ATLIQ HARDWARE

SQL DATA ANALYSIS PROJECT

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Introduction

Problem Statement

Welcome to Atliq Hardware.

- Atliq Hardware is a leading hardware company spread across the globe and transports computer peripherals as keyboards, mice, printers etc.

- The goal is to assess the company's performance in 2021 compared to its sales in 2020.

- For this project, my task involves utilizing a dataset to address 10 distinct ad-hoc requests through SQL queries.

- Despite Atliq Hardware's exceptional performance in previous years, the management identified a gap in revenue and sales.

- This was the time when they realised the need of insights from their data to come up with strategic moves to boost sales and understand market sales, segment variations to make company aligned decisions.
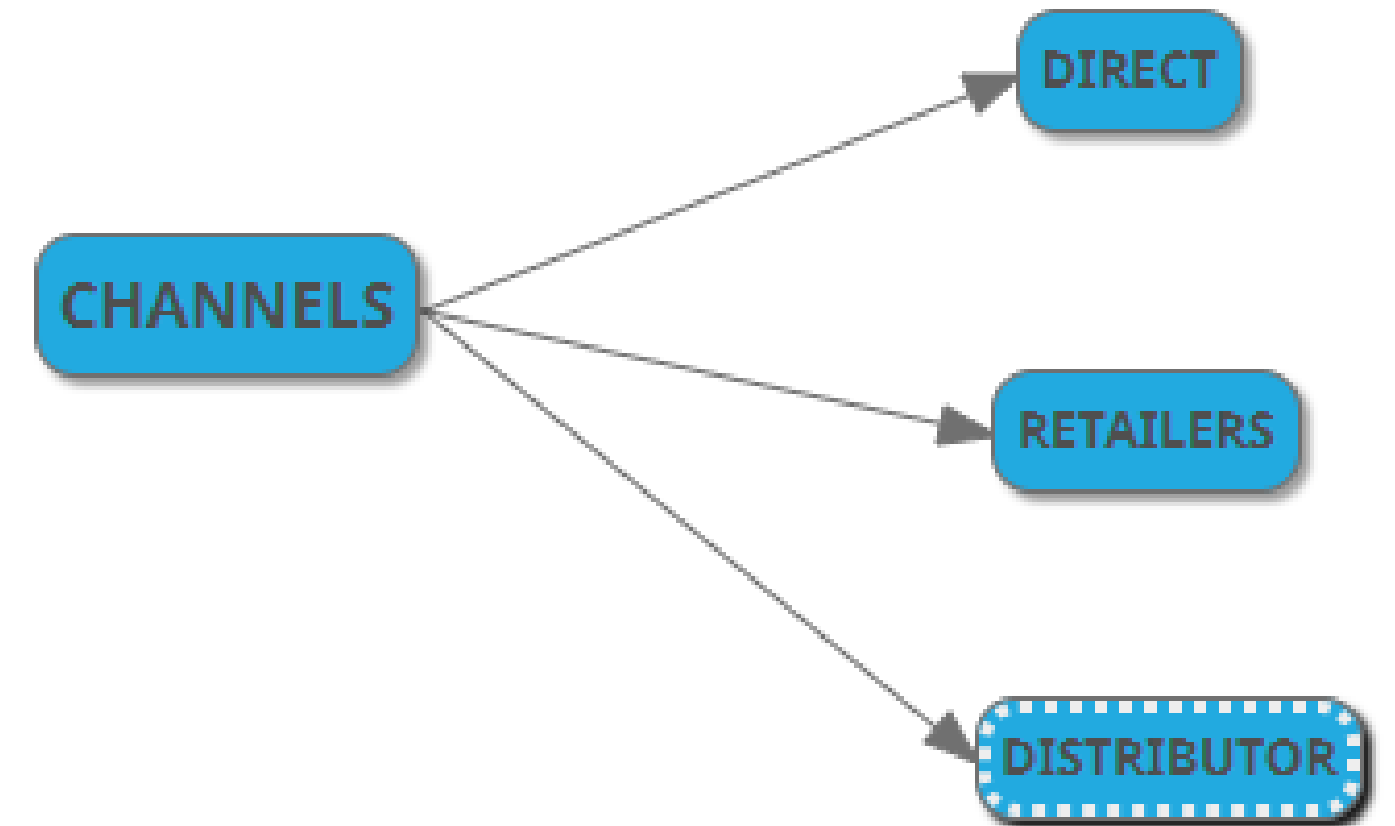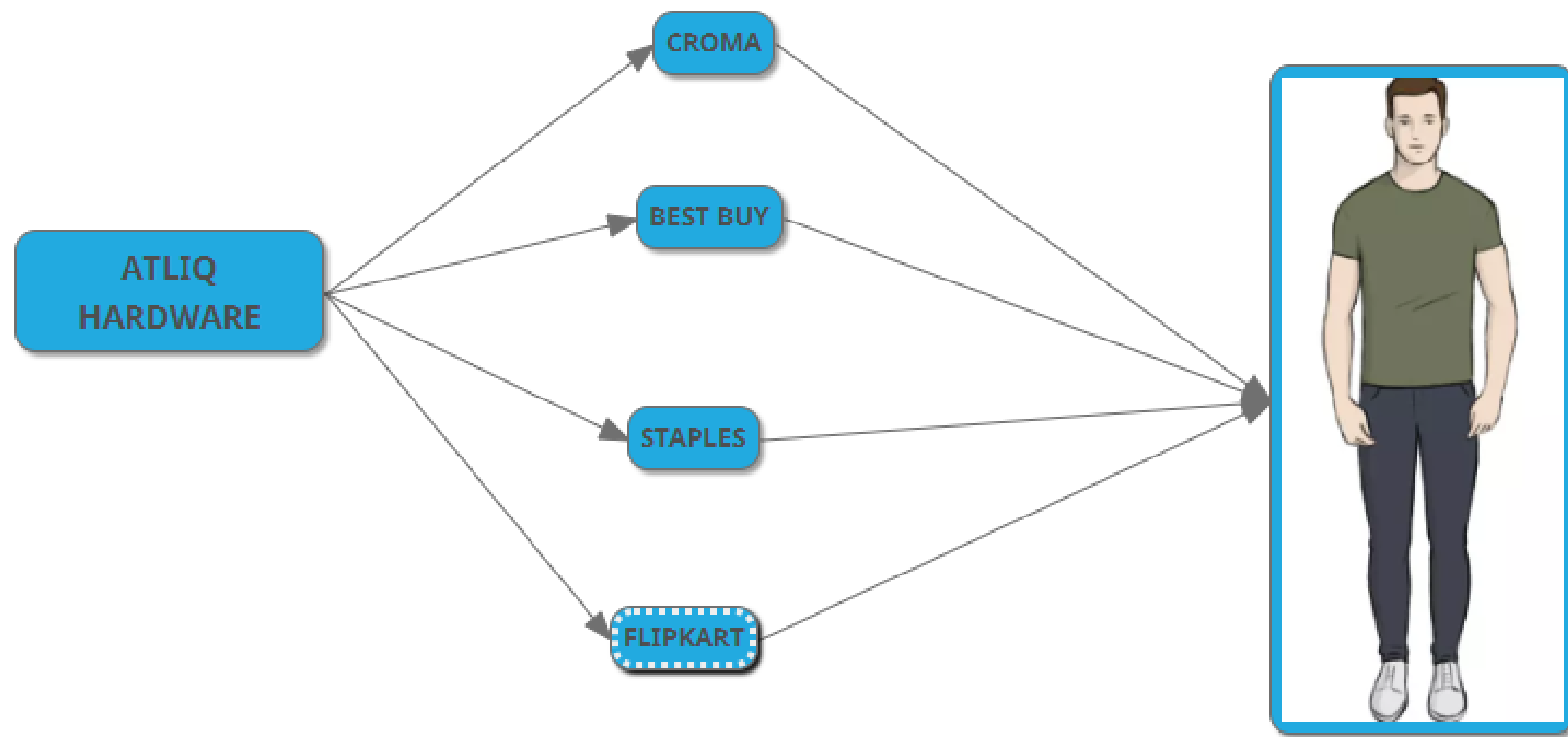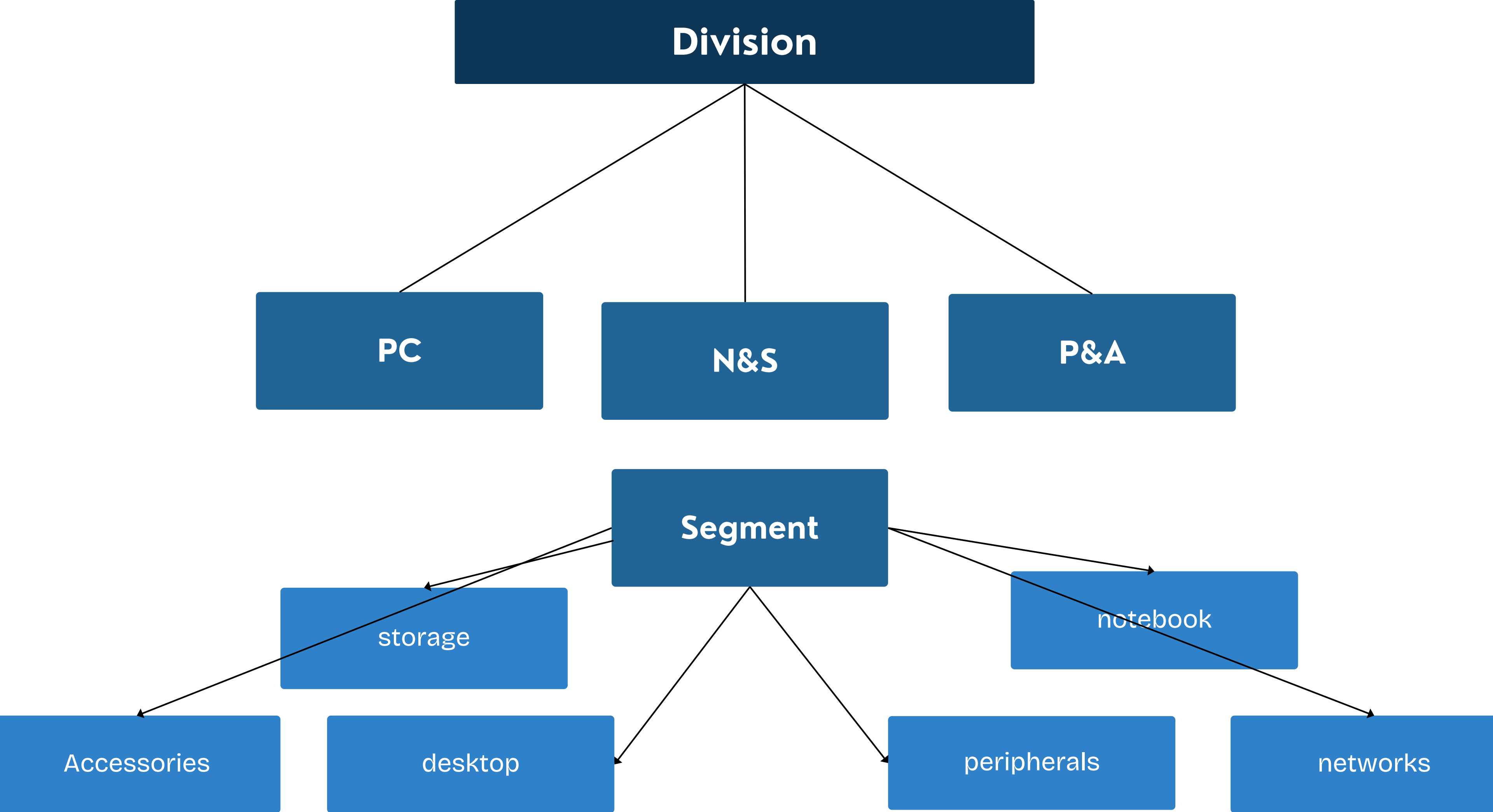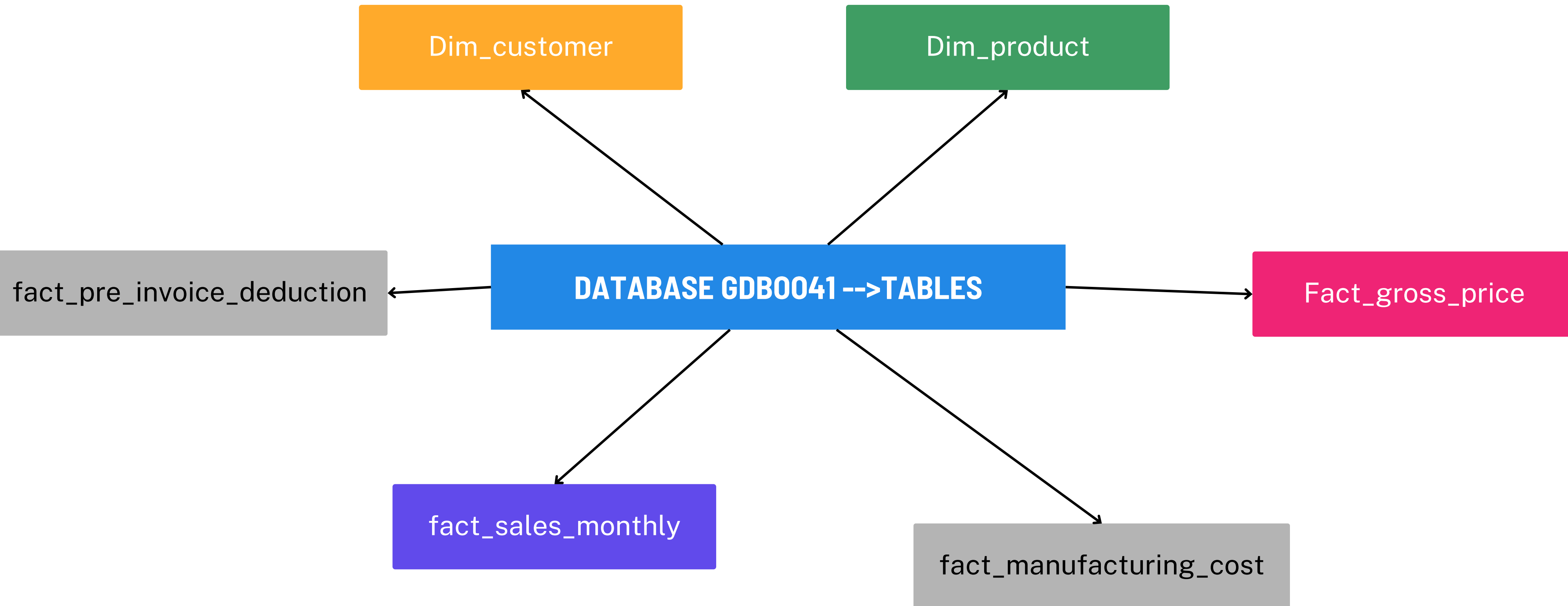
BUSINESS MODEL

Dataset


```
                Dim_customer              Dim_product


fact_pre_invoice_deduction    DATABASE GDB0041 -->TABLES    Fact_gross_price


            fact_sales_monthly              fact_manufacturing_cost
```
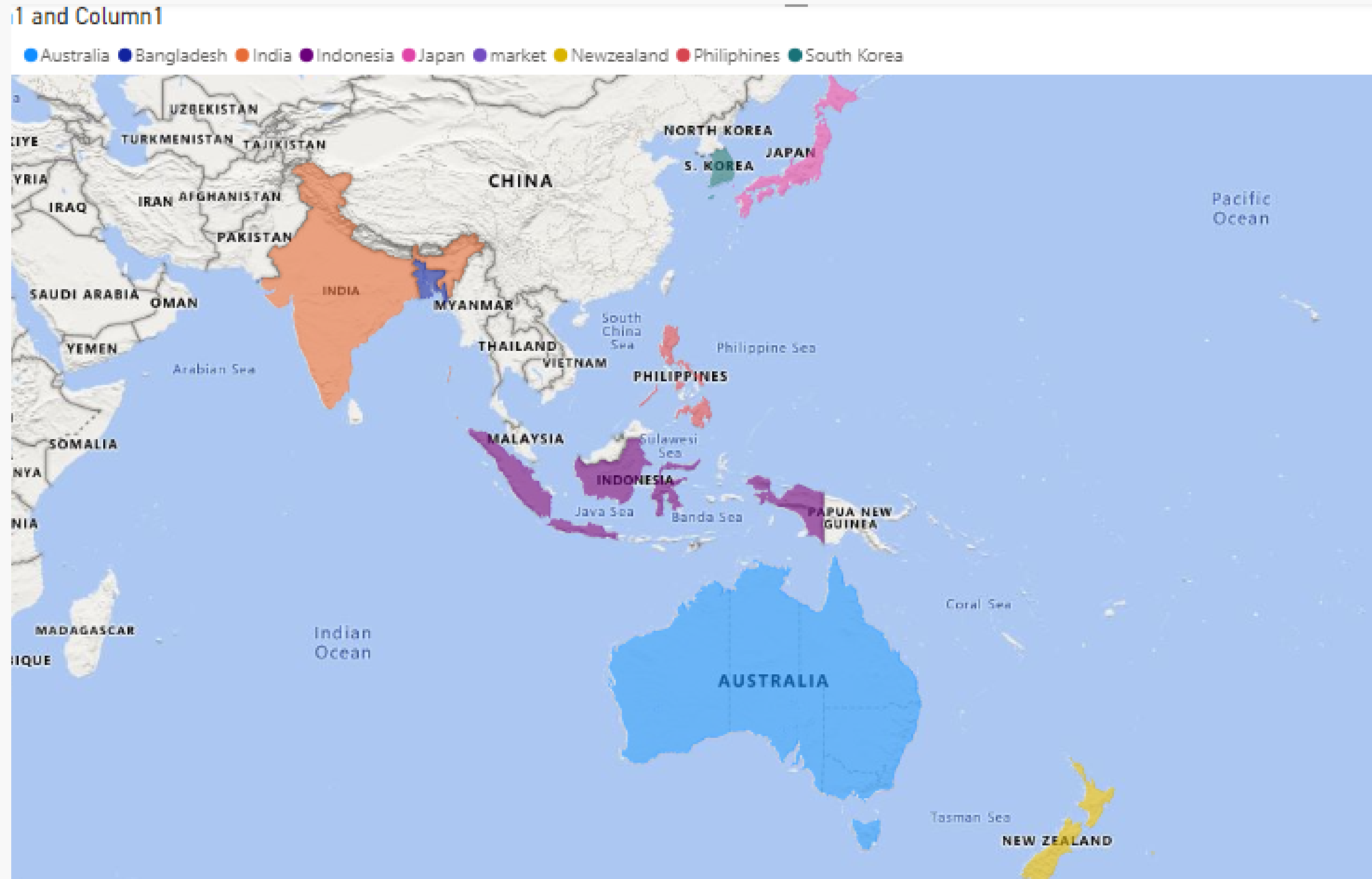
AD-HOC Request-1

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

```sql
SELECT DISTINCT market
FROM dim_customer
WHERE customer="Atliq Exclusive"
AND region="APAC"
```

market
India
Indonesia
Japan
Philiphines
South Korea
Australia
Newzealand
Bangladesh

Visuals - 1

Insights

- **Atliq Exclusive has a strong presence in various Asia Pacific regions including India, Indonesia, Japan, the Philippines, South Korea, Australia, New Zealand, and Bangladesh.**

- **This demonstrates a solid market presence and ability to adapt to diverse cultural and economic landscapes in the APAC regions.**

AD-HOC Request-2

What is the percentage of unique product increase in 2021 vs. 2020?

```sql
WITH X AS
 (SELECT COUNT(DISTINCT product_code) AS unique_products_2020
  FROM fact_sales_monthly WHERE fiscal_year= 2020),
  Y AS
 (SELECT COUNT(DISTINCT product_code) AS unique_products_2021
  FROM fact_sales_monthly WHERE fiscal_year= 2021)
SELECT
  X.unique_products_2020,
  Y.unique_products_2021,
round(((Y.unique_products_2021-X.unique_products_2020)/X.unique_products_2020)*100,2)
AS Percentage_change FROM X,Y;
```

NOTE
Fiscal Year 2020 is from Sep 2019 to Aug 2020.
Fiscal Year 2021 is from Sep 2020 to Aug 2021.

unique_products_2020	unique_products_2021	Percentage_change
245	334	36.33

Visuals - 2

Insights

Unique_products_count

58% | 42%

Unique_products_2020 | Unique_products_2021
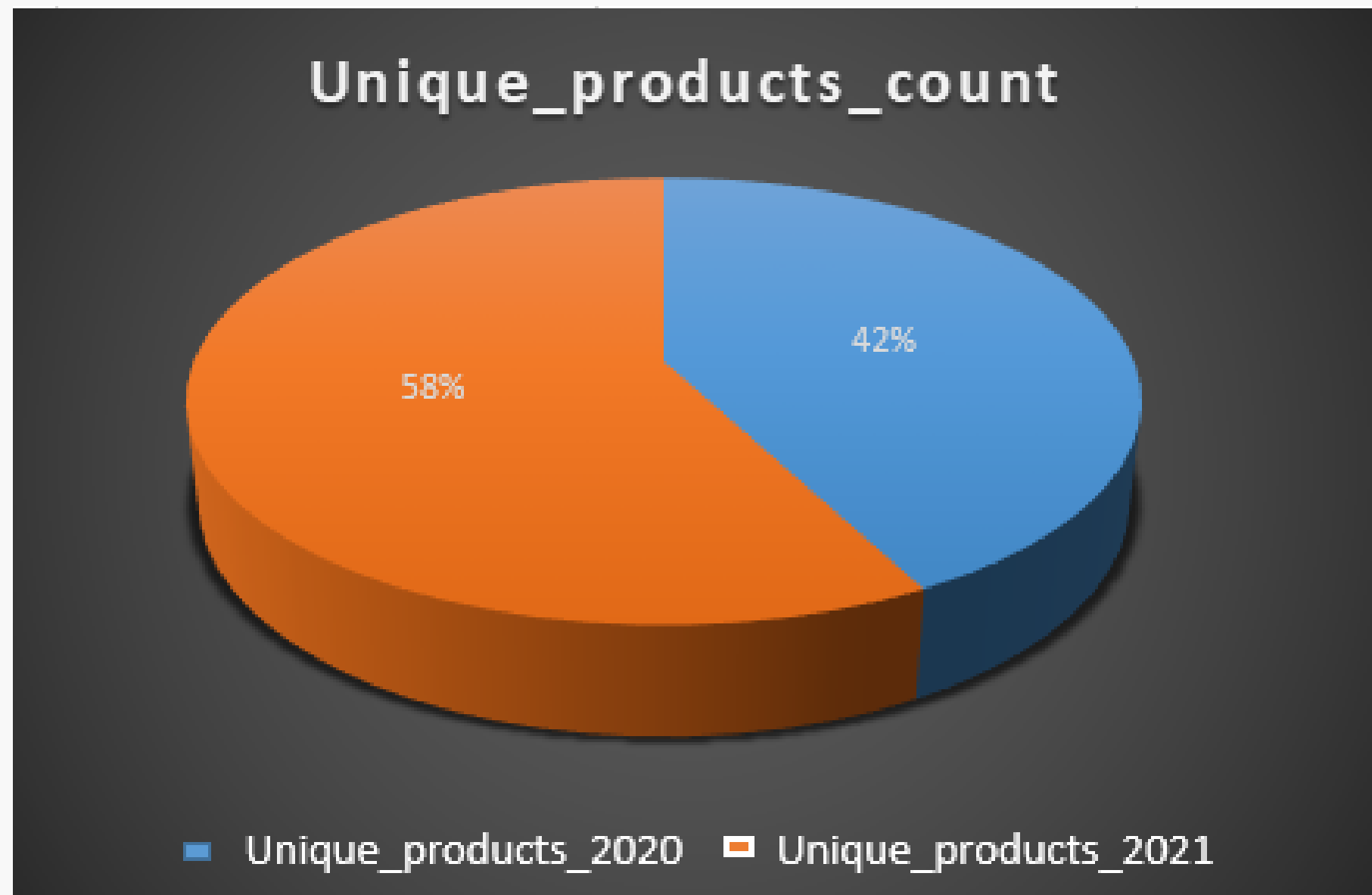
- In 2021, Atliq Hardwares experienced a notable rise in product variety, with 334 unique products compared to 245 in 2020.
- This reflects a 36.33% increase in unique products over the course of a year.
- This increase in product suggests on expanding product offerings, marketing to gain more customer base and build value to gain more profit.
- It is a positive indicator of business growth and flexibility in response to evolving market needs.

AD-HOC Request-3

Provide a report with all the unique product counts for each segment and sort them in descending order of product counts.

```sql
select segment,
count(distinct product_code) as product_count
from dim_product
group by segment
order by product_count desc
```

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

Visuals -3

Product_count by segment
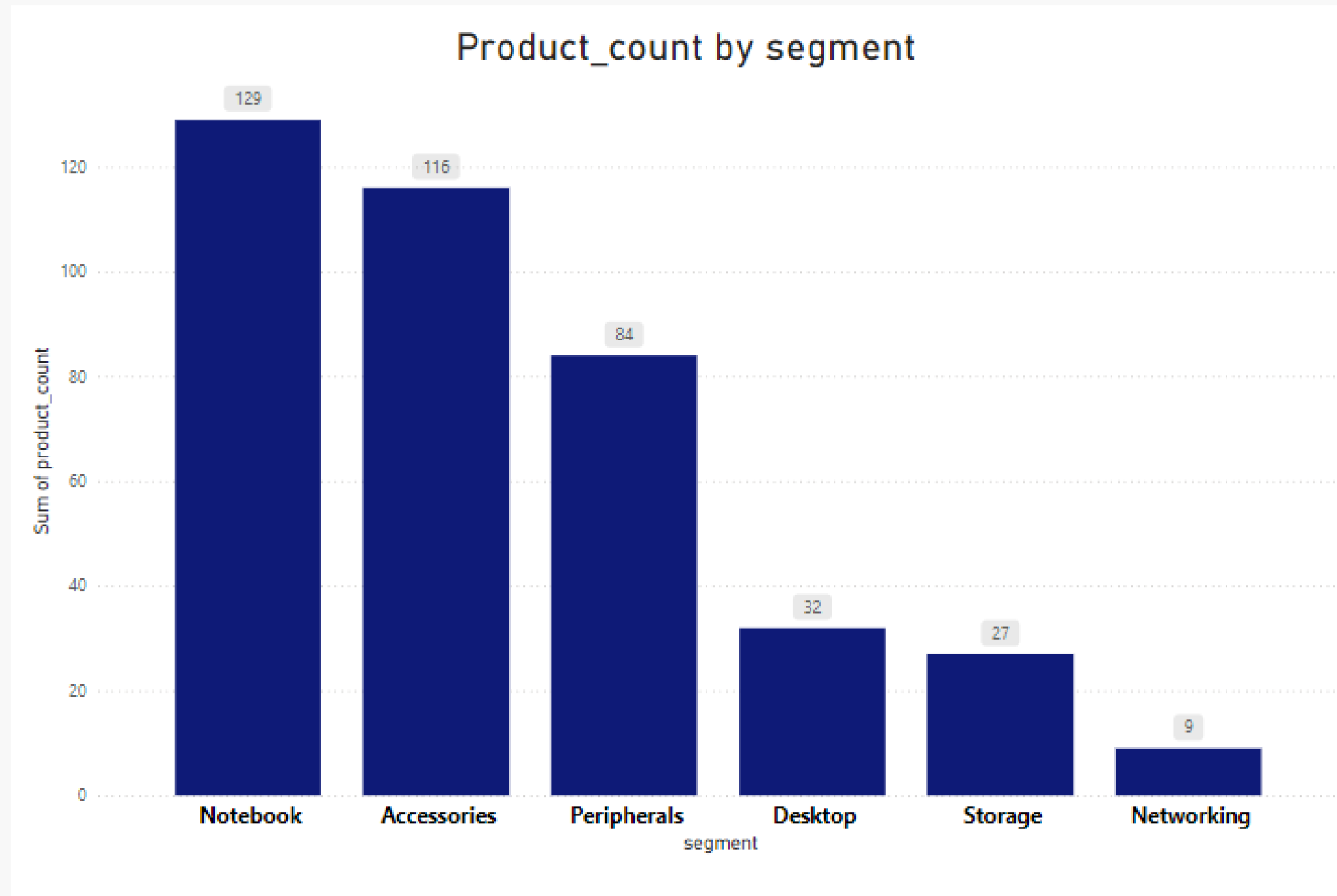
Insights

- At Atliq Hardware, there are a total of six segments.
- "Notebooks" rank the highest with a product count of 128.
- Conversely, "Networking" has the lowest count of products at 9.
- These figures illustrate the product variety within each segment, highlighting that "Notebooks" and "Accessories" offer a wide range and significantly contribute to the revenue compared to other segments.
- This analysis aids in identifying scalable product categories and segments that require further attention.

AD-HOC Request-4

**Which segment had the most increase in unique products in 2021 vs 2020?**

```
with X as
(select p.segment, count(distinct s.product_code) as product_count_2020
from dim_product p
join fact_sales_monthly s
on p.product_code=s.product_code
where s.fiscal_year=2020
group by p.segment),

Y as
(select p.segment, count(distinct s.product_code) as product_count_2021
from dim_product p
join fact_sales_monthly s
on p.product_code=s.product_code
where s.fiscal_year=2021
group by p.segment)
select X.segment , product_count_2020 ,product_count_2021,abs(x.product_count_2020-
Y.product_count_2021) as difference
from X
join Y on X.segment=Y.segment
order by difference desc
```

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

Visuals - 4

Insights

Product_count trends for FY 2020 vs 2021
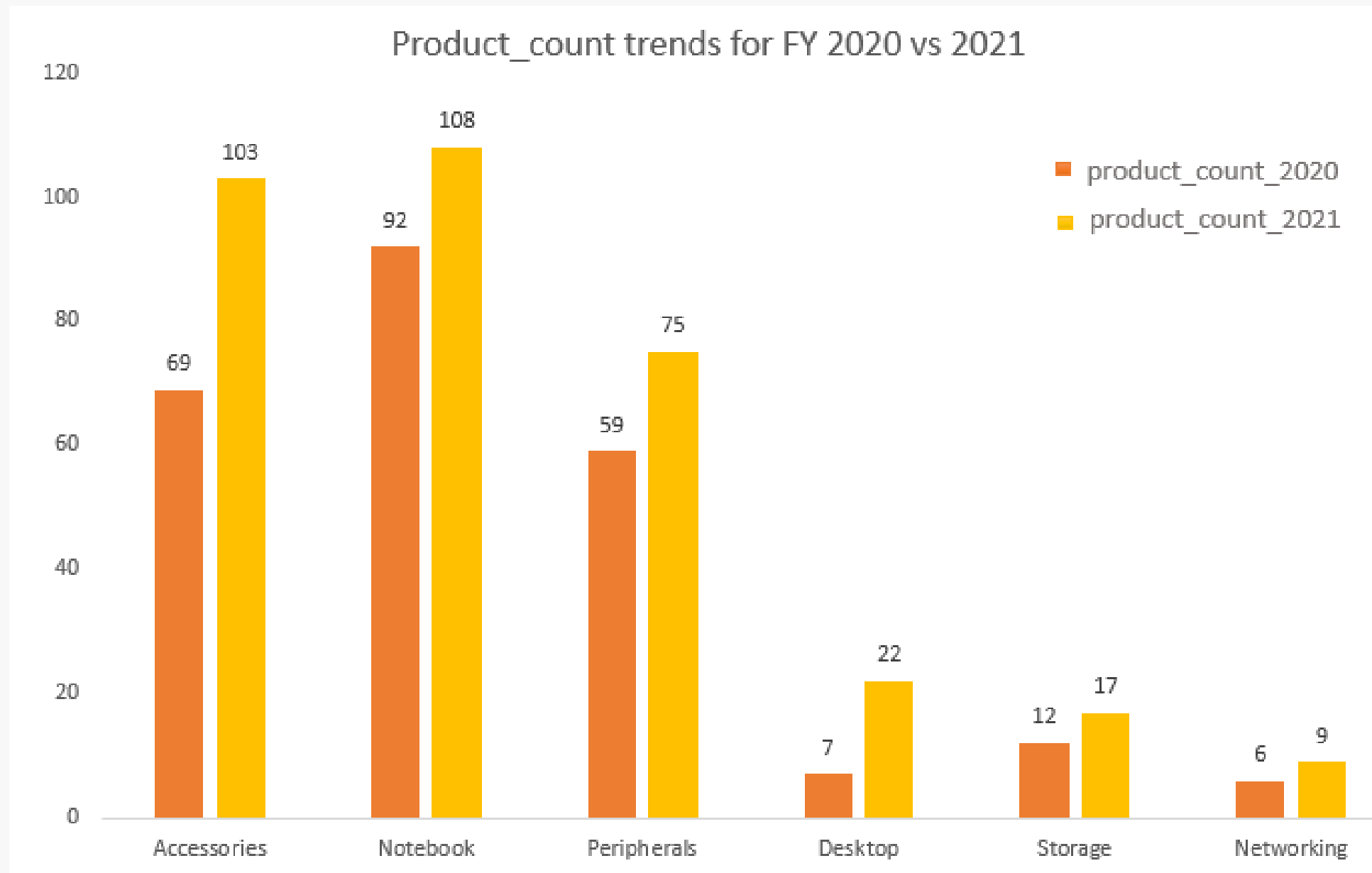
- In 2020, "Accessories" fell behind "Networks," but in 2021, it claimed the top spot with 34 more products, indicating efforts to expand the selection.
- These insights suggest a growth in products especially in "Accessories and "Notebooks" segments.
- These numbers demonstrate the diversity of products in each category.
- Diversity can help customers with more choices and boost sales.

AD-HOC Request-5

Insights

- AQ HOME ALLIN 1 Gen 2 has the highest manufacturing cost.
- Whereas AQ Master wired x1 Ms has lowest manufacturing cost.

-- Get the products that have the highest and lowest manufacturing costs.

```sql
select m.product_code, p.product, m.manufacturing_cost
from fact_manufacturing_cost m join dim_product p
using (product_code)
where m.manufacturing_cost =
(select max(manufacturing_cost)
from fact_manufacturing_cost)
or m.manufacturing_cost = (select min(manufacturing_cost)
from fact_manufacturing_cost)
order by m.manufacturing_cost desc;
```

product_code	product	manufacturing_cost
A6121110208	AQ HOME Allin 1 Gen 2	263.4207
A2118150101	AQ Master wired x1 Ms	0.8654

AD-HOC Request-6

Generate a report which contains the top 5 customers who received an average pre_invoice_discount_pct for the fiscal year 2021 and in the Indian market

```sql
select i.customer_code, customer, round(avg(i.pre_invoice_discount_pct)*100,2) as avg_disc_pct
from fact_pre_invoice_deductions i
join dim_customer c
using (customer_code)
where fiscal_year=2021 and c.market = "India"
group by i.customer_code, c.customer
order by avg_disc_pct desc
limit 5;
```

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

Visuals - 6

Insights

Top 5 customers vs avg_pre-inv_deductions

Top 5 customers
- Flipkart
- Viveks
- Ezone
- Croma
- Amazon
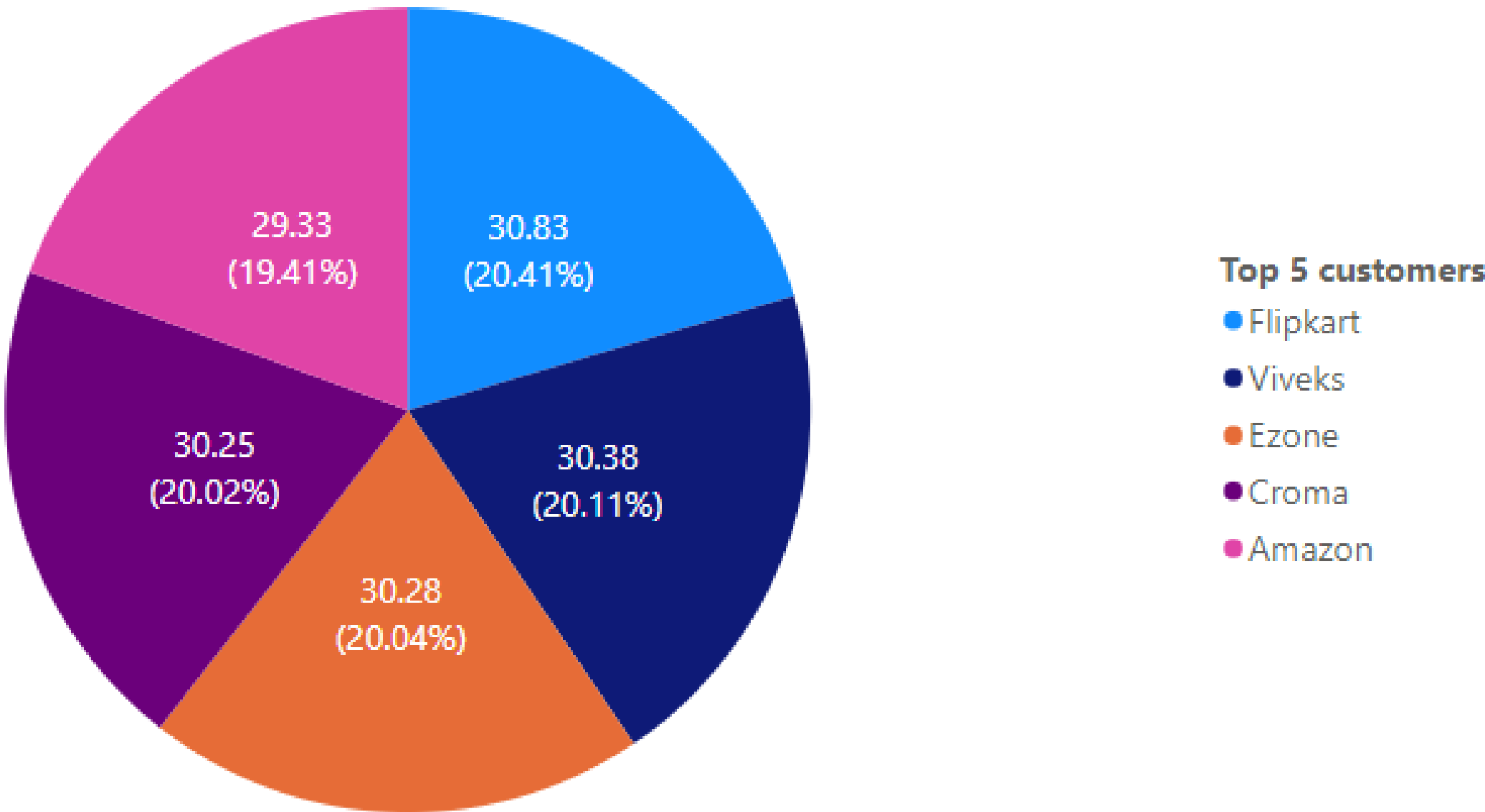
- "Flipkart" provides the highest average pre-invoice deduction discount at 30.83%, aiming to offer significant discounts to its customers.
- On the other hand, "Amazon" offers a slightly lower average pre-invoice deduction discount of 29.33%.
- These findings highlight distinct discount strategies employed by "Flipkart" and "Amazon," with "Flipkart" and "Vivek" standing out as top discount providers.
- The comparison also indicates that "Amazon" adopts diverse pricing and discount tactics to attract customers.
- These observations can be valuable for understanding customer preferences and experimenting with discount strategies.

AD-HOC Request-7

-- Get the complete report of the Gross sales amount for the customer "Atliq Exclusive" for each month.

```sql
select monthname(s.date) as month,s.fiscal_year,
round(sum(g.gross_price*sold_quantity),2)
as gross_sales_amt from fact_sales_monthly s
join dim_customer c using (customer_code)
join fact_gross_price g using (product_code)
where customer="atliq exclusive"
group by monthname(s.date) ,s.fiscal_year
order by fiscal_year ;
```

month	fiscal_year	gross_sales_amt
April	2018	1392024.51
March	2018	2219880.14
August	2018	1498728.56
July	2018	2224693.76
November	2018	3766114.43
December	2018	2390015.56
May	2018	2310946.52
February	2018	1985466.36
January	2018	2285937.67
June	2018	1976109.61
October	2018	2462780.55
September	2018	2347703.88
April	2019	4677628.10
November	2019	12362495.37
August	2019	4630439.42
December	2019	8364101.02
July	2019	7296958.98
May	2019	7796837.30
February	2019	6218859.57
June	2019	6580393.98
March	2019	7307169.15
January	2019	7607522.36
October	2019	8496754.23
September	2019	7860039.25
July	2020	9685828.63
January	2020	18009123.49
June	2020	6451963.41
March	2020	1422525.16
May	2020	2971173.85
November	2020	28512004.15
April	2020	1492369.18
August	2020	10599401.49
October	2020	19475069.34
December	2020	18322529.10
February	2020	15171931.84
September	2020	17040562.24
May	2021	37037201.24
August	2021	21839400.72
April	2021	22147394.99
January	2021	37704996.30
November	2021	62302295.57
February	2021	30852326.32
July	2021	36677913.91
March	2021	36972600.02
October	2021	40444450.56
December	2021	39306619.91
June	2021	29887193.88
September	2021	37752848.19
November	2022	259105977.18
September	2022	153599487.95

Insights

- November 2021 had the highest gross sales amount of $62,302,295.30.
- Whereas the fiscal year 2021 started with lower sales.
- The months of March and April had lower sales in fiscal year 2020 which comparatively improved in fiscal year 2021 showing strong improved performance .
- These insights can help in better understanding peak performing months and apply different strategies on low performing months and improve profitability.

AD-HOC Request-8

**In which quarter of 2020, got the maximum total_sold_quantity?**

```sql
SELECT
CASE
  WHEN month(date) in (9,10,11) then 'Q1'
  WHEN month(date) in (12,01,02) then 'Q2'
  WHEN month(date) in (03,04,05) then 'Q3'
  ELSE 'Q4'
  END AS Quarters,
  SUM(sold_quantity) AS total_sold_qty
FROM fact_sales_monthly
WHERE fiscal_year = 2020
GROUP BY Quarters
ORDER BY total_sold_qty DESC;
```

Quarters	total_sold_qty
Q1	7005619
Q2	6649642
Q4	5042541
Q3	2075087

Visuals - 8

TOTAL_SOLD_QTY FOR QTR
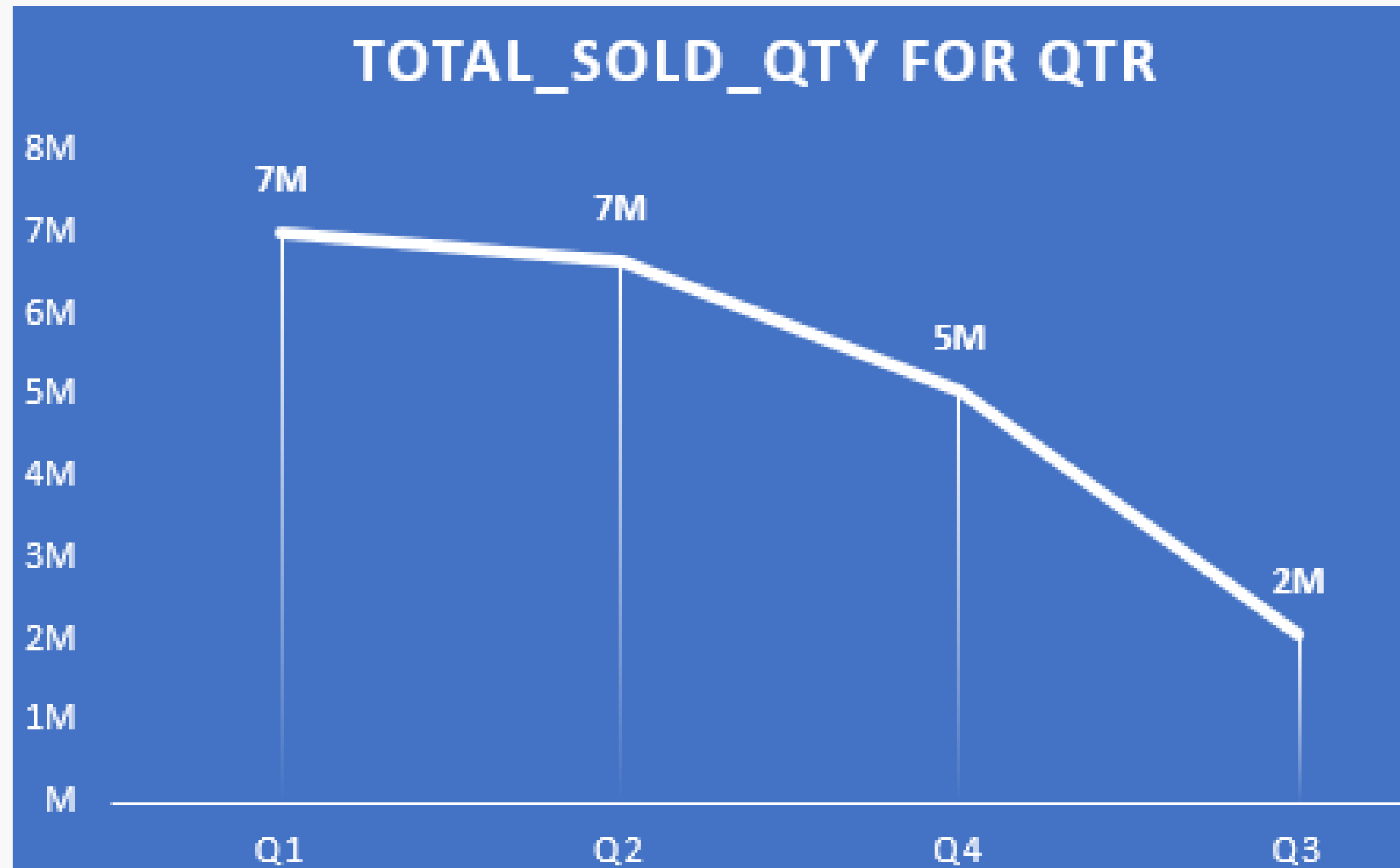
Insights

- Q1 has the highest total sold quantity with $7,0056,19 units
- Here, Q1 and Q2 are the high peforming quarters showing peak sales and Q3 being the low performing quarter among all.
- These insight are valuable to apply appropriate marketing trends and experiment with seasonal performance to improve it.

AD-HOC Request-9

Which channel helped to bring more gross sales in the fiscal year 2021 and the percentage of contribution?

```sql
(select c.channel,
round(sum(g.gross_price*s.sold_quantity)/100000,2) as gross_sales_mln
from fact_sales_monthly s
join dim_customer c using(customer_code)
join fact_gross_price g using(product_code)
where s.fiscal_year=2021
group by c.channel);
select channel, gross_sales_mln,
round((gross_sales_mln/(select sum(gross_sales_mln) from x))*100,2)
as pct from x
order by gross_sales_mln desc;
```

channel	gross_sales_mln
Direct	7841.44
Distributor	5728.59
Retailer	37084.60

Visuals -9

gross_sales_mln per channel
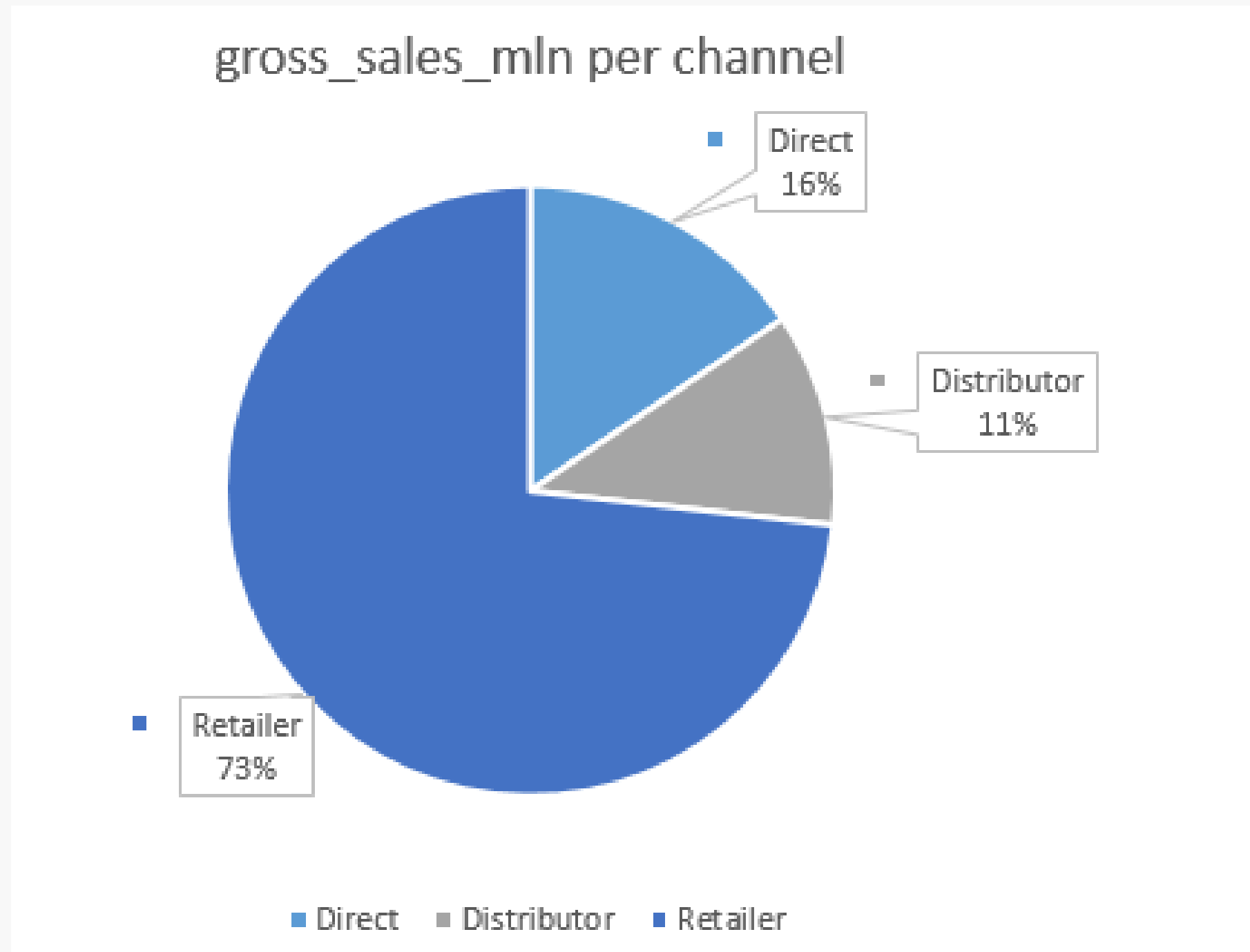
- **Atliq Hardware operates through 3 channels, with Retailer generating the highest gross sales at 73% of the total contribution.**
- **The Distributor channel accounts for the lowest gross sales at 11%.**
- **The Direct channel contributes 16% to the overall sales.**
- **These findings indicate that various growth strategies should be explored for the Direct and Distributor channels.**
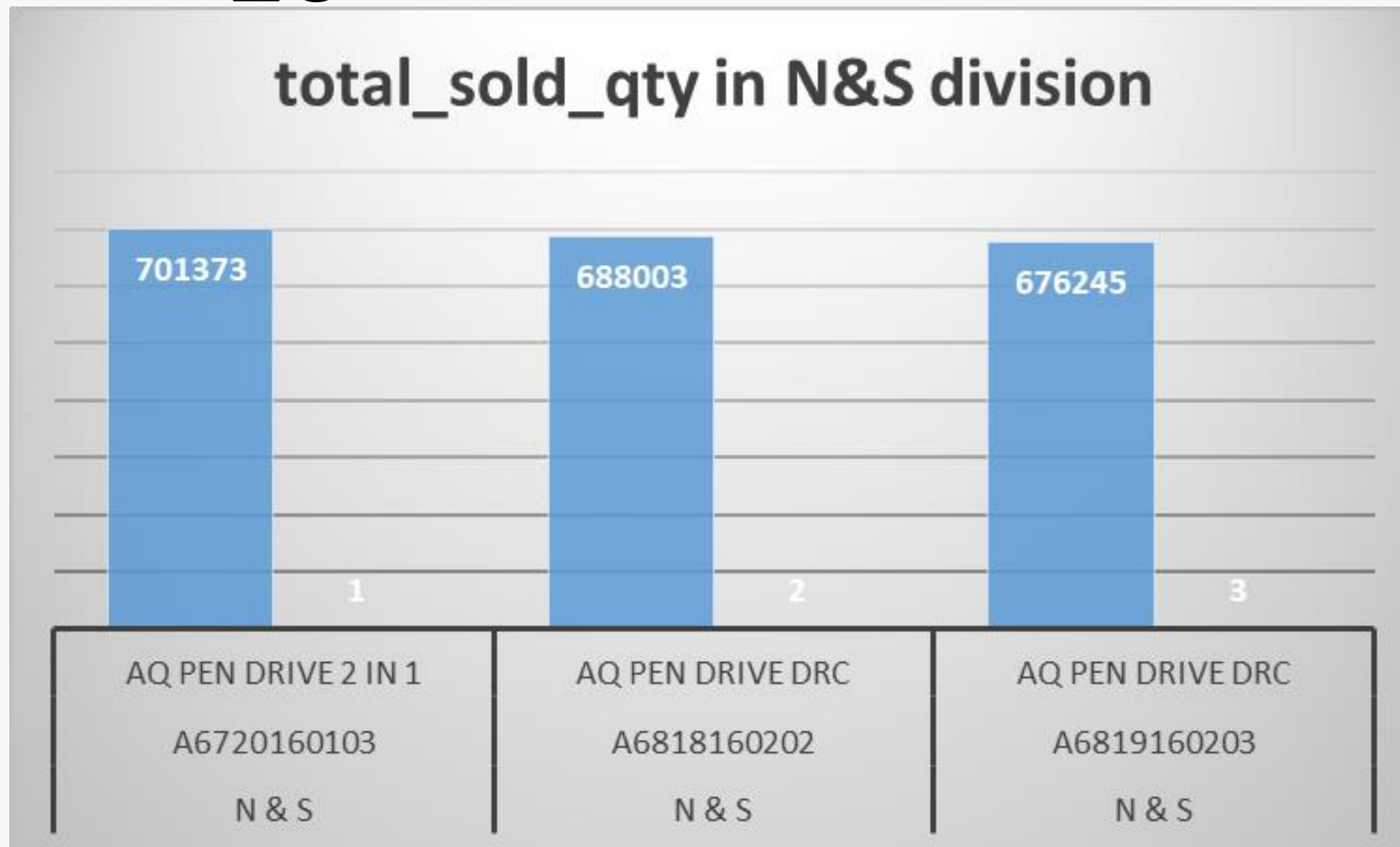
AD-HOC Request-10

Get the Top 3 products in each division that have a high total_sold_quanTIty in the fiscal_year 2021?

```sql
WITH x 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 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)
 SELECT * FROM x
WHERE Rank_Order IN (1,2,3) ORDER BY division, Rank_Order;
```

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

Visuals - 10

total_sold_qty in N&S division

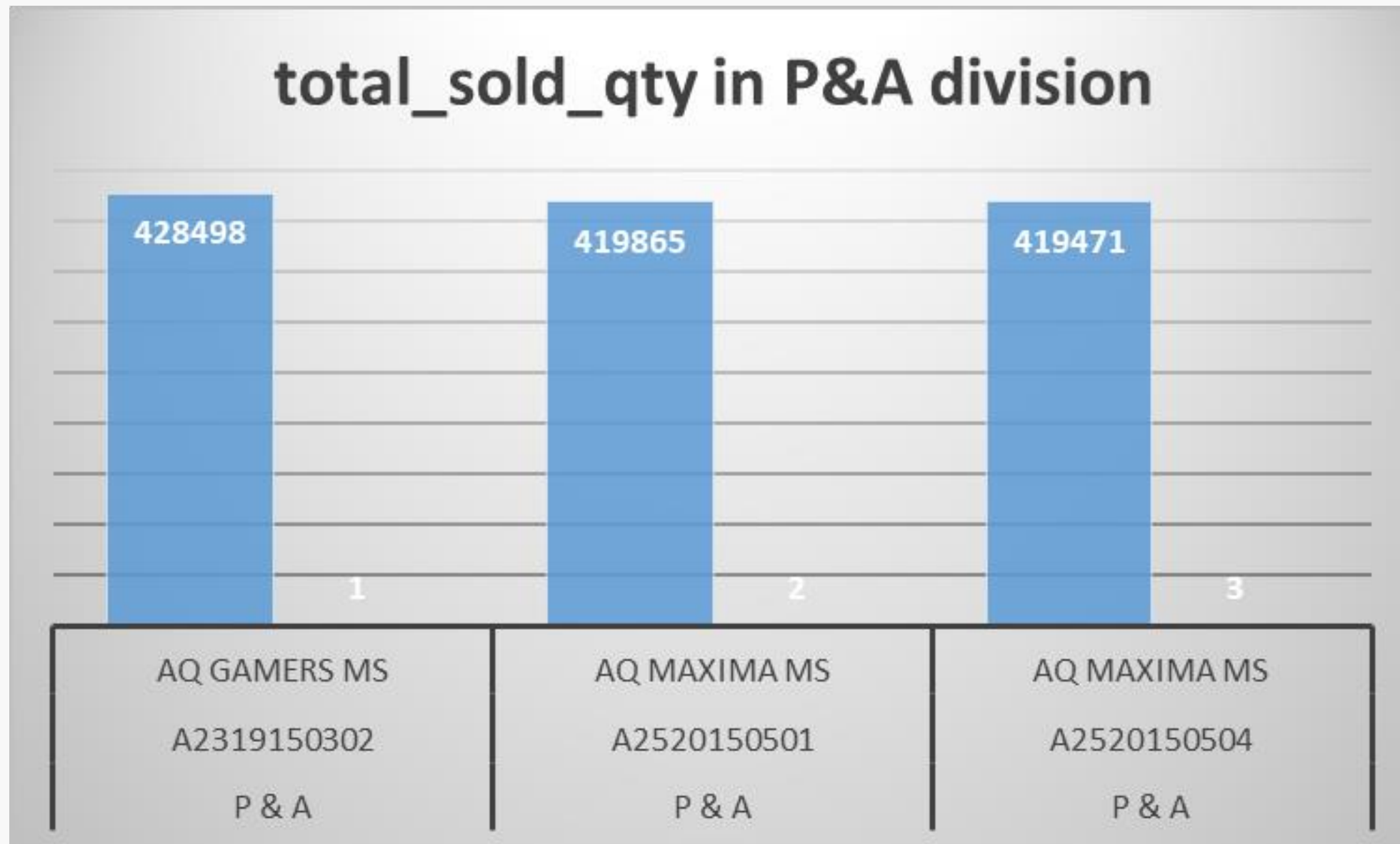| AQ PEN DRIVE 2 IN 1	AQ PEN DRIVE DRC	AQ PEN DRIVE DRC
701373	688003	676245
A6720160103	A6818160202	A6819160203
N & S	N & S	N & S

Insights

- Atliq Hardware has three divisions and N&S division performs excepetionally well among others.
- In which AQ PEN DRIVE 2 IN 1 has the highest total sold quantity and ranks first with 701373 units.
- Efficient store quantity is required for this segment as pen drives are sold in high quantity
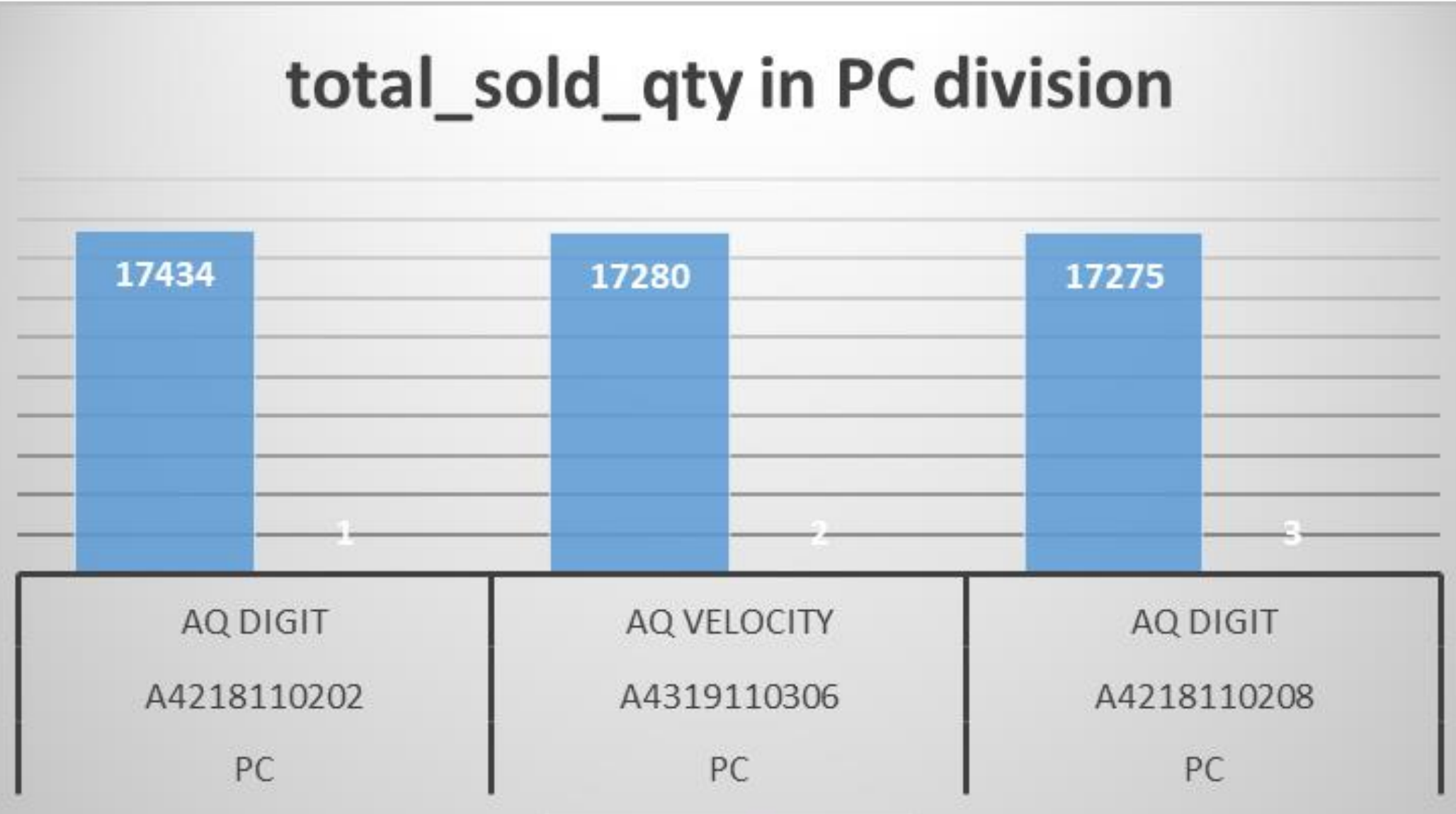
Visuals -10

total_sold_qty in P&A division

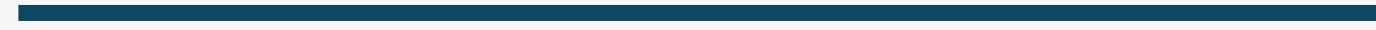|		
428498	419865	419471
AQ GAMERS MS	AQ MAXIMA MS	AQ MAXIMA MS
A2319150302	A2520150501	A2520150504
P & A	P & A	P & A

Insights

- AQ GAMERS MS has the highest total sold quantity and ranks first with 428498 units IN P&A division.
- This segment focuses on gaming products.
- AQ MAXIMA MS is variant of top performing product AQ GAMERS Ms.
- Efficient storage is required to fulfill customer needs and promoting gaming products can boost performance of this segment.

Visuals -10

Insights

total_sold_qty in PC division

17434	17280	17275
1	2	3
AQ DIGIT	AQ VELOCITY	AQ DIGIT
A4218110202	A4319110306	A4218110208
PC	PC	PC

- The best selling product in PC divisions is AQ DIGIT .
- This segment focuses on PC related products and provide customers with invaluable items.
- Marketing and branding needs to be boosted to gain more profits and increase revenue.

Thank you