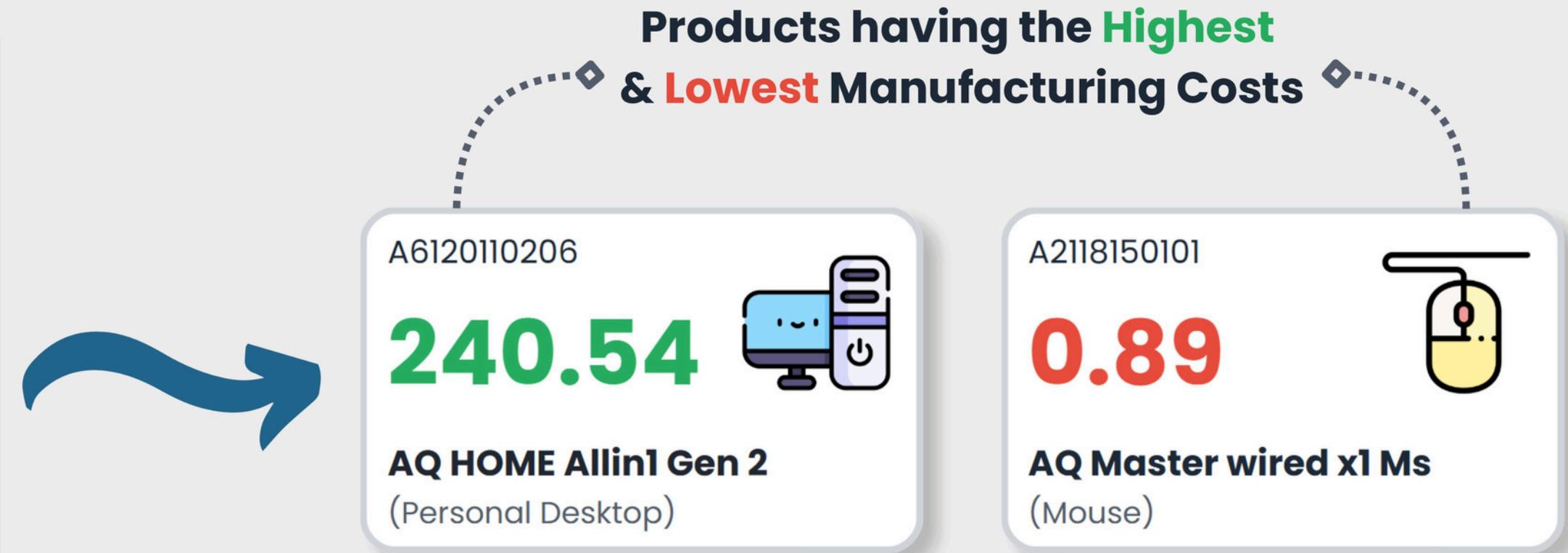
```
1 WITH pc_20
2 AS (
3     SELECT p.segment
4         , COUNT(DISTINCT s.product_code) AS product_count_2020
5     FROM fact_sales_monthly s
6     JOIN dim_product p ON s.product_code = p.product_code
7     WHERE s.fiscal_year = 2020
8     GROUP BY p.segment
9 )
10 , pc_21
11 AS (
12     SELECT p.segment
13         , COUNT(DISTINCT s.product_code) AS product_count_2021
14     FROM fact_sales_monthly s
15     JOIN dim_product p ON s.product_code = p.product_code
16     WHERE s.fiscal_year = 2021
17     GROUP BY p.segment
18 )
19 SELECT p1.segment
20     , p1.product_count_2020
21     , p2.product_count_2021
22     , (p2.product_count_2021 - p1.product_count_2020) AS
23         difference
24 FROM pc_20 p1
25 JOIN pc_21 p2 ON p1.segment = p2.segment
26 ORDER BY difference DESC;
```



The **Accessories** segment had the highest increase in unique products from 2020 to 2021

Q5. Retrieve products with the highest and lowest manufacturing costs, including fields: product_code, product, and manufacturing_cost.

```
1 WITH r1
2 AS (
3     SELECT p.product_code
4         , p.product
5             , p.category
6         , m.manufacturing_cost
7         , DENSE_RANK() OVER (
8             ORDER BY m.manufacturing_cost DESC
9         ) AS product_rank
10    FROM fact_manufacturing_cost m
11   JOIN dim_product p ON m.product_code = p.product_code
12 )
13 SELECT product_code
14     , product
15         , category
16         , manufacturing_cost
17    FROM r1
18 WHERE product_rank = 1
19 OR product_rank = (
20     SELECT MAX(product_rank)
21    FROM r1
22 )
23 ORDER BY r1.manufacturing_cost DESC;
```



Q6. Generate a report of the top 5 customers in the Indian market who received the highest average pre invoice discount percentage in fiscal year 2021, with fields: `customer_code`, `customer`, and `average_discount_percentage`.

```
1 SELECT c.customer_code  
2   , c.customer  
3   , ROUND(AVG(pre.pre_invoice_discount_pct)* 100, 2) AS  
4   average_discount_percentage  
5 FROM fact_pre_invoice_deductions pre  
6 JOIN dim_customer c ON pre.customer_code = c.customer_code  
7 WHERE pre.fiscal_year = 2021  
8   AND c.market = 'India'  
9 GROUP BY c.customer_code  
10  , c.customer  
11 ORDER BY average_discount_percentage DESC LIMIT 5;
```

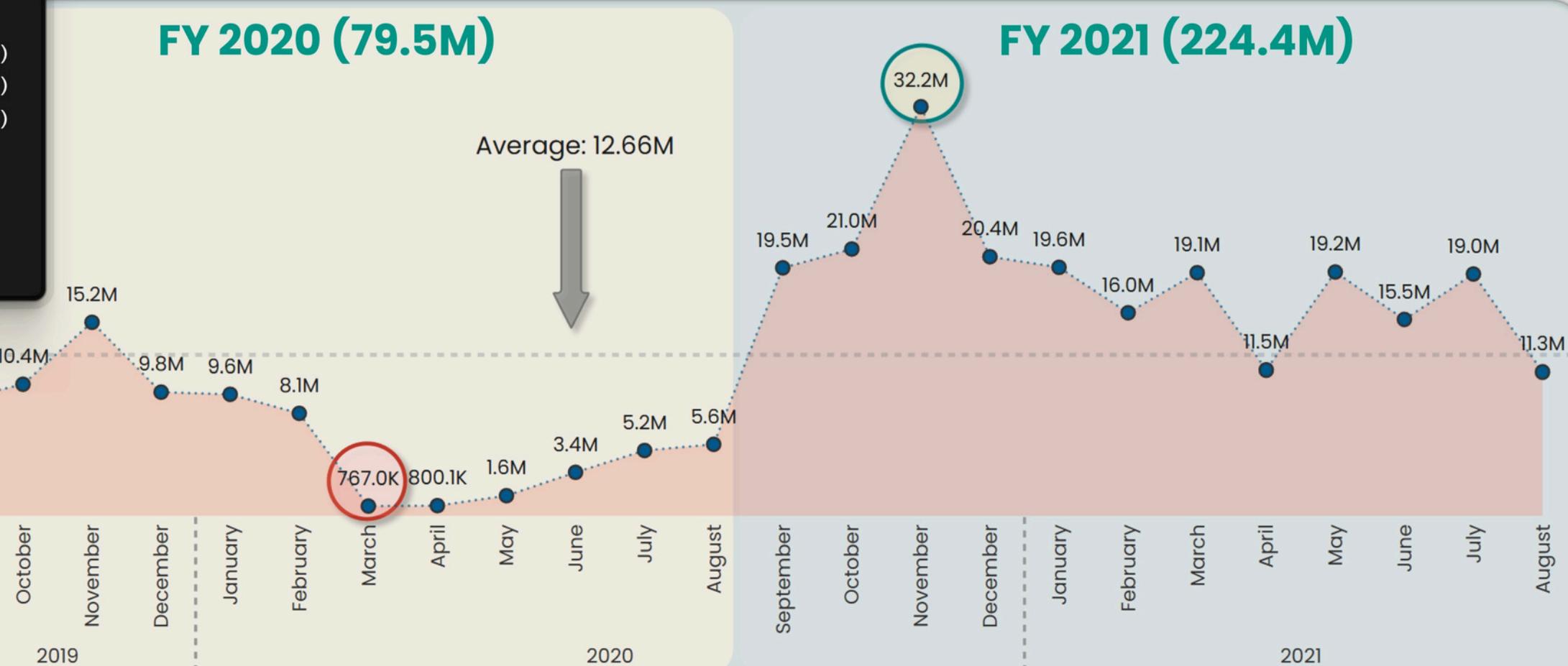


Customer Code	Customer	Avg Discount %
90002009	Flipkart	30.83%
90002006	Viveks	30.38%
90002003	Ezone	30.28%
90002002	Croma	30.25%
90002016	Amazon	29.33%

Q7. Generate a monthly gross sales report for 'Atliq Exclusive' to analyze performance trends, with fields: Month, Year, and Gross Sales Amount.

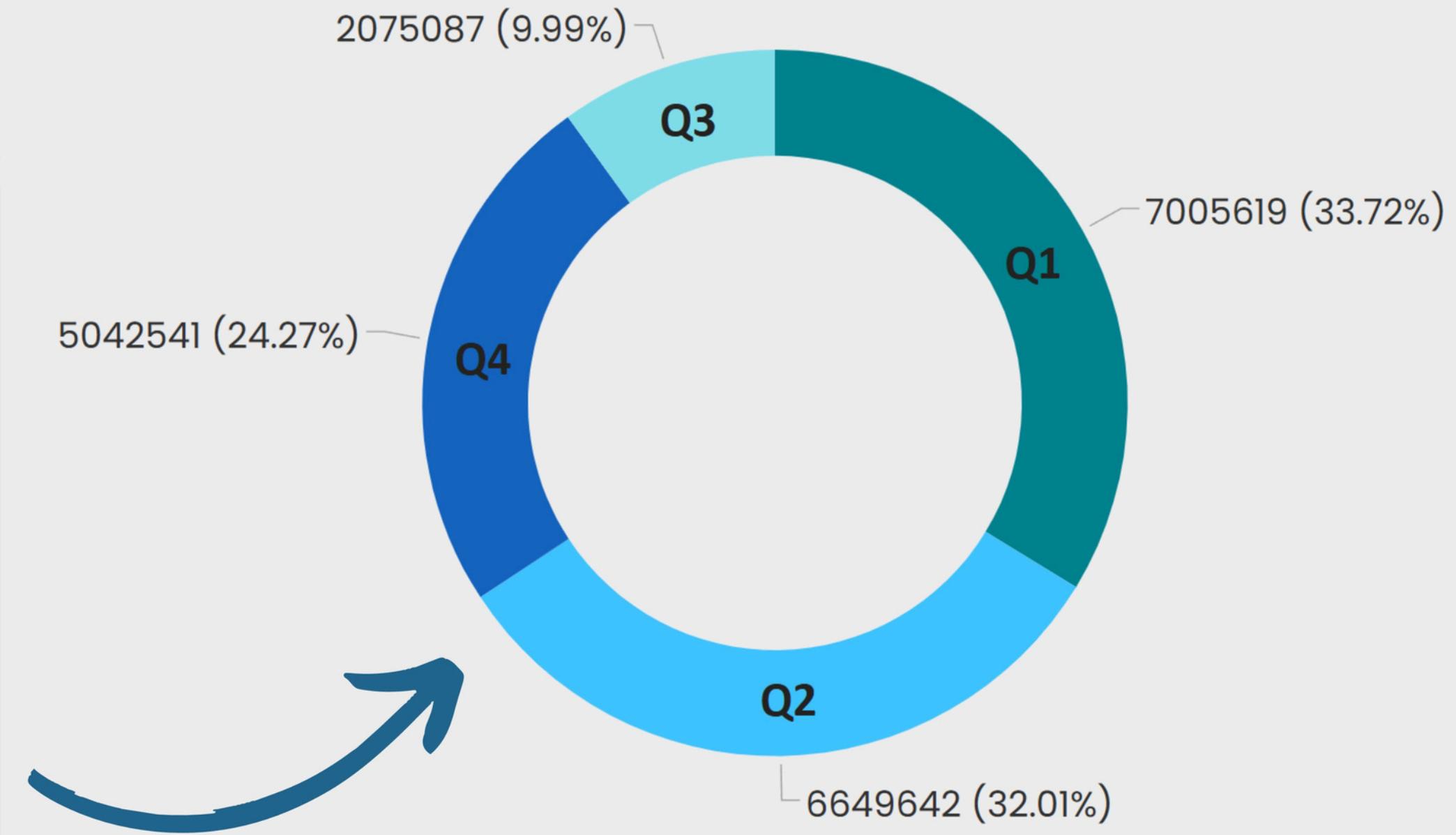
```
1 WITH Sales_CTE AS (
2     SELECT
3         s.DATE,
4         s.fiscal_year,
5         SUM(gp.gross_price * s.sold_quantity) AS total_sales
6     FROM fact_sales_monthly s
7     JOIN fact_gross_price gp ON s.product_code = gp.product_code
8     JOIN dim_customer c ON s.customer_code = c.customer_code
9     WHERE c.customer = 'Atliq Exclusive'
10    GROUP BY s.DATE, s.fiscal_year
11 )
12 SELECT
13     CONCAT(MONTHNAME(s.DATE), ' (' , YEAR(s.DATE), ')') AS month,
14     s.fiscal_year,
15     CASE
16         WHEN total_sales >= 1e9 THEN CONCAT(ROUND(total_sales / 1e9, 2), 'B')
17         WHEN total_sales >= 1e6 THEN CONCAT(ROUND(total_sales / 1e6, 2), 'M')
18         WHEN total_sales >= 1e3 THEN CONCAT(ROUND(total_sales / 1e3, 2), 'K')
19         ELSE ROUND(total_sales, 2)
20     END AS gross_sales_amount
21     FROM Sales_CTE s
22     ORDER BY s.DATE;
```

Gross sales surged from **79.5M** in **FY 2020** to **224.4M** in **FY 2021**, with a peak of **32.25M** in December 2020, reflecting strong post-pandemic recovery



Q8. Find the 2020 quarter with the highest `total_sold_quantity`, sorted by `total_sold_quantity`. Output fields: Quarter, `total_sold_quantity`.

```
1 WITH sqr AS (
2     SELECT
3         CASE
4             WHEN MONTH(DATE) BETWEEN 9 AND 11 THEN 'Q1'
5             WHEN MONTH(DATE) IN (12, 1, 2) THEN 'Q2'
6             WHEN MONTH(DATE) BETWEEN 3 AND 5 THEN 'Q3'
7             WHEN MONTH(DATE) BETWEEN 6 AND 8 THEN 'Q4'
8         END AS quarter,
9         SUM(sold_quantity) AS total_sold_quantity
10    FROM fact_sales_monthly
11   WHERE fiscal_year = 2020
12   GROUP BY quarter
13 )
14 SELECT
15     quarter,
16     total_sold_quantity,
17     ROUND(100.0 * total_sold_quantity / SUM(total_sold_quantity)
18           OVER(), 2) AS pct_contrib
19   FROM sqr
20   ORDER BY total_sold_quantity DESC;
```



Q1 has the highest total sold quantity in 2020 (7005619, 33.72%)

Q9. Identify the channel that generated the highest gross sales in FY 2021 and its contribution percentage.
Output fields: channel, gross_sales_mln, percentage.

```
1 WITH gs
2 AS (
3     SELECT c.channel
4         , SUM(gp.gross_price * s.sold_quantity) AS gross_sales_mln
5     FROM fact_sales_monthly s
6     JOIN fact_gross_price gp ON s.product_code = gp.product_code
7     AND s.fiscal_year = gp.fiscal_year
8     JOIN dim_customer c ON s.customer_code = c.customer_code
9     WHERE s.fiscal_year = 2021
10    GROUP BY c.channel
11 )
12 SELECT channel
13     , ROUND(gross_sales_mln / 1e6, 2) AS gross_sales_mln
14     , ROUND(100.0 * gross_sales_mln / SUM(gross_sales_mln) OVER
15 (), 2) AS pct_contrib
16 FROM gs
17 ORDER BY pct_contrib DESC;
```



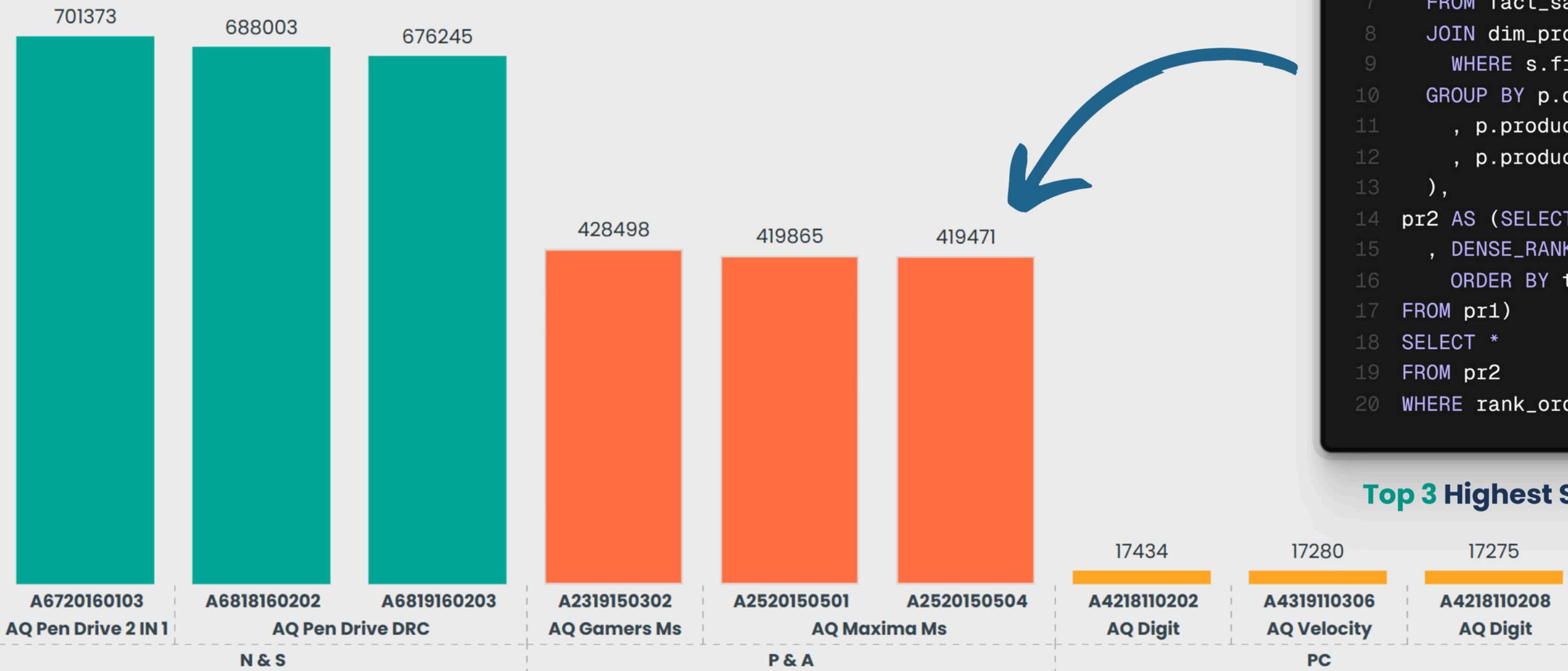
Retailer
1219.08M (73.23%)

Direct
257.53M (15.47%)

Distributor
188.03M (11.30%)

The **Retailer** channel has generated the highest gross sales (**1219.08M**) in FY 2021

Q10. Retrieve the top 3 products in each division with the highest total_sold_quantity in fiscal year 2021, including fields: `division`, `product_code`, `product`, `total_sold_quantity`, and `rank_order`.



```
1 WITH pr1
2 AS (
3     SELECT p.division
4         , p.product_code
5         , p.product
6         , SUM(s.sold_quantity) AS total_sold_quantity
7     FROM fact_sales_monthly s
8     JOIN dim_product p ON p.product_code = s.product_code
9     WHERE s.fiscal_year = 2021
10    GROUP BY p.division
11        , p.product_code
12        , p.product
13    ),
14 pr2 AS (SELECT pr1.*
15     , DENSE_RANK() OVER (PARTITION BY pr1.division
16     ORDER BY total_sold_quantity DESC) AS rank_order
17    FROM pr1)
18 SELECT *
19 FROM pr2
20 WHERE rank_order <= 3;
```

Top 3 Highest Selling Products by division in FY 2021



THANK YOU!

FOR YOUR ATTENTION

BY:ABHILASHA Dhole

