

Consumer Goods

Ad_Hoc Analysis



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Agenda

- About Company
- Objective
- About Data
- 10 Ad-hoc requests with query, results and insights

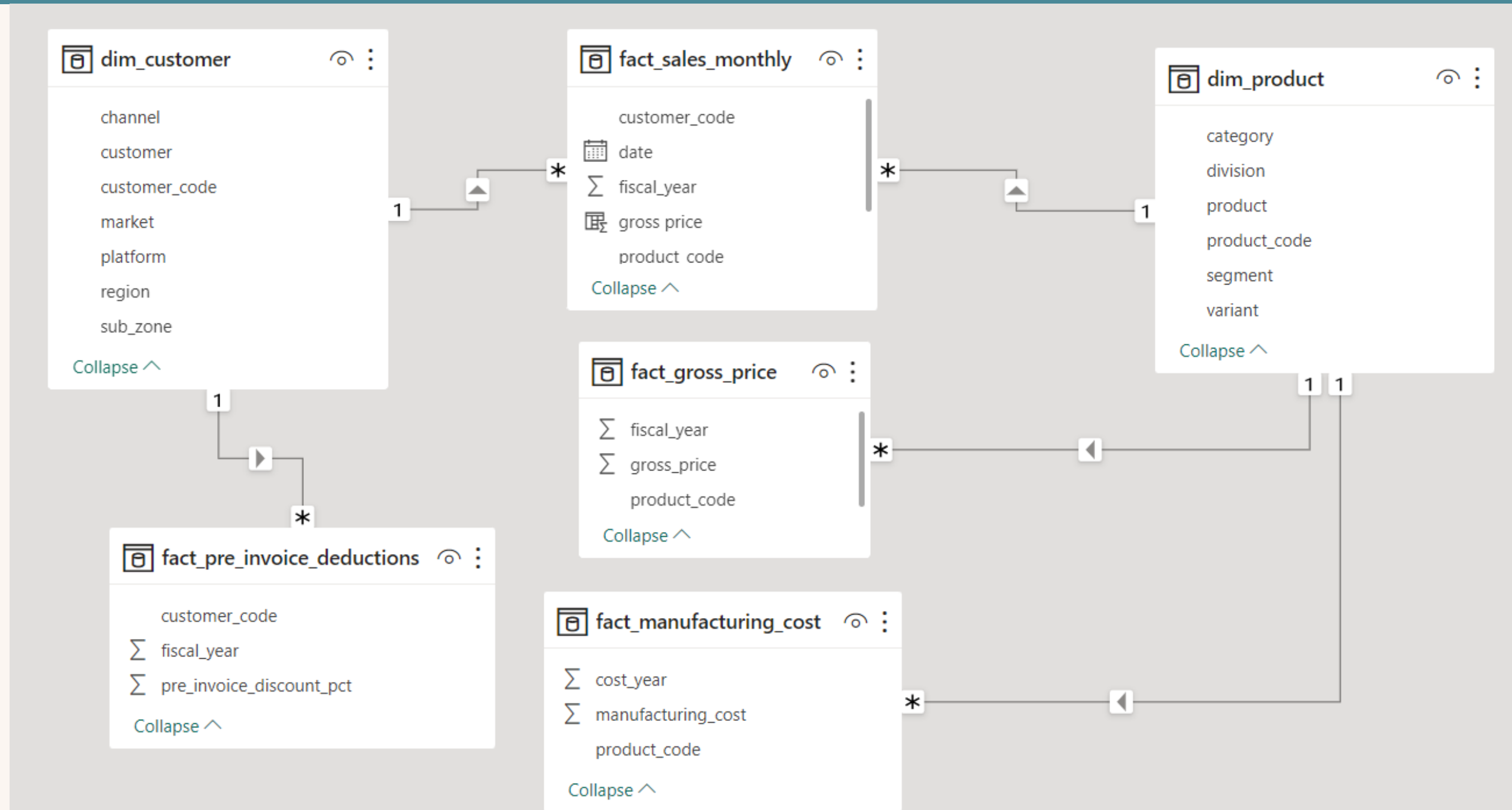
About Company

- Atliq Hardware (imaginary company) is one of the leading computer hardware producers in India and is well expanded in other Countries too. It has market in 4 regions namely Asia -Pacific (APAC), European Union (EU), Latin America (LATAM) and North America(NA) covering 27 Countries.
- The Company has 75 customers, with European Union (EU) having the highest customer base.
- Produces 73 unique products under 3 major division namely Peripherals and Accessories (P&A), Personal Computer(PC) and Networking & Storage (N & S)
- The Fiscal year of the company begin on 01 September and ends on August 31 the next year.

Objective

- 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 analytic director wanted to hire someone who is good at both tech and soft skills
- Hence he decided to conduct a SQL challenge where business wants insights for 10 ad-hoc requests .

About Data



- The Data contains 4 fact table namely fact_sales_monthly, fact_gross_price, fact_manufacturing_cost and fact_pre_invoice_deduction
- 2 dimensional table namely dim_customer and dim_product

REQUEST 1

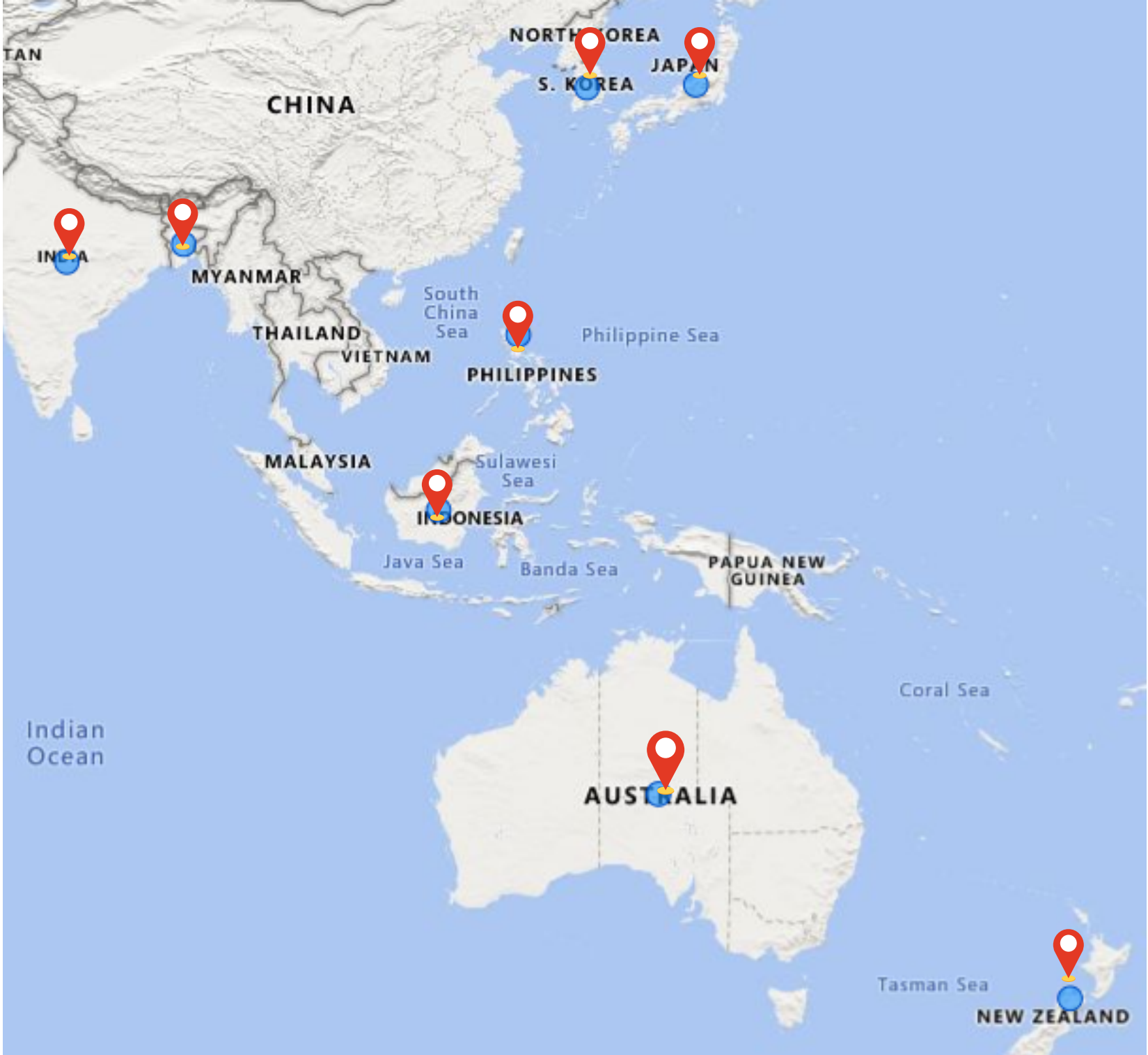
Provide the list of markets in which customer "Atliq Exclusive" operates its business in the APAC region.

QUERY

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

OUTPUT

market
India
Indonesia
Japan
Philiphines
South Korea
Australia
Newzealand
Bangladesh



Insights

Atliq Excusive operates in **8 Countries** in **APAC** region

REQUEST 2

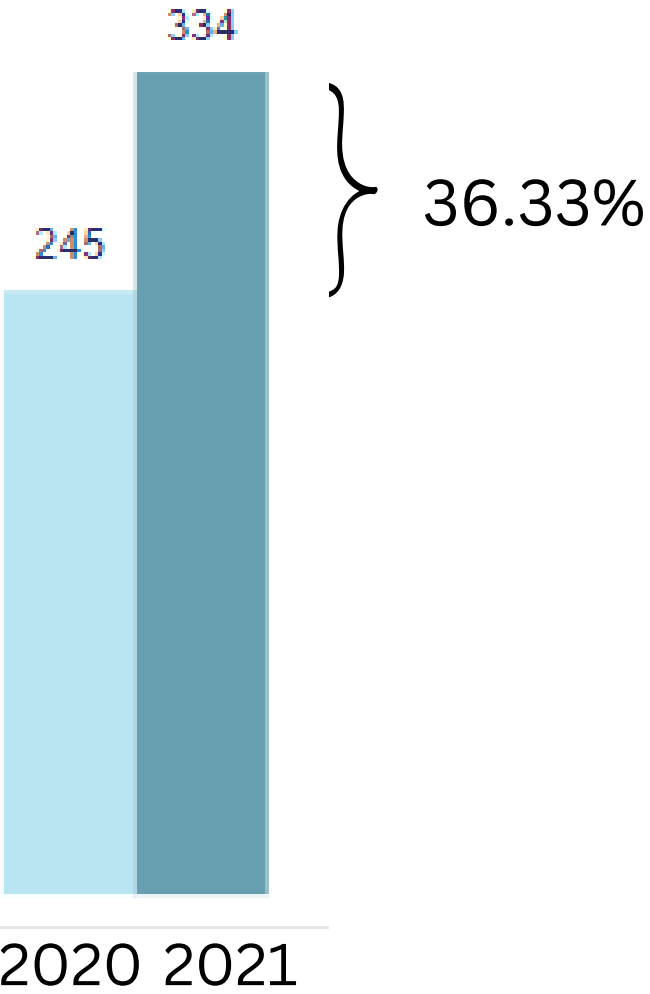
What is the percentage of unique product increase in 2021 vs. 2020? The final output contains these fields,
unique_products_2020
unique_products_2021
percentage_chg

QUERY

```
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 *, ROUND((((unique_products_2021-unique_products_2020) *100)/unique_products_2020),2) AS percentage_chg  
from cte2  
cross join  
cte1 ;
```

OUTPUT

unique_products_2021	unique_products_2020	percentage_chg
334	245	36.33



Insights

89 new products has been introduced in the market which has contributed to **36.33%** change from 2020 to 2021 which shows that company is keeping up with market trends and meeting the customer demands and preferences , which is crucial for company’s growth and sustainability.

unique_product

REQUEST 3

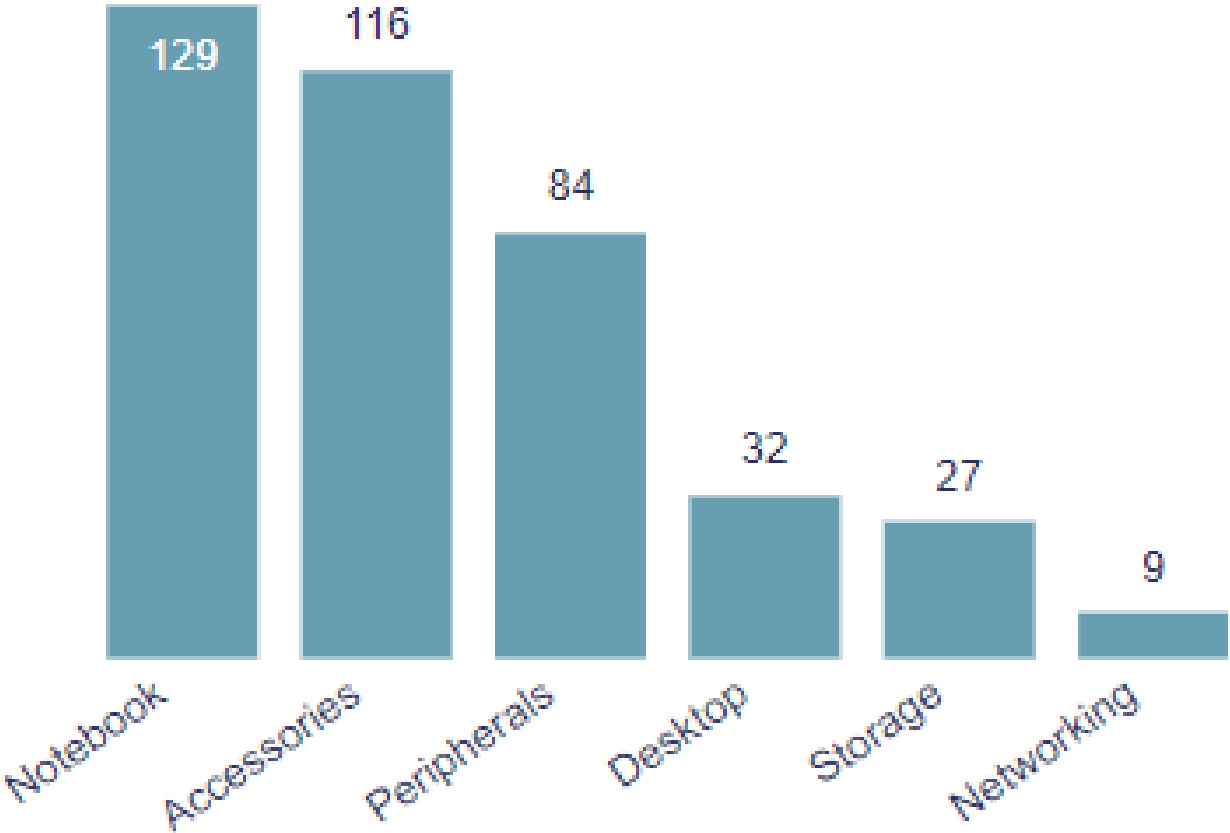
Provide a report with all the unique product counts for each segment and sort them in descending order of product counts. The final output contains 2 fields, segment and product_count

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 **Notebook** has the highest unique product which contributes **32.5 %** of the total products followed by Accessories whereas **networking** has the **lowest** number of products .

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

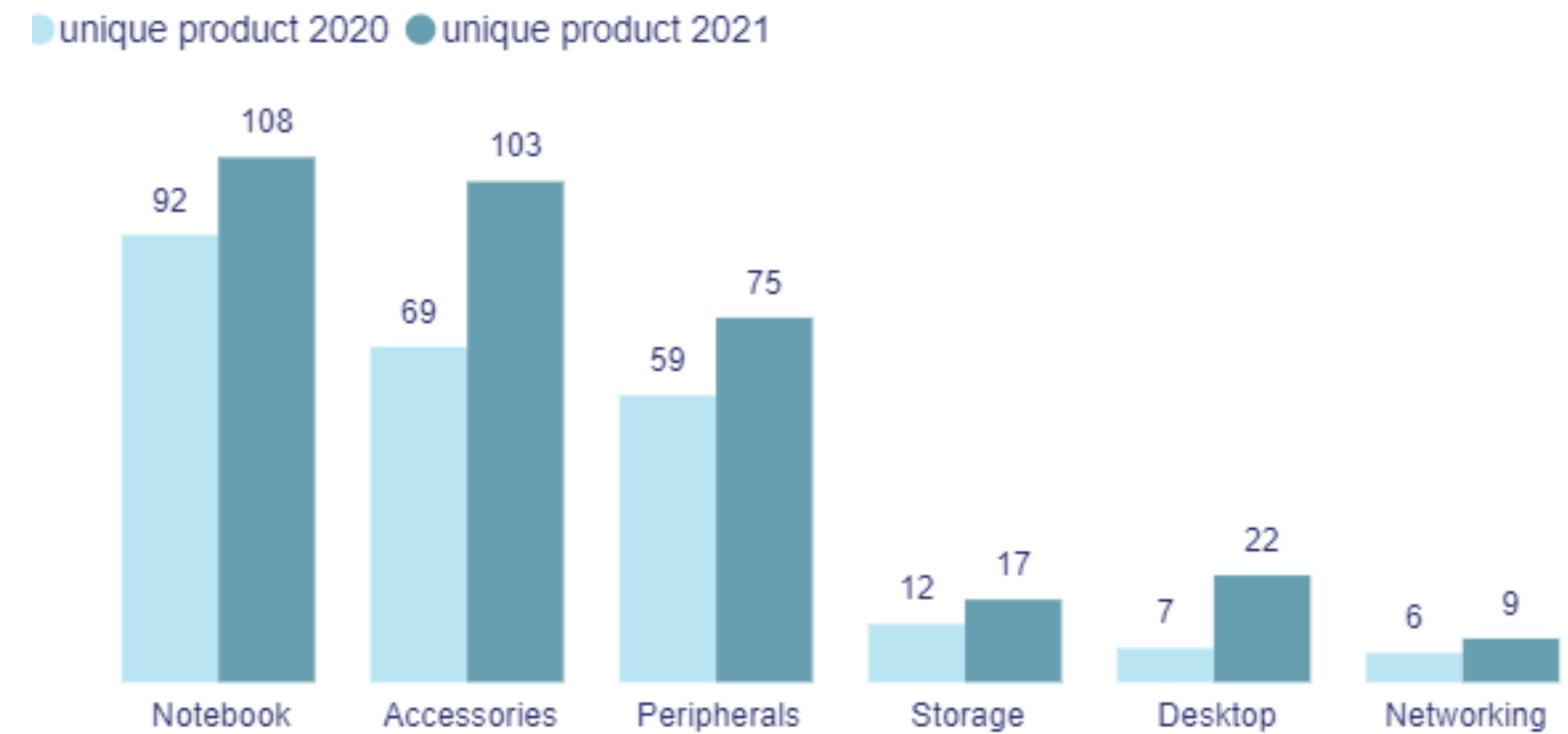
QUERY

```
WITH pro_cnt_2020_tbl AS
(
SELECT p.segment,count(distinct(f.product_code)) as product_count_2020
FROM dim_product p
JOIN fact_sales_monthly f
ON f.product_code = p.product_code
WHERE fiscal_year = 2020
GROUP BY segment
),
pro_cnt_2021_tbl AS
(
SELECT p.segment,count(distinct(f.product_code)) as product_count_2021
FROM dim_product p
JOIN fact_sales_monthly f
ON f.product_code = p.product_code
WHERE fiscal_year = 2021
GROUP BY segment
)
SELECT c1.segment,c1.product_count_2020,c2.product_count_2021,(product_count_2021-product_count_2020) AS difference
FROM pro_cnt_2020_tbl c1
JOIN pro_cnt_2021_tbl c2
ON c2.segment = c1.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

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



Insights

- **Accessories** has introduced **34** new products into it's segment which indicates that the company is competitive by keeping up with the customer demand
- **Desktop** shows a significant growth with a introduction of **3 folds** of new product from the last year to keep up with the current market trend and customer preferences.
- **Networking** has the **least** number of products introduced into it's segment which is just **3** in 2021 followed by Storage which is 6

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

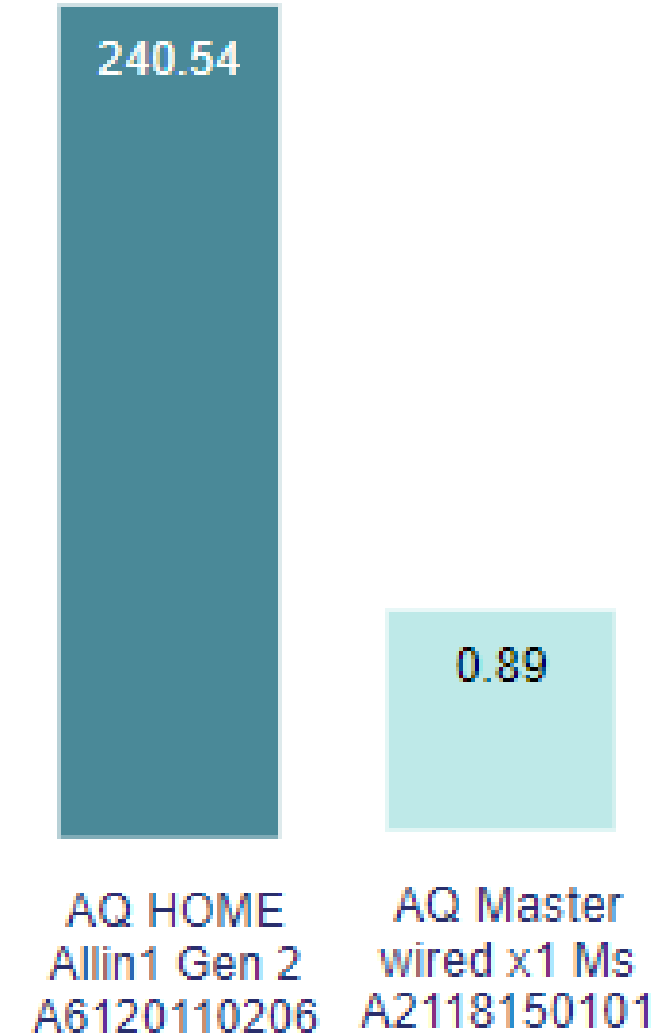
QUERY

```
SELECT p.product_code, p.product, m.manufacturing_cost
FROM dim_product p
JOIN fact_manufacturing_cost m
ON m.product_code = p.product_code
WHERE manufacturing_cost IN ((select max(manufacturing_cost) from fact_manufacturing_cost),
(select min(manufacturing_cost) from fact_manufacturing_cost ))
ORDER BY manufacturing_cost DESC
```

OUTPUT

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

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



Insights

- **AQ HOME Alin 1 Gen 2** which belong to personal desktop category in **Desktop Segment** has the **highest manufacturing cost of \$240.54**
- **AQ Master wired x 1 Ms** which belongs to **mouse category in Accessories segment** has the **lowest manufacturing cost of \$ 0.89.**

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

QUERY

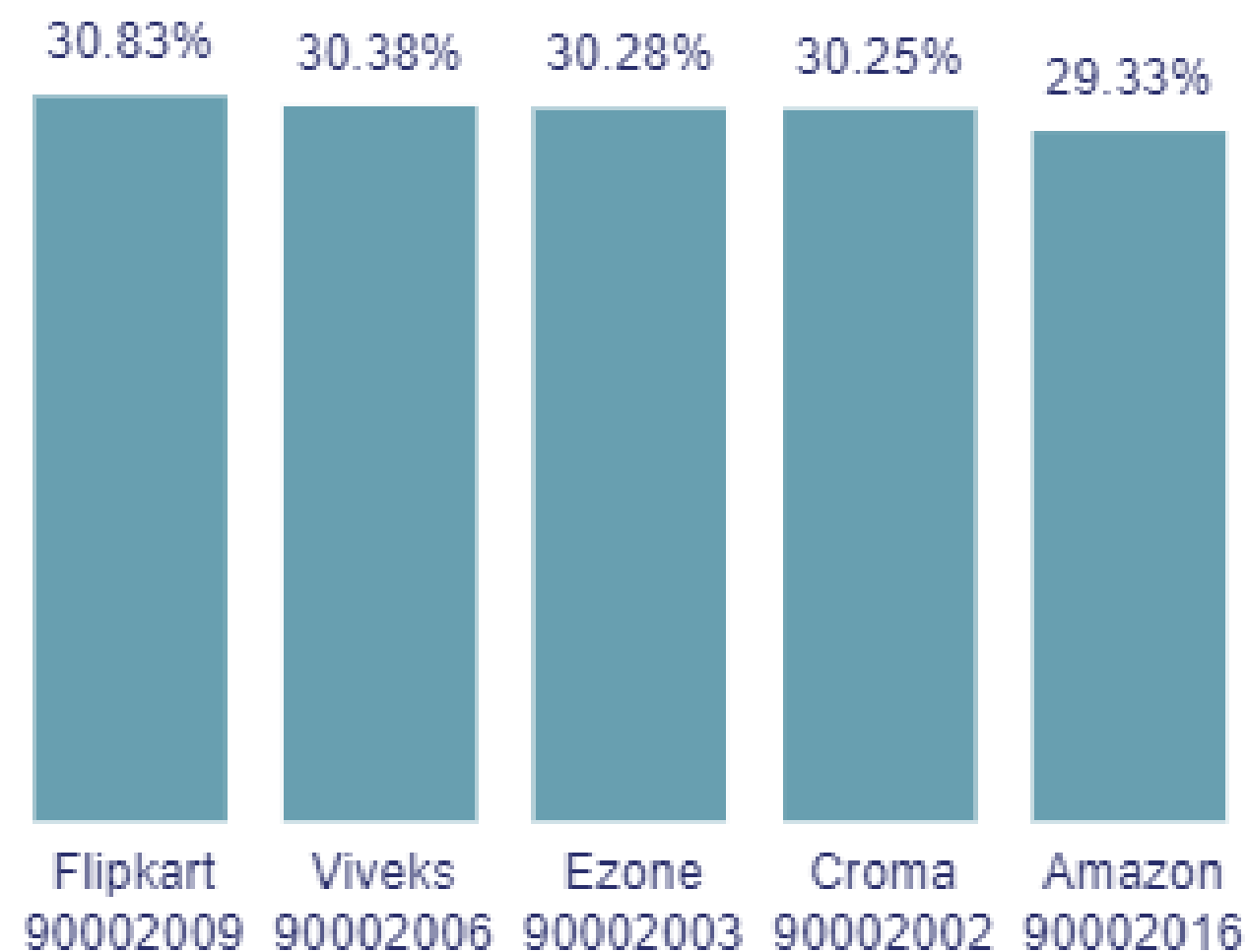
```
SELECT c.customer_code,c.customer,ROUND(AVG(pre_invoice_discount_pct*100),2) as Average_discount_percentage
FROM dim_customer c
JOIN fact_pre_invoice_deductions i
ON i.customer_code = c.customer_code
WHERE market = "india" and fiscal_year = 2021
group by customer,customer_code
order by Average_discount_percentage 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



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

- In **Indian Market** in fiscal year **2021** **Top 5 customers** with the **highest average discount percentage** is as shown in the above visual which is **topped by Flipkart (30.83%)** followed by **Viveks (30.38%)**
- **Flipkart** and **Amazon** are **e-commerce** company whereas **Viveks, Ezone and Croma** are **Brick & Mortar** Company
- These top 5 customers has got collectively an average of **30.2%** average discount percentage

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

QUERY

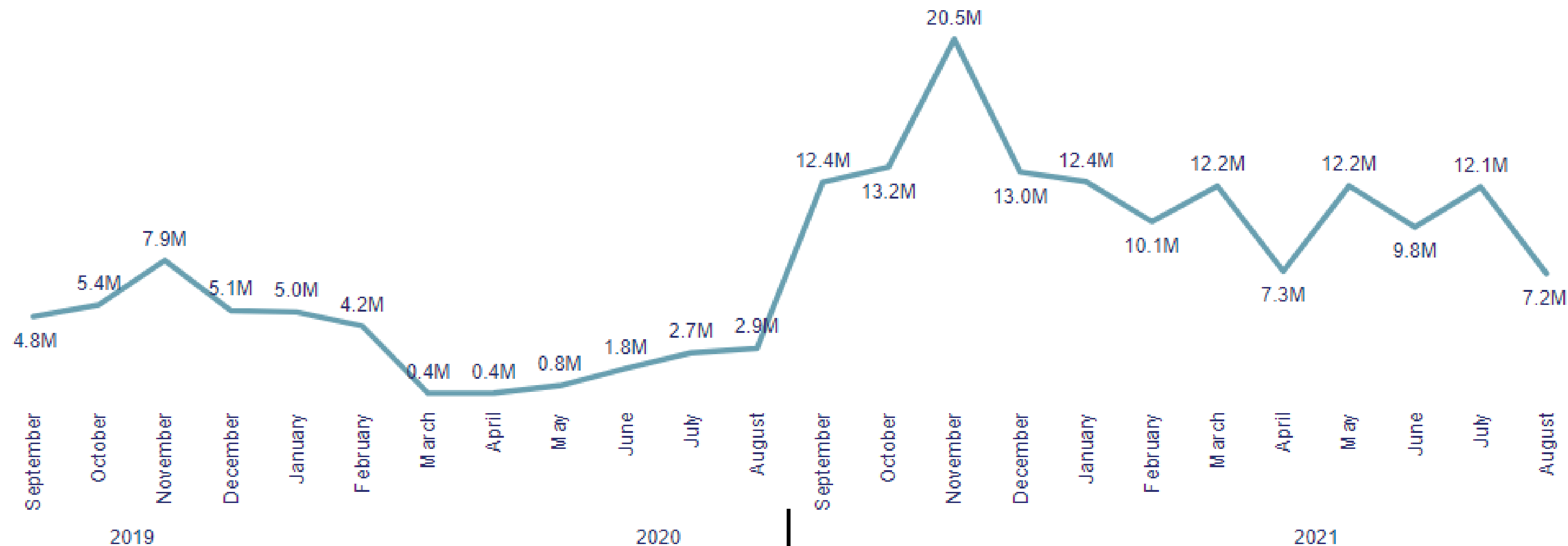
```
SELECT monthname(s.date) AS month ,year(s.date) as Year,  
concat((ROUND(sum(g.gross_price *s.sold_quantity)/1000000,2)), " M")  
AS Gross_Sales_Amount  
FROM fact_sales_monthly s  
JOIN fact_gross_price g  
ON g.product_code = s.product_code AND g.fiscal_year = s.fiscal_year  
JOIN dim_customer c  
ON c.customer_code = s.customer_code  
WHERE customer = "Atliq Exclusive"  
group by month, year  
ORDER BY year
```

OUTPUT

month	Year	Gross_Sales_Amount
September	2019	4.50 M
October	2019	5.14 M
November	2019	7.52 M
December	2019	4.83 M
January	2020	4.74 M
February	2020	4.00 M
March	2020	0.38 M
April	2020	0.40 M
May	2020	0.78 M
June	2020	1.70 M
July	2020	2.55 M
August	2020	2.79 M
September	2020	12.35 M
October	2020	13.22 M
November	2020	20.46 M
December	2020	12.94 M
January	2021	12.40 M
February	2021	10.13 M
March	2021	12.14 M
April	2021	7.31 M
May	2021	12.15 M
June	2021	9.82 M
July	2021	12.09 M
August	2021	7.18 M

FY 2020

FY 2021



(September 2019 - August 2020) - FY 2020

(September 2020- August 2021) - FY 2021

Insights

- The **gross sales amount** of the **Atliq Exclusive** has **increased drastically** from **Fiscal Year 2020** to **Fiscal Year 2021**
- The **lowest Gross sales amount** is marked in the month of **March** in **fiscal year 2020** which is **\$ 0.4M**
- The **highest gross sales** amount is **\$20.5M** in the month of **November** in **Fiscal year 2021**.

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

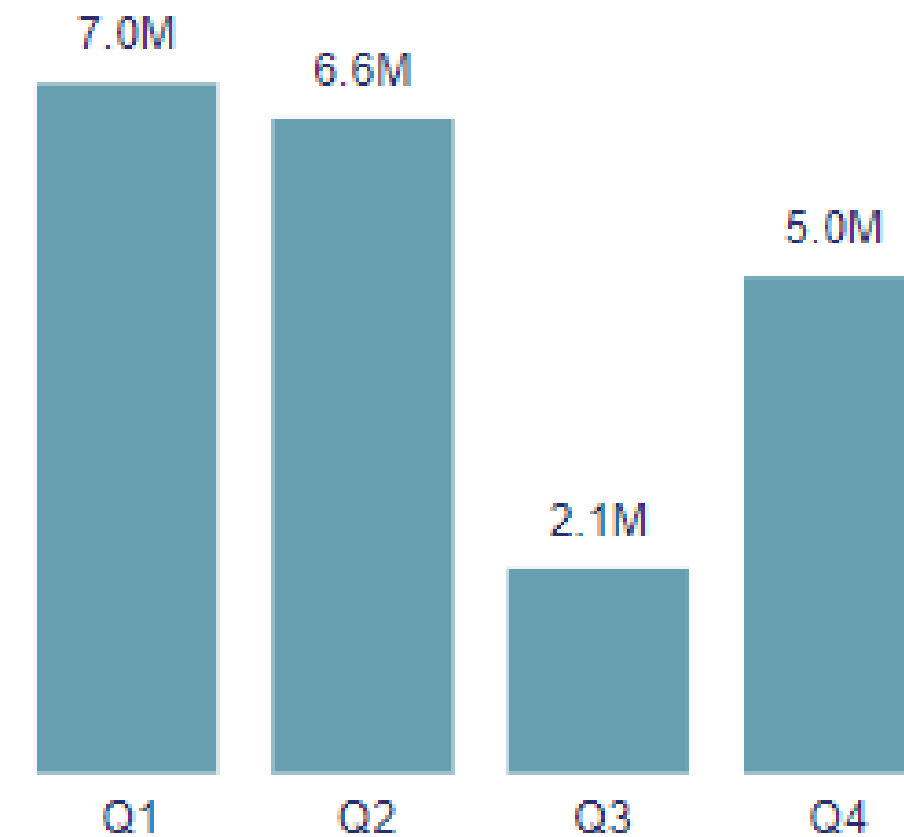
QUERY

```
SELECT  
CASE  
WHEN monthname(date) in ("september","october","november") THEN "Q1"  
  WHEN monthname(date) in ("december","january","february") THEN "Q2"  
  WHEN monthname(date) in ("march","april","may") THEN "Q3"  
  WHEN monthname(date) in ("june","july","august") THEN "Q4"  
END AS Quarters , SUM(sold_quantity) AS Total_sold_quantity  
FROM fact_sales_monthly  
WHERE fiscal_year = 2020  
GROUP BY Quarters  
ORDER BY Total_sold_quantity DESC
```

OUTPUT

Quarters	Total_sold_quantity
Q1	7005619
Q2	6649642
Q4	5042541
Q3	2075087

Quarters	Total_sold_quantity
Q1	7005619
Q2	6649642
Q4	5042541
Q3	2075087



Insights

- In the fiscal year 2020 **Quarter 1** has the highest sold quantity of **7 million units**
- **Quarter 3** has the least sold quantity of about just **2.1 million units** due to pandemic restrictions which affected the supply chain in the initial phase. Industries were facing operational and supply chain disruption and labour shortages.
- In **Quarter 4** there was sudden rise in the sales as the restrictions were relaxed and the increased demand due to work from home for companies and online classes for students.

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

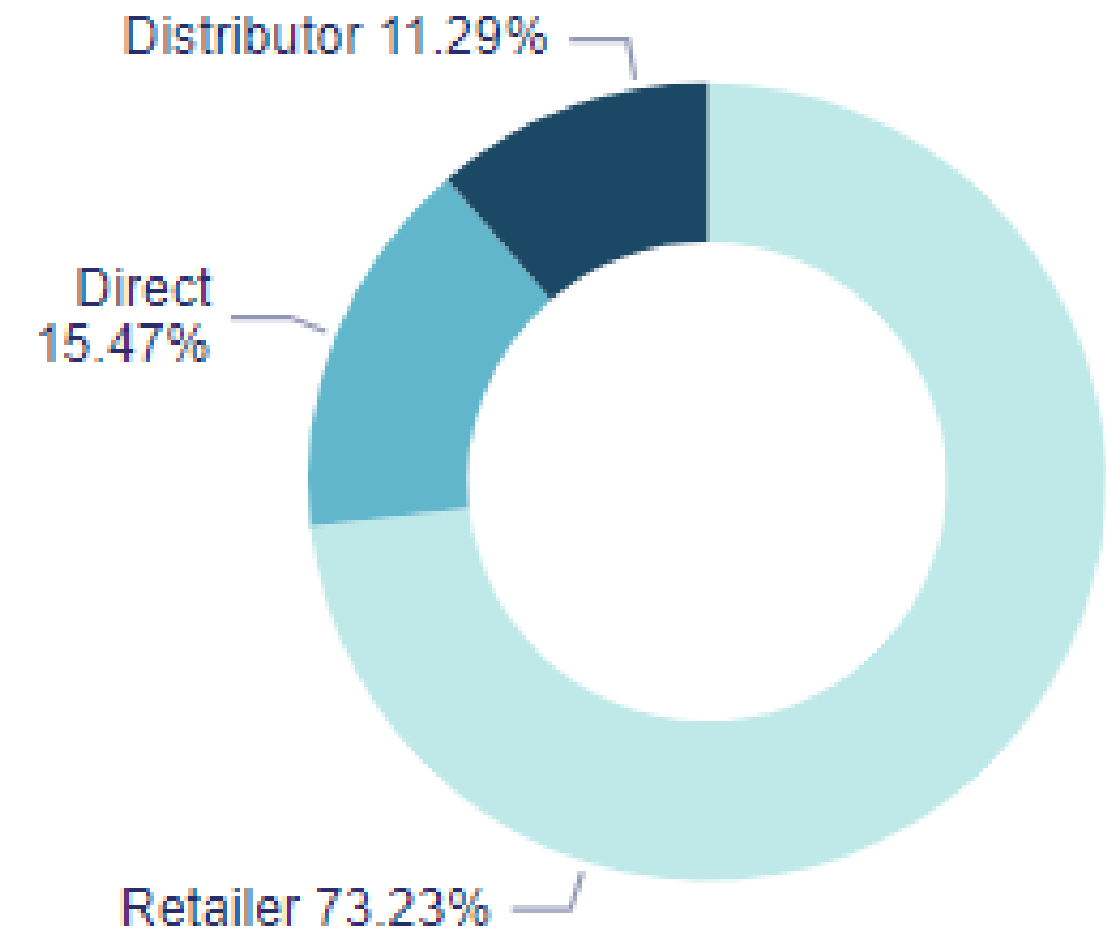
QUERY

```
WITH cte1 AS
(
SELECT c.channel, ROUND(sum(g.gross_price *s.sold_quantity)/1000000,2) AS gross_sales_mln
FROM fact_sales_monthly s
JOIN dim_customer c
ON c.customer_code = s.customer_code
JOIN fact_gross_price g
ON g.product_code = s.product_code AND g.fiscal_year = s.fiscal_year
WHERE s.fiscal_year = 2021
GROUP BY channel
order by gross_sales_mln DESC
)
SELECT channel,gross_sales_mln, CONCAT(ROUND(gross_sales_mln *100/ SUM(gross_sales_mln) over(),2),"%") as percentage
FROM cte1
```

OUTPUT

channel	gross_sales_mln	percentage
Retailer	1219.08	73.23%
Direct	257.53	15.47%
Distributor	188.03	11.30%

channel	gross_sales_mln	percentage
Retailer	1219.08	73.23%
Direct	257.53	15.47%
Distributor	188.03	11.30%



Insights

- In the fiscal year 2021 the **highest revenue** has come from **Retailer channel** which has contributed to **73.23%** of revenue
- **Least contributor** being the **Distributor Channel** with **11.30%**

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

QUERY

```
WITH cte1 AS
(
    SELECT p.division , p.product_code, p.product, SUM(s.sold_quantity) AS total_sold_quantity

    FROM dim_product p
    JOIN fact_sales_monthly s
    ON s.product_code = p.product_code
    WHERE fiscal_year = 2021
    GROUP BY product_code
),
cte2 AS
(
    SELECT *, dense_rank() over (partition by division order by total_sold_quantity DESC ) AS rank_order
    FROM cte1 )

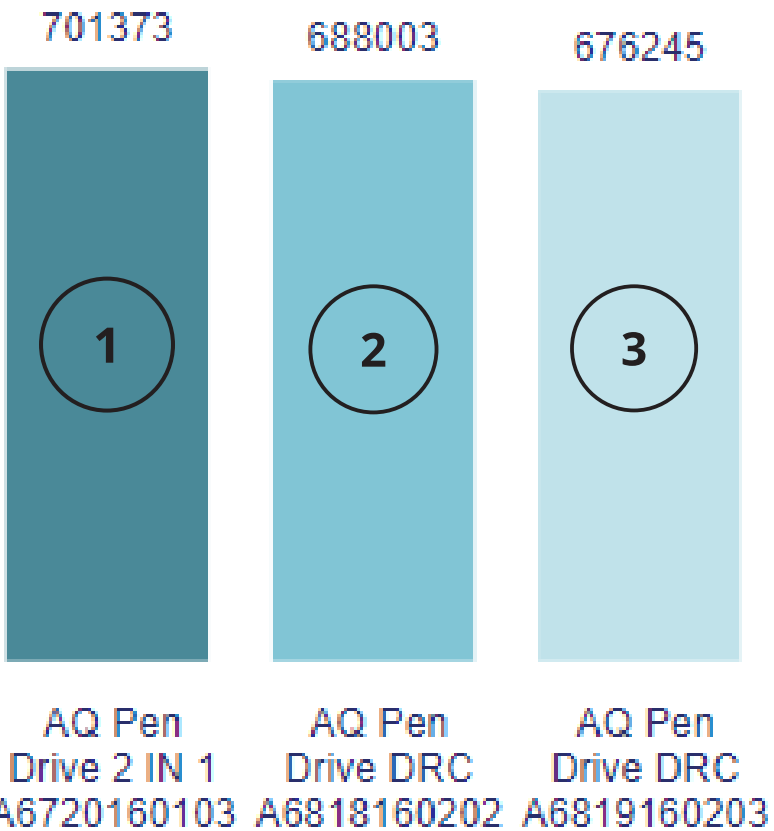
SELECT * FROM cte2 WHERE rank_order<=3
```

OUTPUT

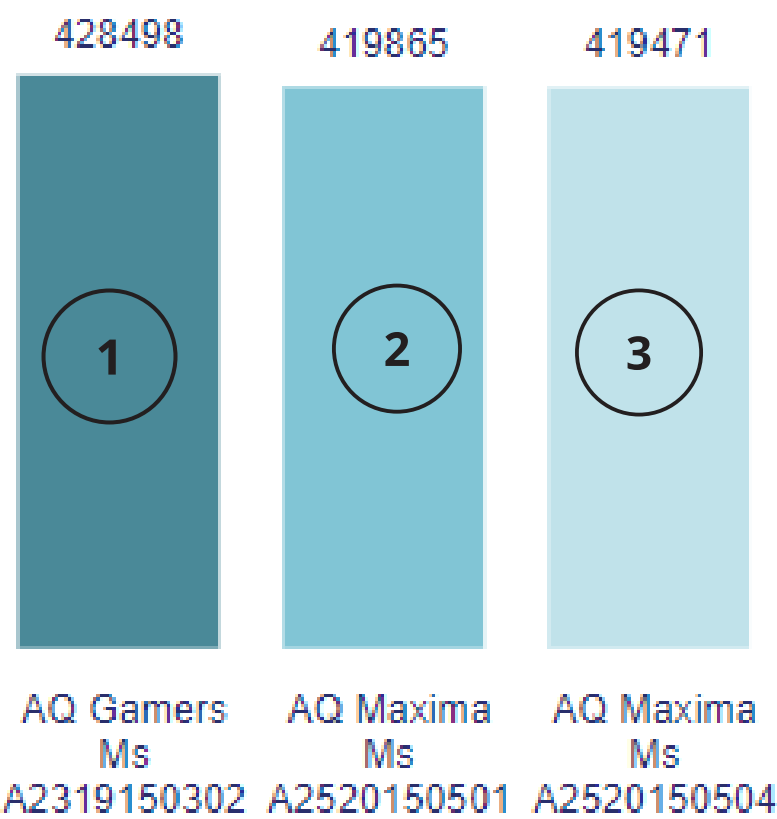
division	product_code	product	total_sold_quantity	rank_order
N & S	A6720160103	AQ Pen Drive 2 IN 1	701373	1
N & S	A6818160202	AQ Pen Drive DRC	688003	2
N & S	A6819160203	AQ Pen Drive DRC	676245	3
P & A	A2319150302	AQ Gamers Ms	428498	1
P & A	A2520150501	AQ Maxima Ms	419865	2
P & A	A2520150504	AQ Maxima Ms	419471	3
PC	A4218110202	AQ Digit	17434	1
PC	A4319110306	AQ Velocity	17280	2
PC	A4218110208	AQ Digit	17275	3

Insights

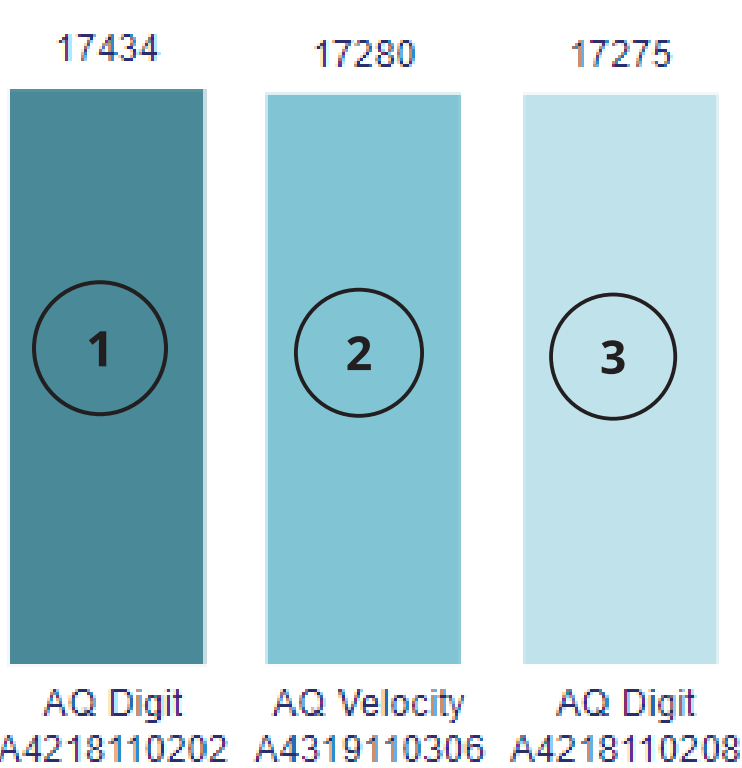
- The **highest number of product sold** in **Networking and storage** division **followed by** **Peripherals and accessories**.
- **AQ Pen Drive 2 in 1** which is a **USB Flash Drive** is the **highest sold product** in **networking and storage** division
- **AQ Gamers Ms** which is a **Mouse** is the **highest sold product** in **peripherals and accessories** division
- In **PC division** **AQ Digit** which is a **Personal Laptop** has the **highest sold quantity**



N & S



P & A



PC

THANK YOU