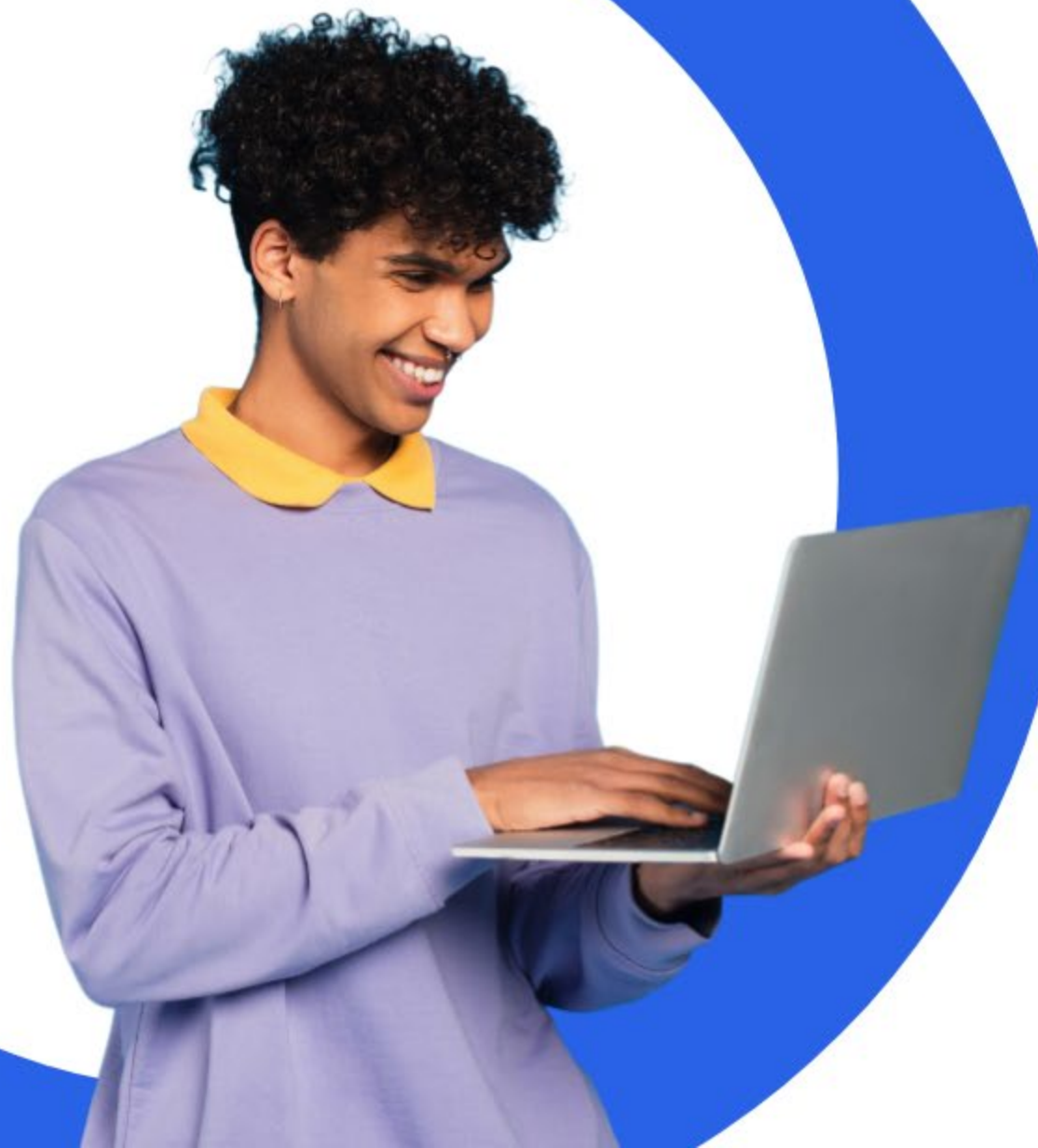

tliQ Hardwares

Consumer-Goods Ad-hoc Insights

Turn Insights Into Impactful Decisions

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Data Analyst

Agenda

- About The Company
- Problem Statement
- Objective
- Datasets
- Ad Hoc Requests, Solutions and Insights
- Conclusions

About the Company

Atliq Hardwares is one of the leading innovators and manufacturers of high-performance computer hardware in India. Established with a vision to power the digital future, Atliq has grown into a trusted brand across domestic and international markets. With a strong presence in over 15 countries, the company caters to a diverse clientele ranging from individual consumers to large enterprises.

Atliq's product portfolio includes cutting-edge processors, graphic cards, motherboards, storage devices, and other essential computer components that meet the evolving demands of modern technology users.

Backed by a robust R&D With sustainability and customer-centric innovation at its core, Atliq Hardwares is not only redefining performance standards in computer hardware but also playing a key role in shaping the global consumer electronics landscape.

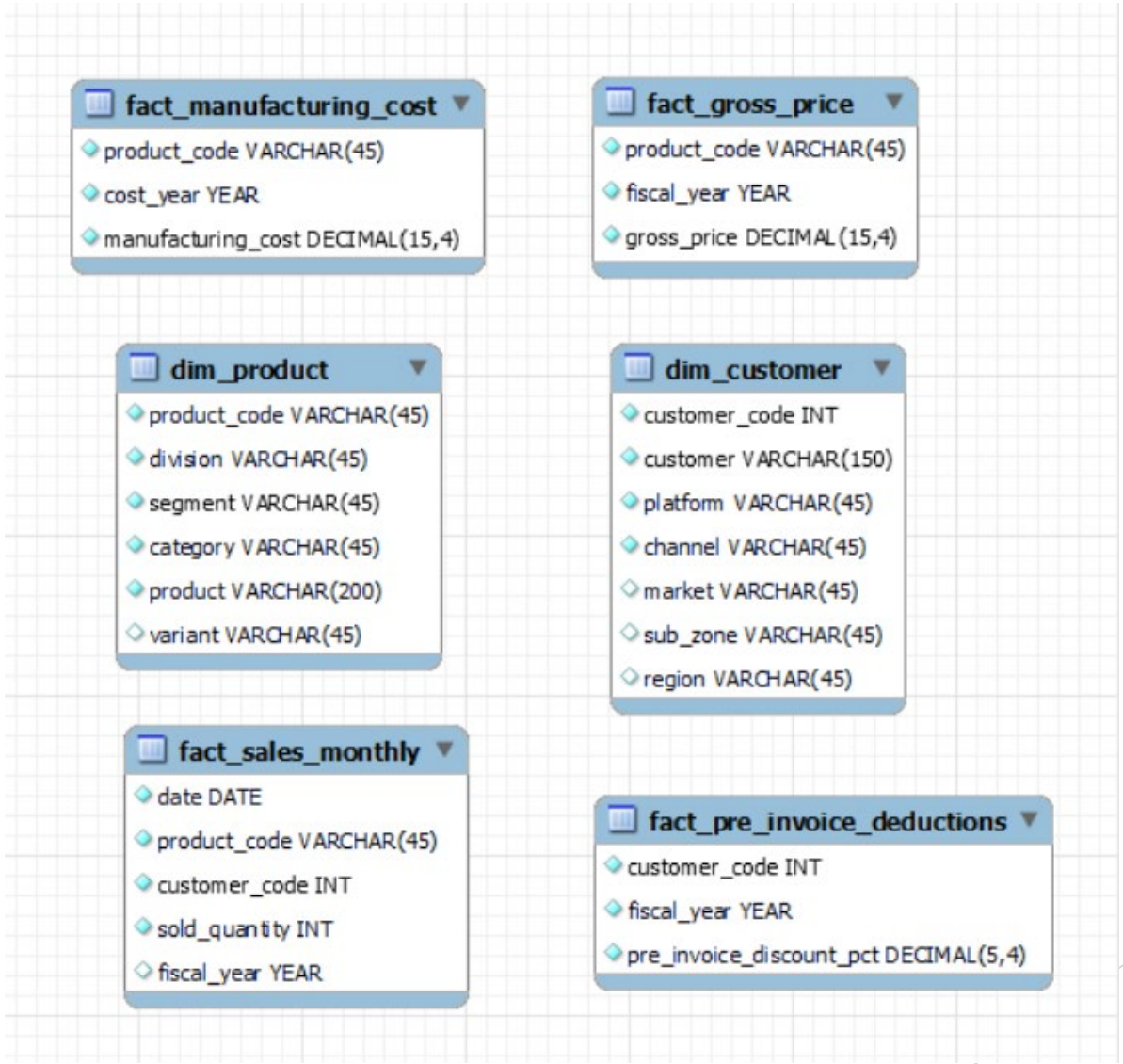
Problem Statement

- 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

- Answer the 10 Ad hoc business requests provided by the management by running appropriate SQL queries and drive relevant insights the business needs.
- Present the findings in a powerpoint presentation which will be presented to the top-level management.

Datasets


fact_manufacturing_cost
product_code VARCHAR(45)
cost_year YEAR
manufacturing_cost DECIMAL(15,4)
fact_gross_price
product_code VARCHAR(45)
fiscal_year YEAR
gross_price DECIMAL(15,4)
dim_product
product_code VARCHAR(45)
division VARCHAR(45)
segment VARCHAR(45)
category VARCHAR(45)
product VARCHAR(200)
variant VARCHAR(45)
dim_customer
customer_code INT
customer VARCHAR(150)
platform VARCHAR(45)
channel VARCHAR(45)
market VARCHAR(45)
sub_zone VARCHAR(45)
region VARCHAR(45)
fact_sales_monthly
date DATE
product_code VARCHAR(45)
customer_code INT
sold_quantity INT
fiscal_year YEAR
fact_pre_invoice_deductions
customer_code INT
fiscal_year YEAR
pre_invoice_discount_pct DECIMAL(5,4)

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

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
    product
    total_sold_quantity
    rank_order

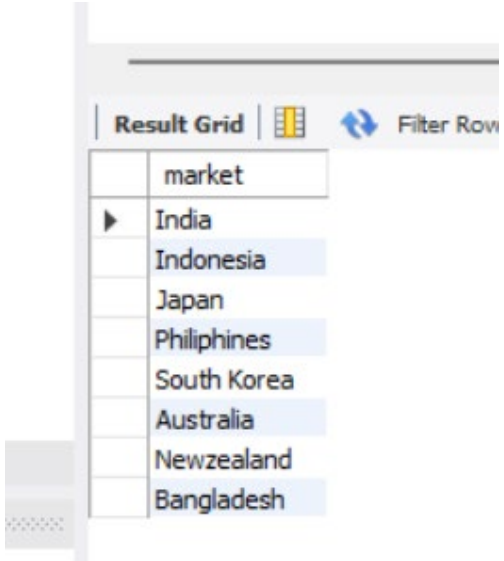
Request 1:

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

SQL Query:

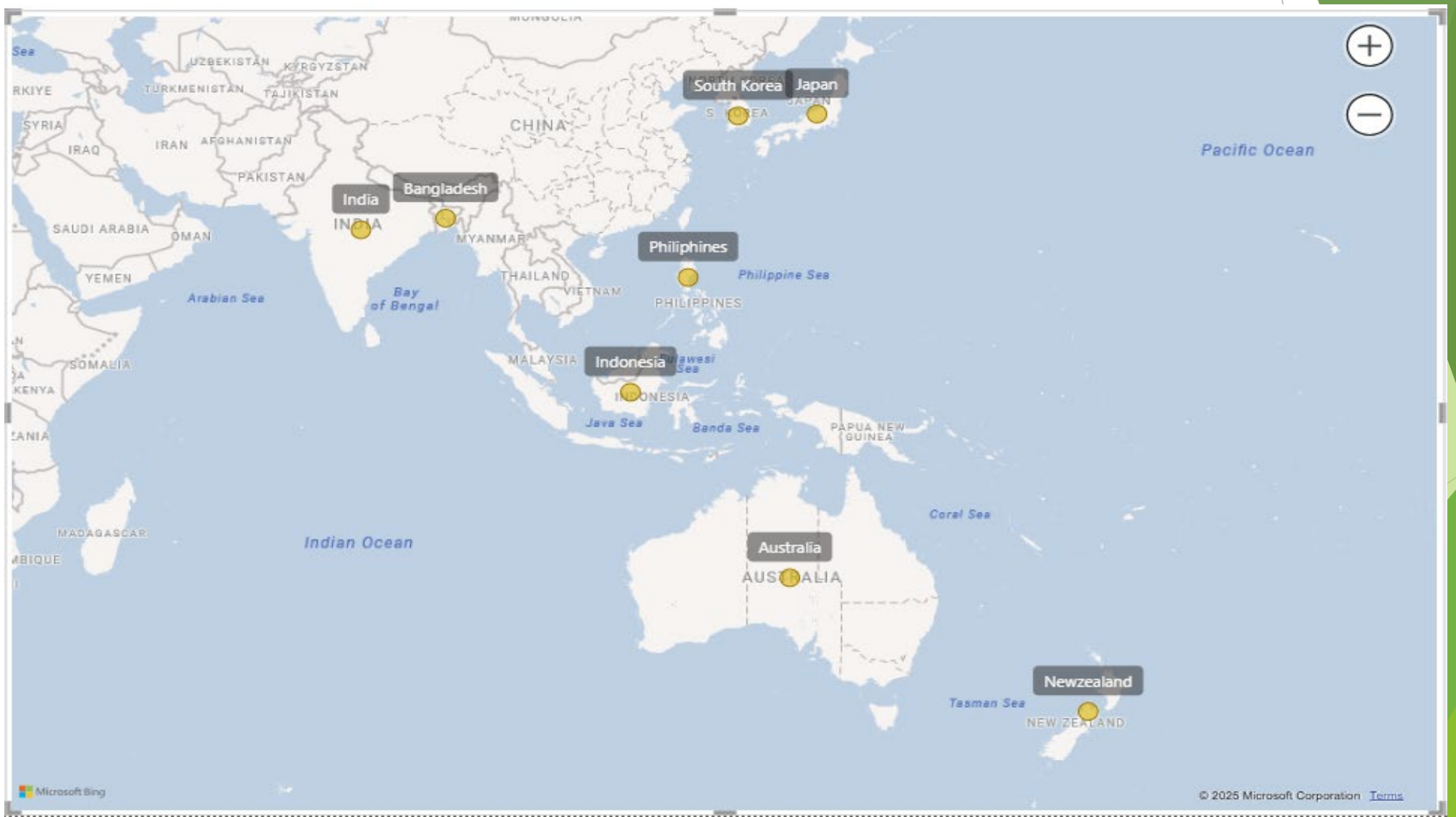
```
SELECT DISTINCT(market)
FROM dim_customer
WHERE customer = "Atliq Exclusive" AND region = "APAC";
```

Output:



Insight:

Atliq has a good market presence in many **Southeast Asian** countries but it has no presence in countries like **Vietnam** and **Thailand** that have a good reputation in manufacturing sector in the APAC region.



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

SQL Query:

```sql
WITH cte1 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/unique_products_2020,2) AS percentage_chg
FROM cte1, cte2;
```

Output:

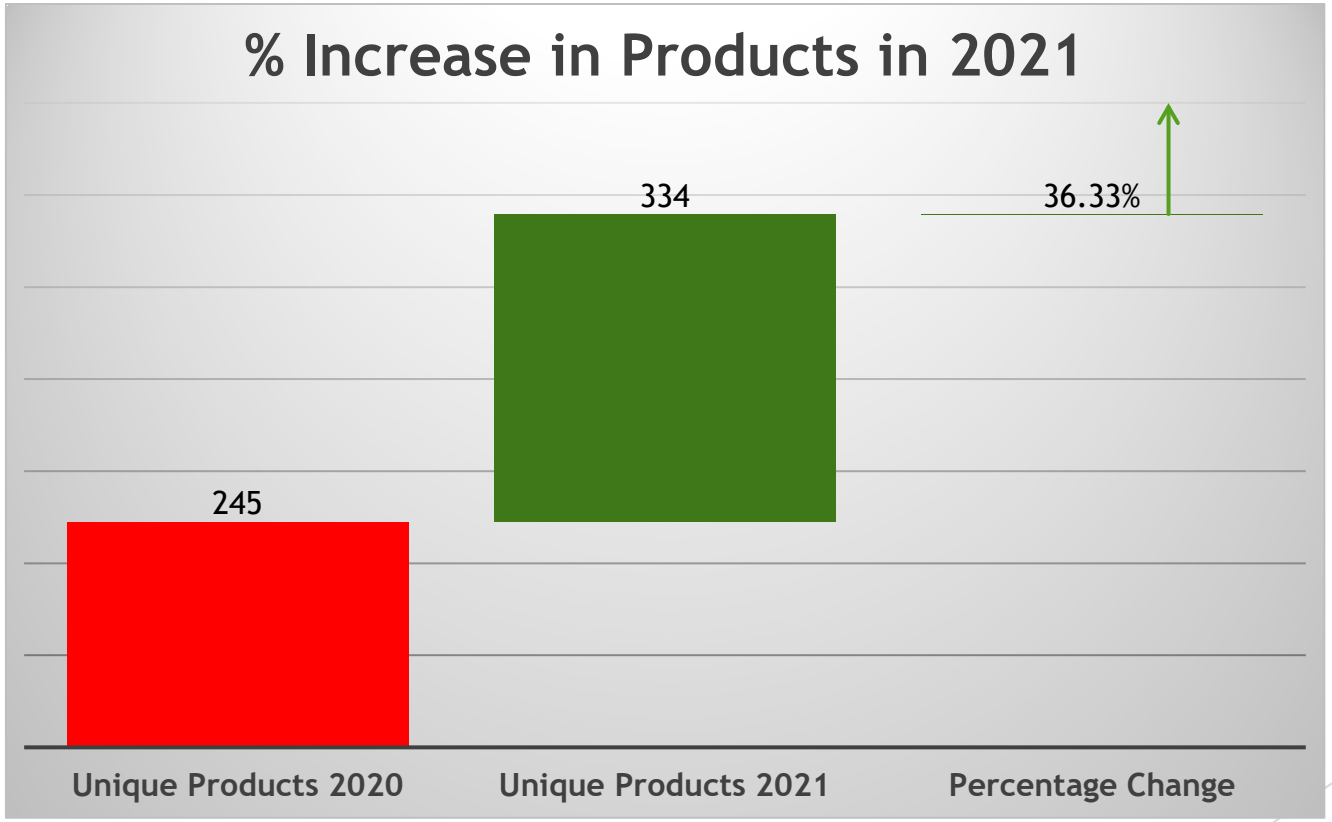
Result Grid | Filter Rows: | Export: | Wrap Cell Con

unique_products_2020	unique_products_2021	percentage_chg
245	334	36.33

Insight:

The number of unique products increased by **36.33%** in 2021 as compared to 2020

Visualization:



Request 3:

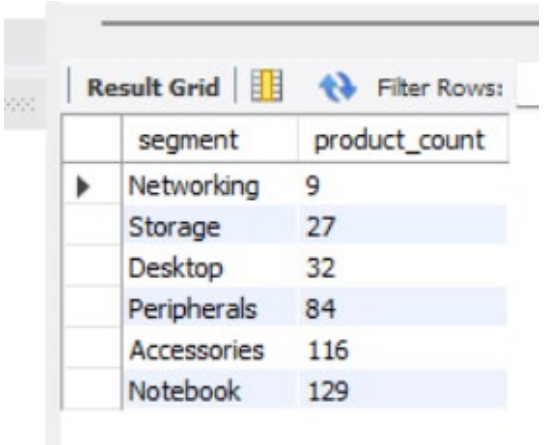
Provide a report with all the unique product counts for each segment and sort them in descending order of product counts. The final output contains 2 fields,

segment
product_count

SQL Query:

```
5 •  SELECT segment, COUNT(product_code) AS product_count
6    FROM dim_product
7    GROUP BY segment
8    ORDER BY product_count
```

Output:



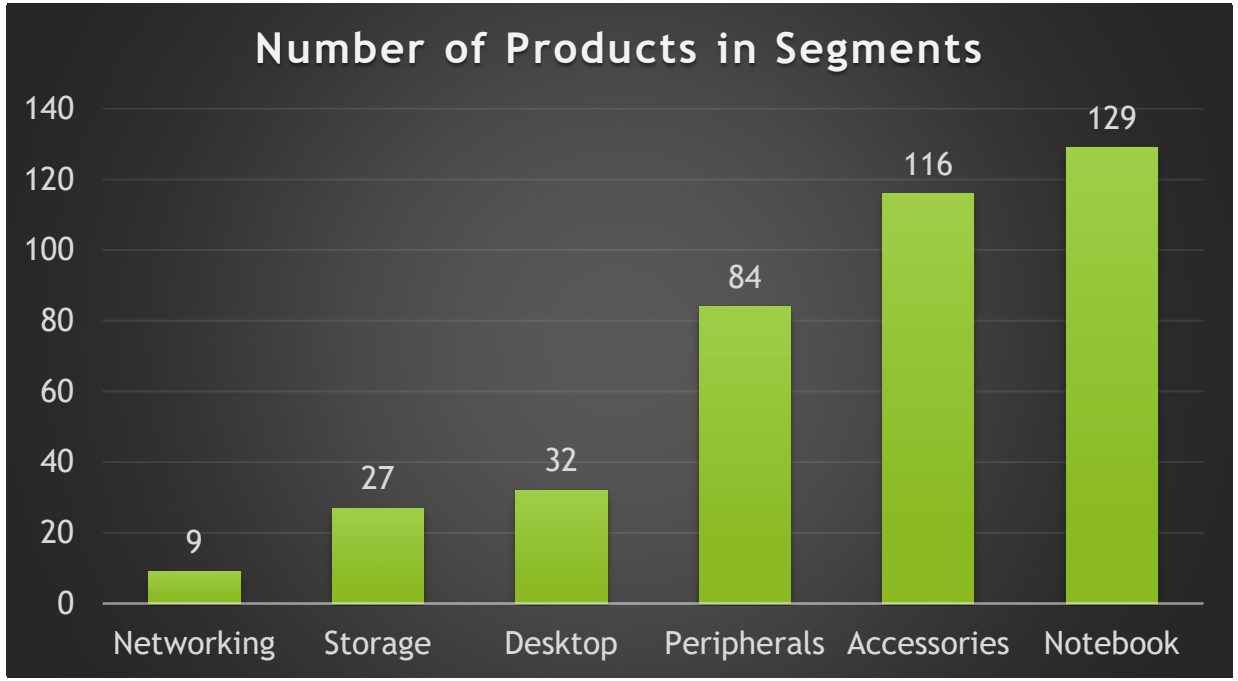
Result Grid | Filter Rows:

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

Insight:

The highest number of unique products is in **Notebook** segment which is **129** and the least number of products is in **Networking** which is **9**.

Visualization:



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

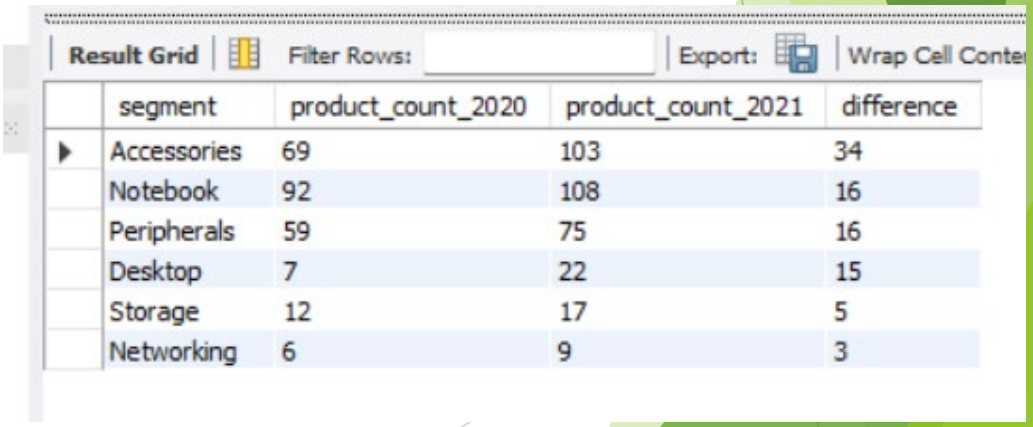
SQL Query:

```sql
WITH pc1 AS(
    SELECT segment, COUNT(DISTINCT(product_code)) AS product_count_2020
    FROM dim_product
    JOIN fact_sales_monthly
    USING (product_code)
    WHERE fiscal_year = 2020
    GROUP BY segment),

pc2 AS(
    SELECT segment, COUNT(DISTINCT(product_code)) AS product_count_2021
    FROM dim_product
    JOIN fact_sales_monthly
    USING (product_code)
    WHERE fiscal_year = 2021
    GROUP BY segment
)

SELECT
    segment, product_count_2020, product_count_2021,
    (product_count_2021 - product_count_2020) AS difference
FROM pc1
JOIN pc2
USING (segment)
ORDER BY difference DESC;
```

Output:



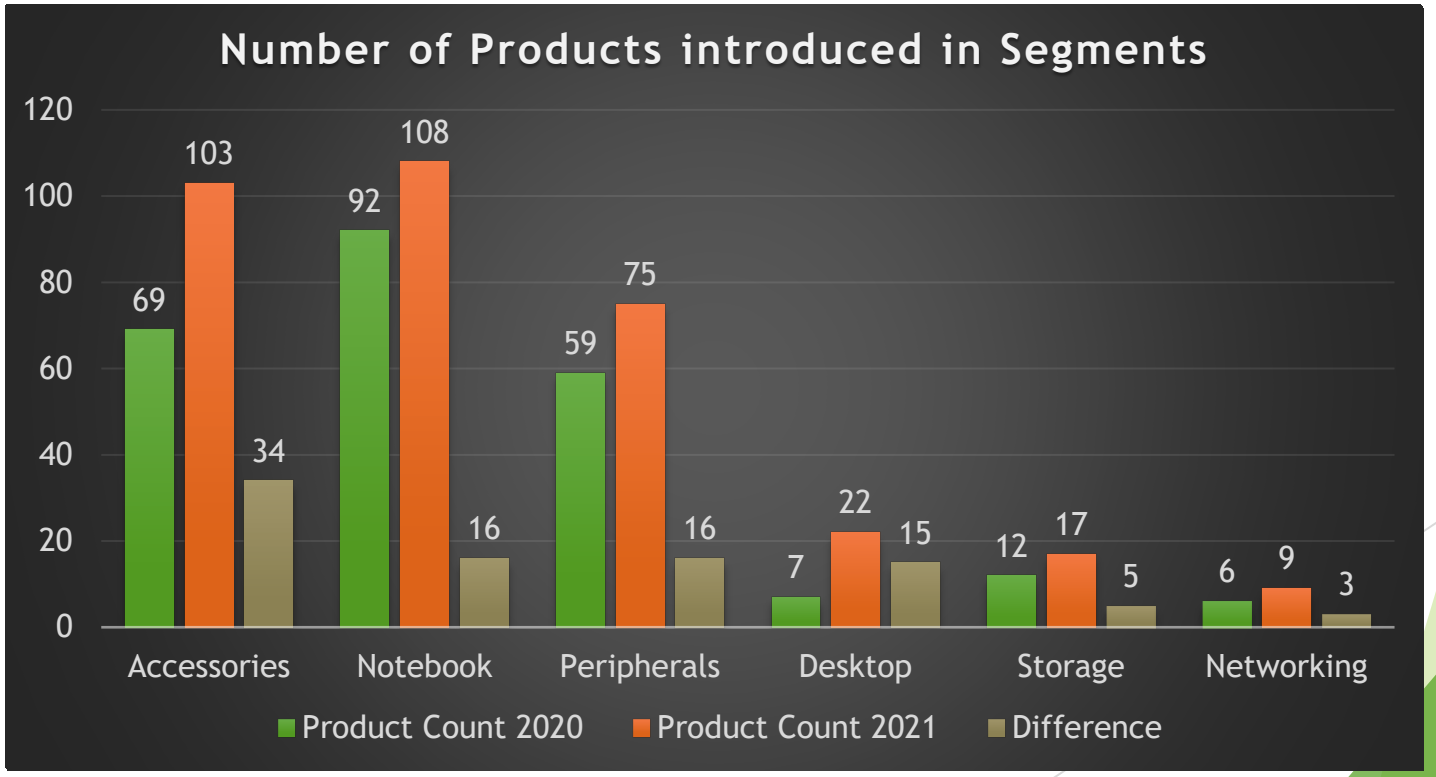
Result Grid | Filter Rows: | Export: | Wrap Cell Conte

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:

Although Notebook has more products in Notebook segment but Atliq introduced more number products in Accessories segment and the least in Networking.

Visualization:



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

SQL Query:

```
5  WITH cte1 AS(
6      SELECT product_code, product, manufacturing_cost
7      FROM dim_product p
8      JOIN fact_manufacturing_cost m
9      USING (product_code)
10     GROUP BY product_code, product
11     ORDER BY manufacturing_cost DESC
12 )
13
14 SELECT *
15 FROM cte1
16 WHERE manufacturing_cost IN ((SELECT MAX(manufacturing_cost) FROM cte1),
17                              (SELECT MIN(manufacturing_cost) FROM cte1))
```

Output:

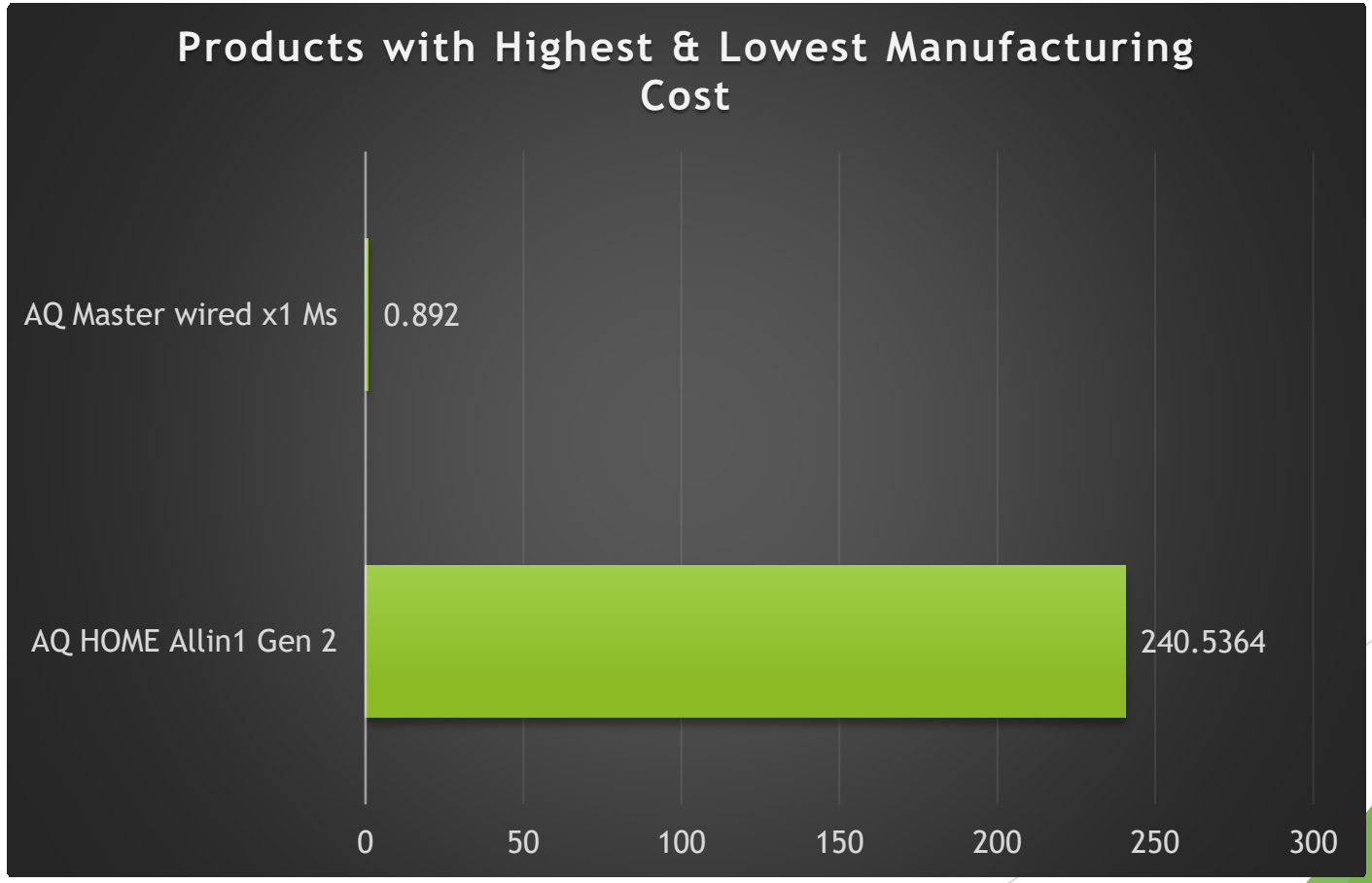
Result Grid | Filter Rows: | Export: | Wrap Cel

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

Insight:

AQ HOME All in 1 Gen 2 incurs highest manufacturing cost among all products.

Visualization:



Request 6:

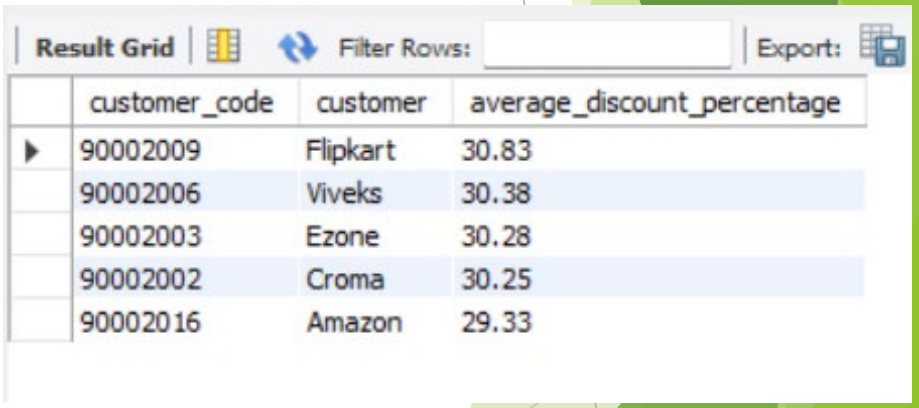
Generate a report which contains the top 5 customers who received an average high pre_invoice_discount_pct for the fiscal year 2021 and in the Indian market. The final output contains these fields,

customer_code
customer
average_discount_percentage

SQL Query:

```sql
SELECT customer_code, customer,
    ROUND(AVG(pre_invoice_discount_pct)*100,2) AS average_discount_percentage
FROM dim_customer
JOIN fact_pre_invoice_deductions
USING (customer_code)
WHERE fiscal_year = 2021 AND market = "India"
GROUP BY customer_code, customer
ORDER BY average_discount_percentage DESC
LIMIT 5;
```

Output:

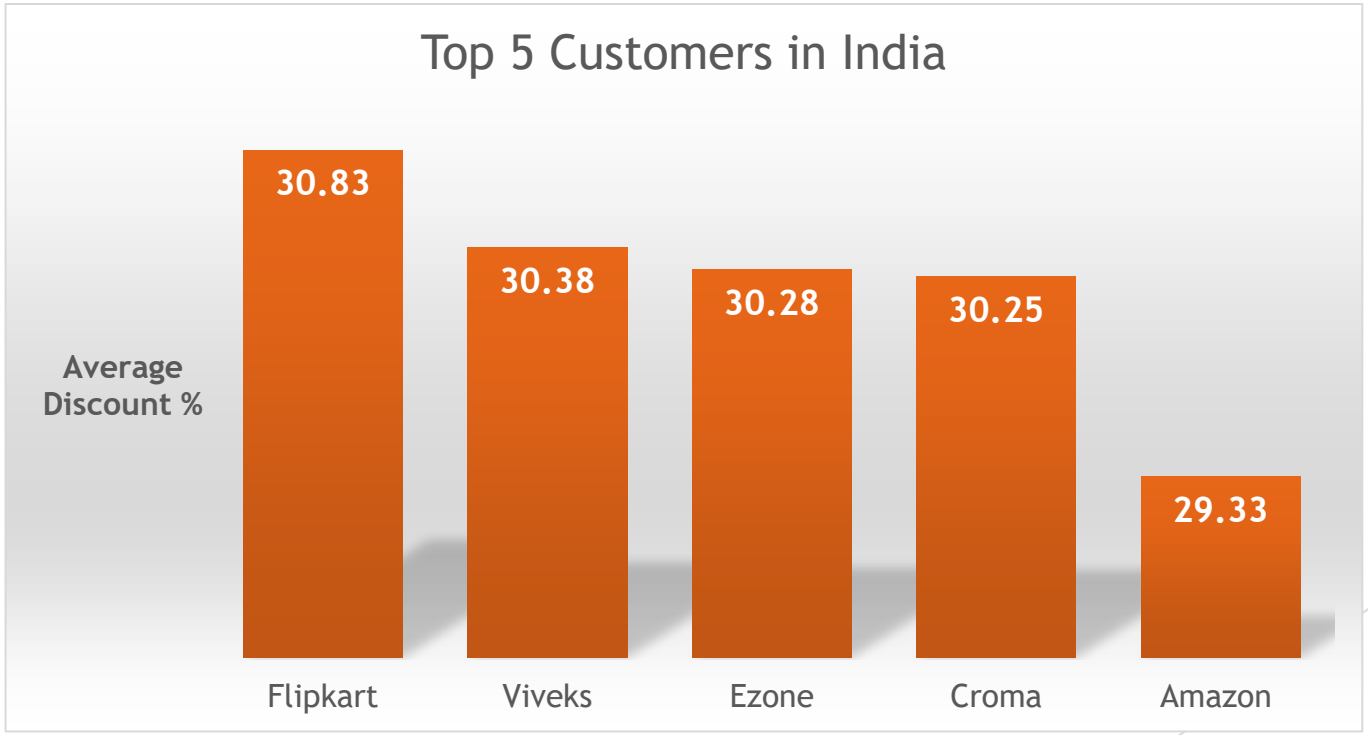


customer_code	customer	average_discount_percentage
90002009	Flipkart	30.83
90002006	Viveks	30.38
90002003	Ezone	30.28
90002002	Croma	30.25
90002016	Amazon	29.33

Insight:

Flipkart got the highest pre-invoice discount % in 2021 in Indian market among the top five as shown below in the chart.

Visualization:



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

SQL Query:

```
SELECT MONTHNAME(date) AS month, fiscal_year AS year,
    ROUND(SUM((gross_price*sold_quantity))/1000000,2) AS gross_sales_amount
FROM fact_sales_monthly
JOIN dim_customer
USING (customer_code)
JOIN fact_gross_price
USING (product_code, fiscal_year)
WHERE customer = "Atliq Exclusive"
GROUP BY month, year
ORDER BY gross_sales_amount DESC;
```

Output:

Result Grid | Filter Rows:

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

Insight:

November (Which is the festive season in countries like India**)** month generated highest gross sales for Atliq in 2020 and the least in March, the month that got the whole world locked inside their homes and affected many businesses due to **Covid-19**.

Visualization:

Insight:

November month again generated the highest gross sales for Atliq in 2021 which is 20.46 millions dollars and the least in **April** which is 7.32 millions dollars.

Visualization:

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:

```sql
WITH cte1 AS(
    SELECT
        date,
        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,
        sold_quantity
    FROM fact_sales_monthly
    WHERE fiscal_year = 2020
)

SELECT quarter, SUM(sold_quantity) AS total_sold_quantity
FROM cte1
GROUP BY quarter
ORDER BY total_sold_quantity DESC;
```

Output:

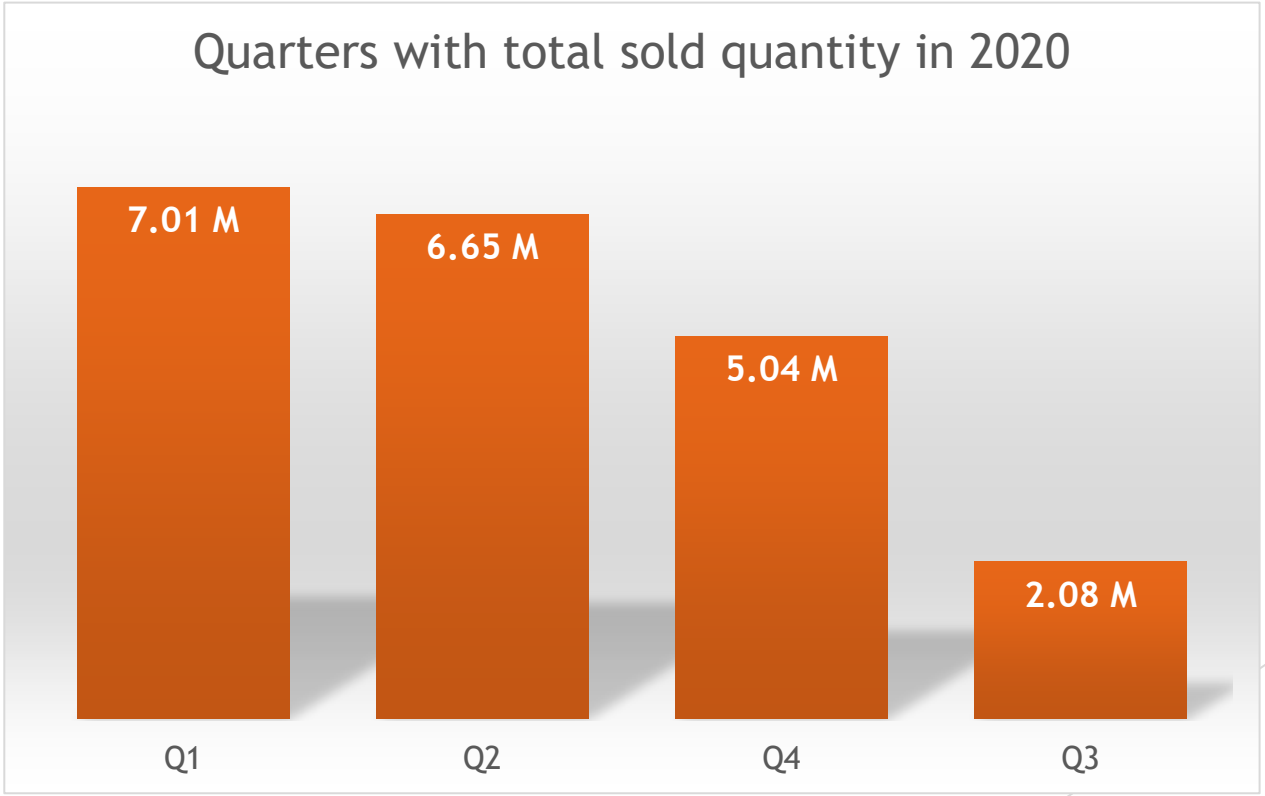
Result Grid | Filter Rows:

quarter	total_sold_quantity
Q1	7005619
Q2	6649642
Q4	5042541
Q3	2075087

Insight:

Quarter 1 which comprises months like September, October and November generated highest sales for Atliq in 2020 and the least performing quarter was **Quarter 3** (March, April, May).

Visualization:



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 cte1 AS(
    SELECT channel, ROUND(SUM(gross_price*sold_quantity)/1000000,2) AS gross_sales_mln
    FROM fact_sales_monthly
    JOIN dim_customer
    USING (customer_code)
    JOIN fact_gross_price
    USING (fiscal_year, product_code)
    WHERE fiscal_year = 2021
    GROUP BY channel
)
SELECT channel, gross_sales_mln, gross_sales_mln*100/SUM(gross_sales_mln) OVER() AS percentage
FROM cte1
ORDER BY percentage DESC
```

Output:

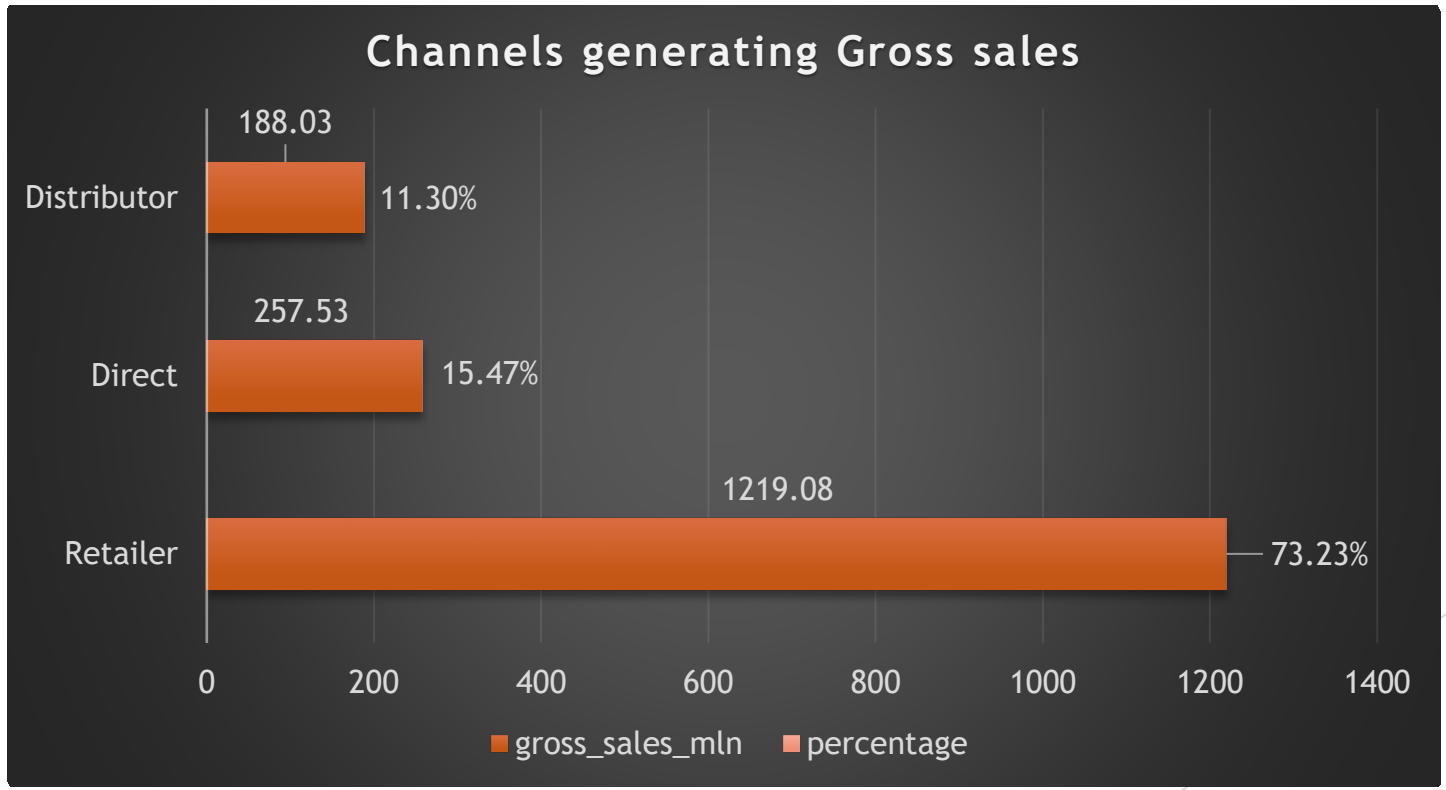
Result Grid | Filter Rows:

channel	gross_sales_mln	percentage
Retailer	1219.08	73.233852
Direct	257.53	15.470612
Distributor	188.03	11.295535

Insight:

AtliQ earned highest gross sales through **Retailer** channel that contributed around **73.23 %** of all the other channels. And the least sales came through **Distributor** channel that contributed around **11.30 %**.

Visualization:



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:

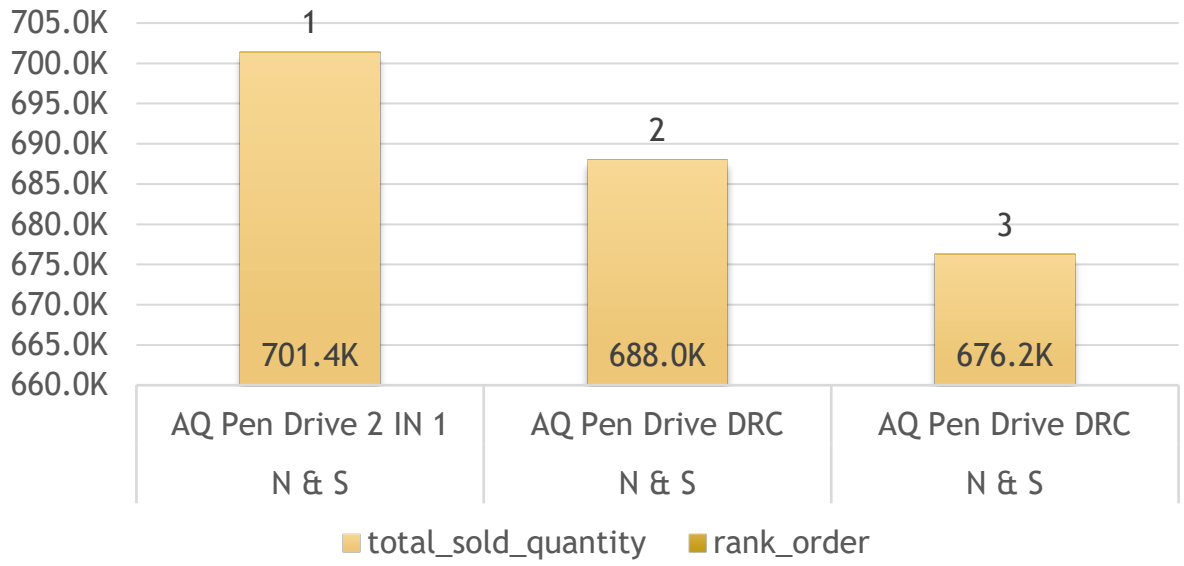
```sql
WITH cte1 AS(
    SELECT division, product_code, product,
           SUM(sold_quantity) AS total_sold_quantity,
           RANK() OVER(PARTITION BY division ORDER BY SUM(sold_quantity) DESC) AS rank_order
    FROM fact_sales_monthly
    JOIN dim_product
    USING (product_code)
    WHERE fiscal_year = 2021
    GROUP BY product_code, product
)
SELECT *
FROM cte1
WHERE rank_order <=3;
```

Output:

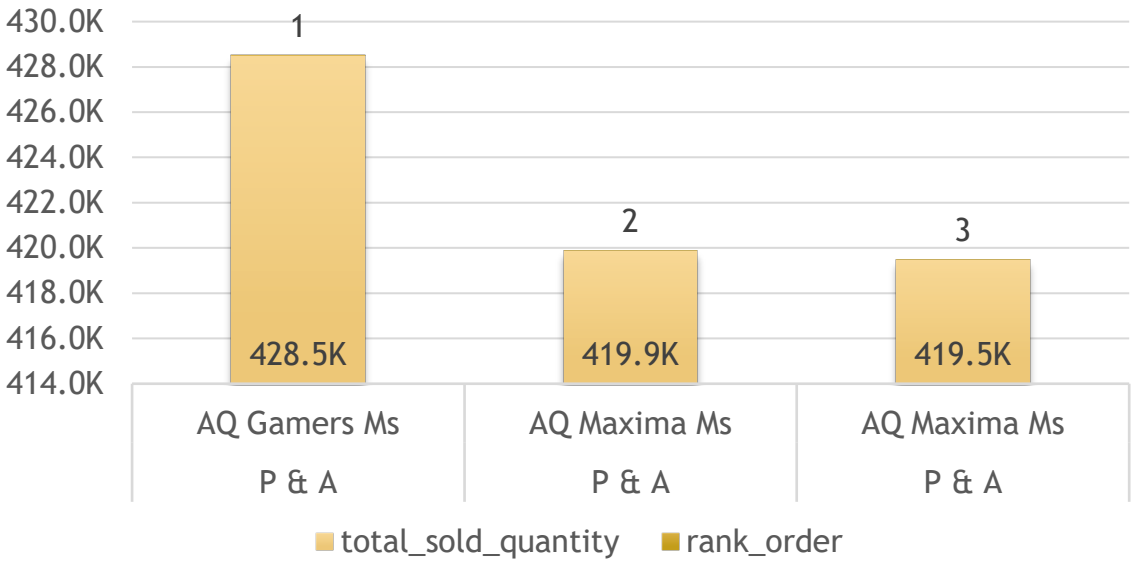
Result Grid | Filter Rows: | Export: | Wrap Cell Content:

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

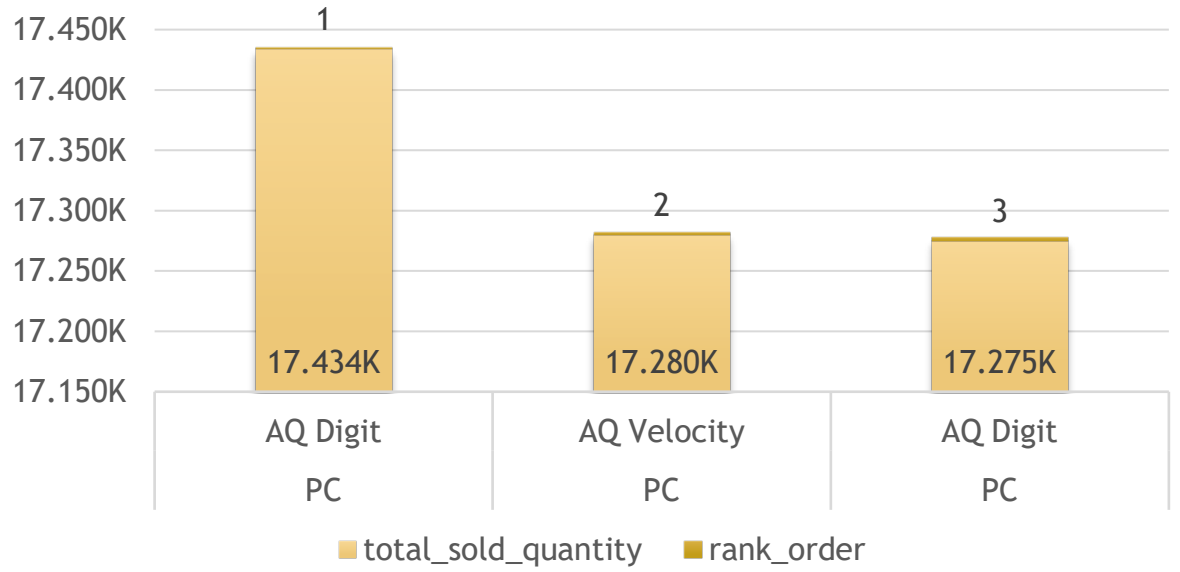
Top 3 Products in N&S



Top 3 Products in P&A



Top 3 Products in PC



Conclusions:

- Atliq focus more on increasing its number of products in **Networking** segment.
- Atliq should also focus on increasing its sales in **Quarter3** which is the least sales generating month for Atliq.
- Atliq should also try to expand its markets in Southeast Asian countries like **Vietnam** and **Thailand** as these two countries can generate a lot of revenue for Atliq in the manufacturing sector.
- Atliq should also focus on marketing its Direct channel i.e., its own stores (**Atliq Exclusive** and **Atliq e Store**) as it will help it to get more revenue by providing discounted prices and avoiding costs that are involved in Retail channel like pre-invoice discounts, post-invoice discounts and miscellaneous costs like placement fees.

Thank you

For feedback and suggestions feel free to connect me with me on:

 LinkedIn

 Github

Or email me directly at:

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