Ad_Hoc Insights
Consumer Goods

Atliq Hardware

SQL PROJECT

About the Company

Atliq Hardware, a prominent computer hardware manufacturer in India, has established a notable presence in International Markets.

Our Mission and Vision

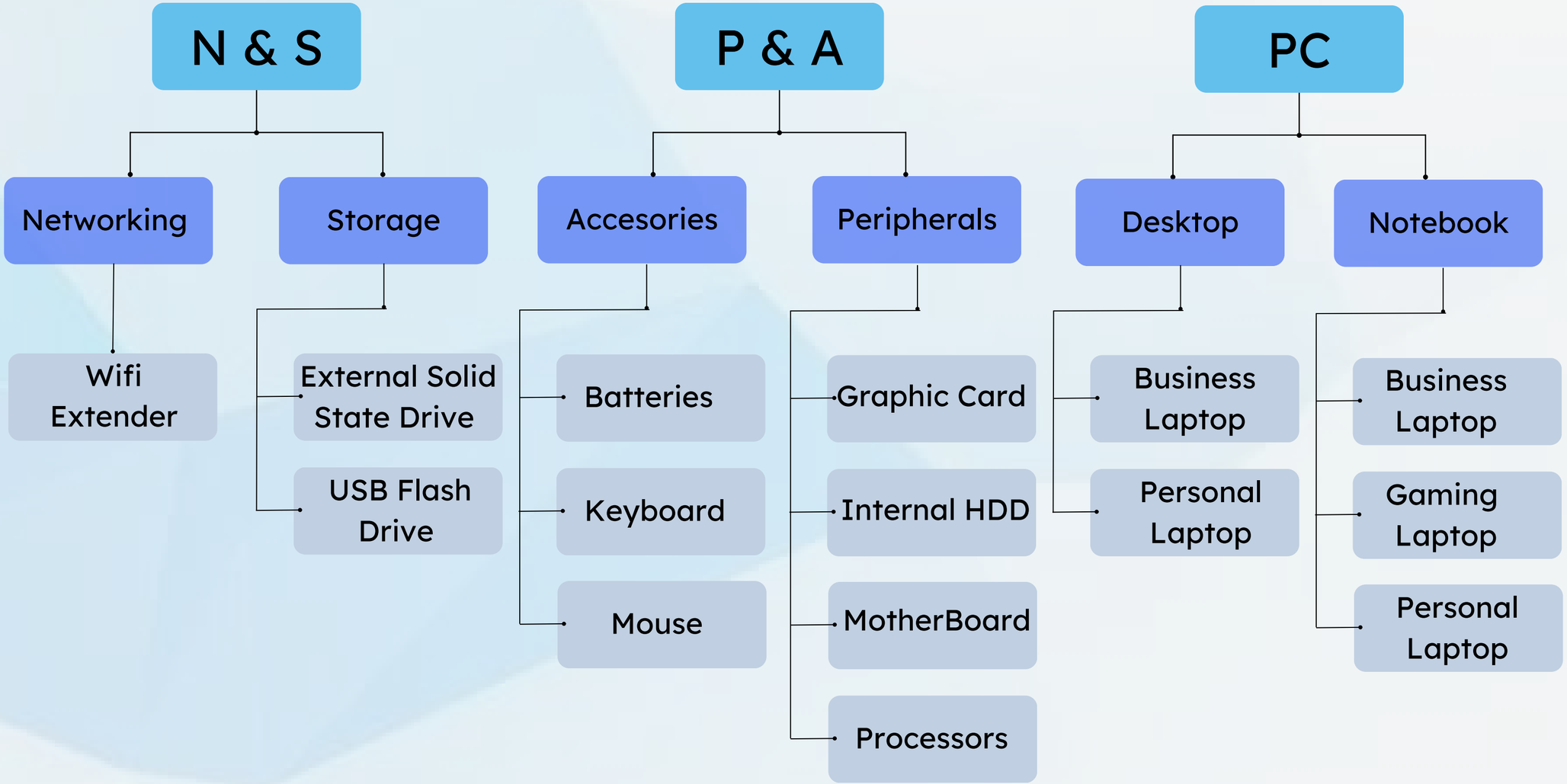
Mission

To Enhance Atliq Hardware's decision-making capabilities by strengthening the data analytics team. This involves addressing the lack of actionable insights through recruiting and ultimately enabling the company to meet business demands, including handling 10 Ad Hoc data requests.

Vision

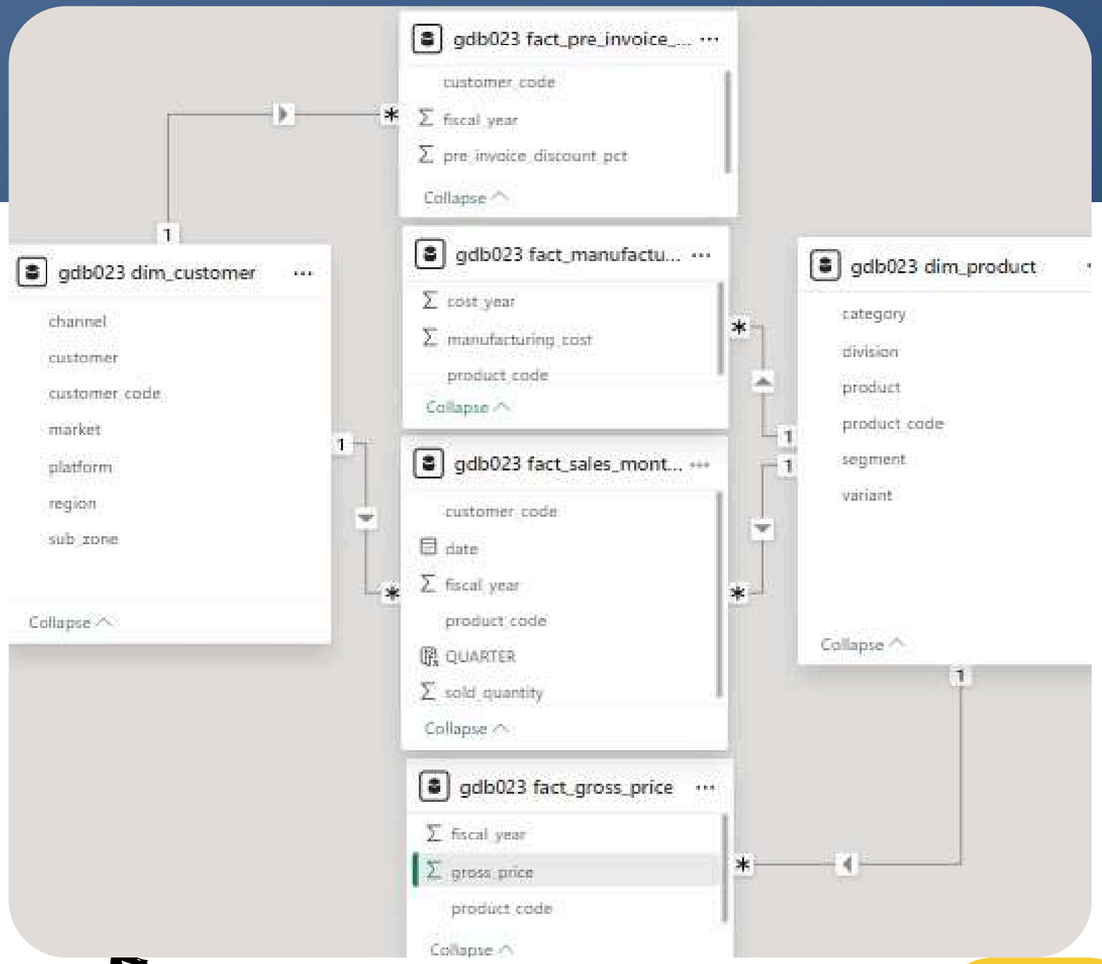
To build a robust data-driven decision-making framework at Atliq Hardware by fostering a skilled data analytics team proficient in SQL. This will empower the company to efficiently analyze data, gain actionable insights, and drive strategic growth and operational excellence.

Atliq's Product structure diagram



Atliq's Global Market Presence

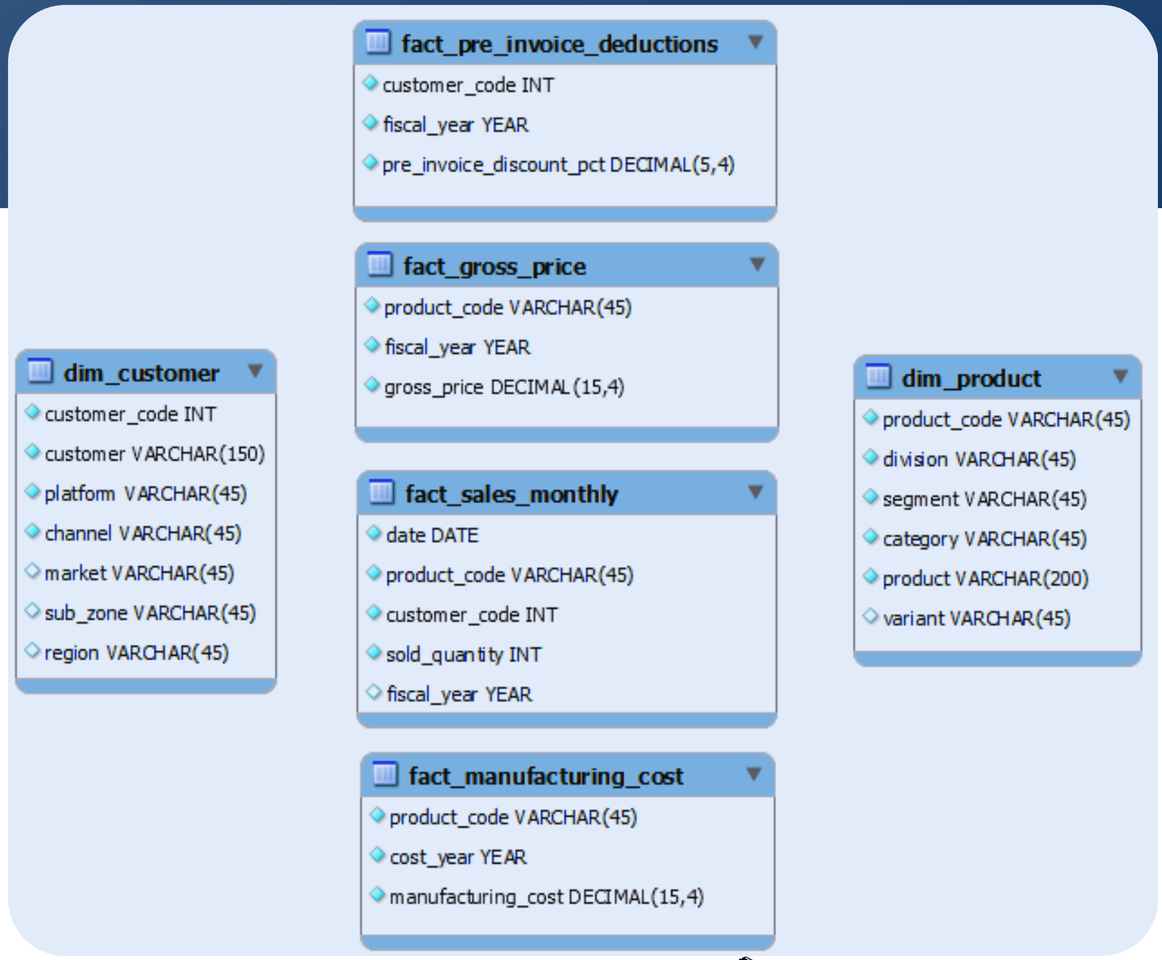
Data and Visualization Tool



Star Schema

Power BI

MySQL



EER DIAGRAM

Ad_hoc Requests

- Provide the list of markets in which customer "Atliq Exclusive" operates its business in the APAC region.
- 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
- 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
- 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
- Get the products that have the highest and lowest manufacturing costs. The final output should contain these fields product_code, product manufacturing_cost
- 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
- 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
- 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
- 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
- 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

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

	market
▶	Australia
	Bangladesh
	India
	Indonesia
	Japan
	Newzealand
	Philiphines
	South Korea

SQL QUERY

```sql
SELECT market FROM dim_customer
WHERE customer = 'Atliq Exclusive' AND region = 'APAC'
GROUP BY market
ORDER BY market
```

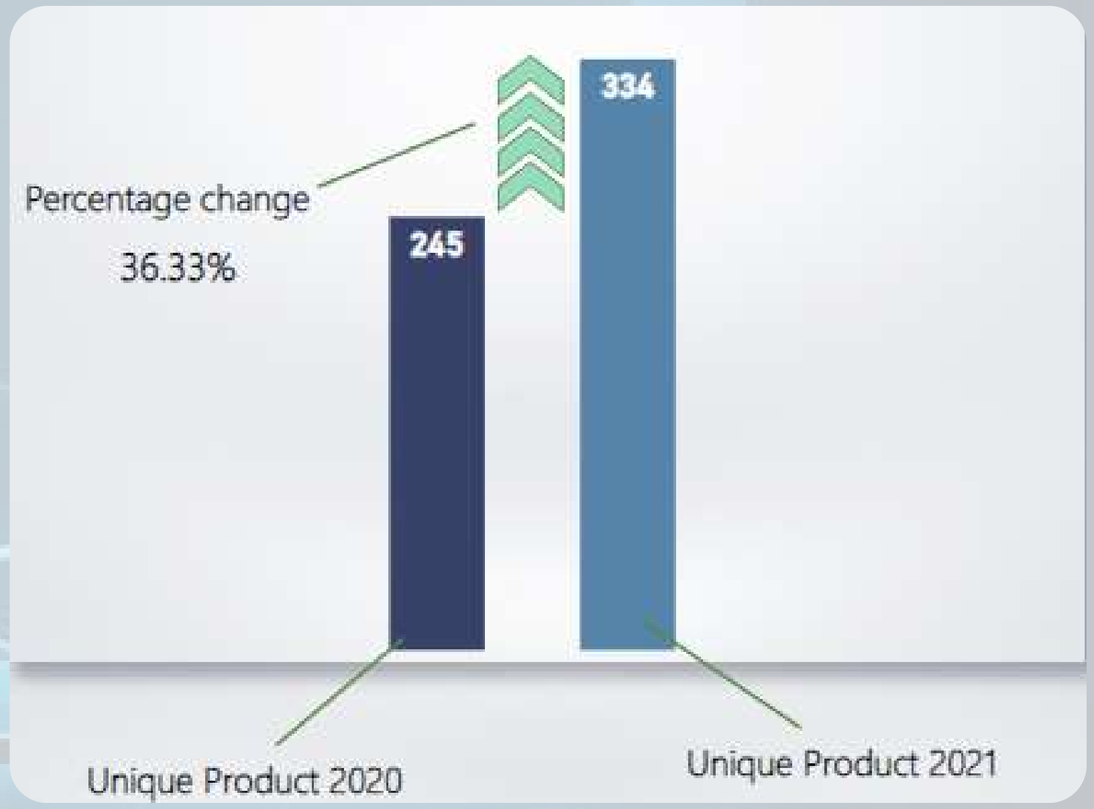
Request 2 - What is the percentage of unique product increase in 2021 vs. 2020? The final output contains these fields,

unique_products_2020
unique_products_2021
percentage_chg

SQL QUERY

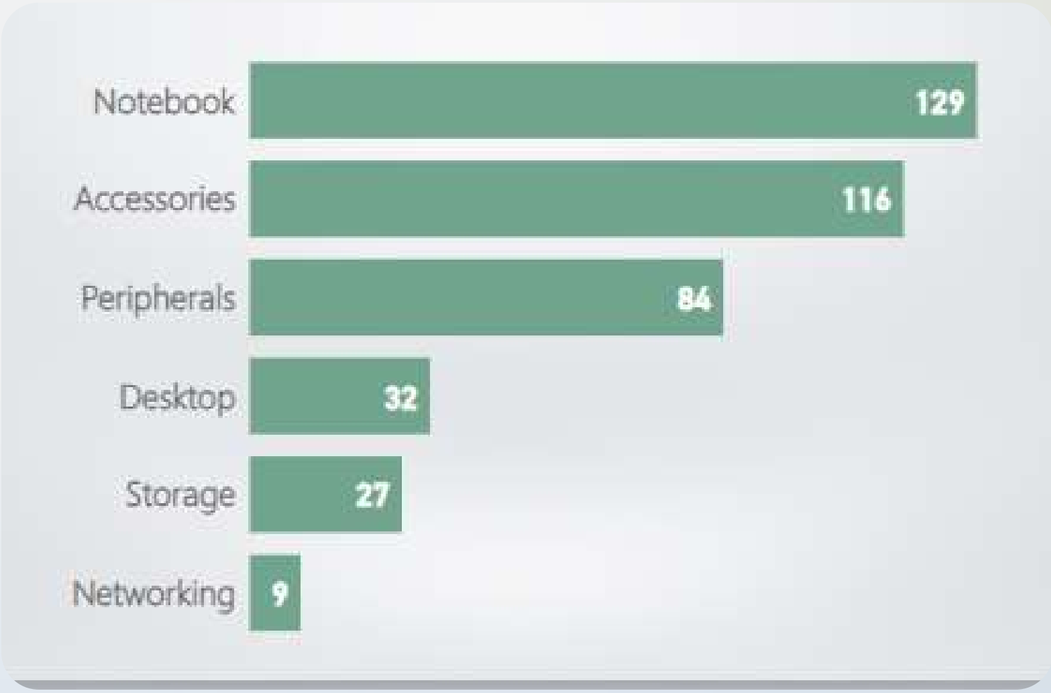
```sql
Select X.A  AS unique_product_2020 , Y.B AS unique_product_2021 ,
    ROUND((B-A) *100/A ,2)AS percentage_change
from
 (
    (select count(distinct(product_code)) as A
      from fact_sales_monthly
      where fiscal_year="2020") X ,
    (select count(distinct(product_code))AS B
      from fact_sales_monthly
      where fiscal_year = "2021") Y
 )
```

	unique_product_2020	unique_product_2021	percentage_change
▶	245	334	36.33



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 segment product_count

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



SQL QUERY

```
select segment , count(*) as Product_count
from  dim_product
group by segment
order by product_count desc
```

After Analyzing the chart, we identified a Total of 6 distinct product categories: Notebooks, Accessories, Peripherals, Desktops, Storage, and Networking. Among these, Notebooks lead with the highest production volume at 129 units, while Networking has the lowest production count at just 9 units.

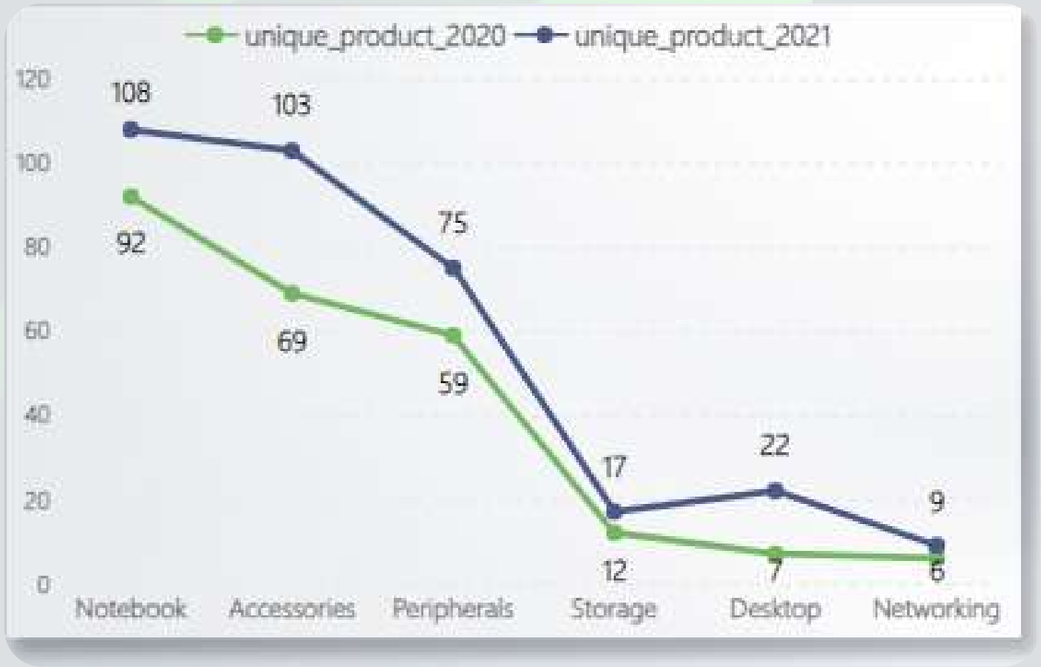
Request 4 - Follow-up: Which segment had the most increase in unique products in 2021 vs 2020? The final output contains these fields,

segment
product_count_2020
product_count_2021
difference

Segment	Unique Product 2020	Unique Product 2021	Difference
Notebook	92	108	16
Accessories	69	103	34
Peripherals	59	75	16
Storage	12	17	5
Desktop	7	22	15
Networking	6	9	3

Storage(5) and networking(3) are seeing slower production growth compared to other categories.

Variation in distinct products across segments between 2020 and 2021



Accessories experienced the highest growth in production By 34

SQL QUERY

```sql
with cte1 as
        (
            select dp.segment AS A , count(distinct(DP.product_code))  AS B
            from  fact_sales_monthly fm
            join dim_producT dp  on fm.product_code = dp.product_code
            where fiscal_year = "2020"
            group by fiscal_year , dp.segment
        ),

cte2 as
    (
        select dp.segment AS C, count(distinct(DP.product_code))  as D
        from  fact_sales_monthly fm
        join dim_producT dp  on fm.product_code = dp.product_code
        where fiscal_year = "2021"
        group by fiscal_year , dp.segment
    )

 select  Cte1.A AS segment , cte1.B AS Product_count_2020, cte2.D AS Product_count_2021,
 cte2.d-cte1.b as Difference
 FROM cte1
join cte2 on cte1.A = cte2.C
```

segment	Product_count_2020	Product_count_2021	Difference
Accessories	69	103	34
Desktop	7	22	15
Networking	6	9	3
Notebook	92	108	16
Peripherals	59	75	16
Storage	12	17	5

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

Product Having the HIGHEST & LOWEST manufacturing cost

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

```sql
select mc.product_code , dp.product, mc.manufacturing_cost as total_cost
from fact_manufacturing_cost Mc
join dim_product dp
on Mc.product_code = dp.product_code
where mc.manufacturing_cost
in (
      select max(manufacturing_cost) from fact_manufacturing_cost
      union
      select min(manufacturing_cost) from fact_manufacturing_cost
)
order by  mc.manufacturing_cost  desc
```

SQL QUERY

- The AQ Master Wired X1 Ms (Standard1 variant) has the Lowest production expense.
- Personal Desktop: AQ Home Allin1 Gen2 (Variant:Plus3) has the Highest production expense.

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,

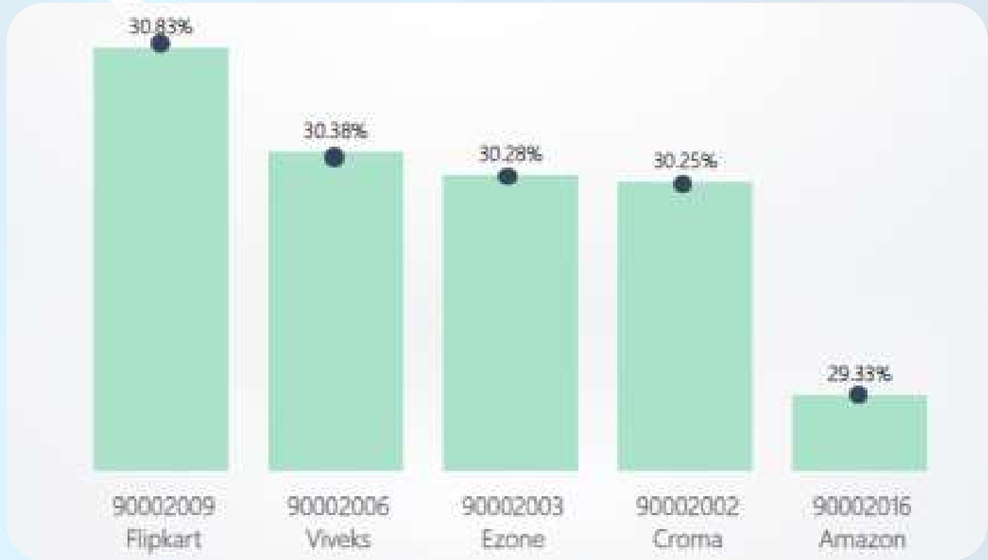
customer_code
customer
average_discount_percentage

```sql
With cte1 as
     ( select dc.customer_code , dc.customer , pid.pre_invoice_discount_pct as average_discount_pct
       from dim_customer dc
       join fact_pre_invoice_deductions pid
       on pid.customer_code = dc.customer_code
       where fiscal_year = "2021" and dc.market = "India"
      )
select * from cte1
where average_discount_pct > (select  avg(average_discount_pct) from cte1 )
order by average_discount_pct desc
LIMIT 5
```

SQL QUERY

customer_code	customer	average_discount_pct
90002009	Flipkart	0.3083
90002006	Viveks	0.3038
90002003	Ezone	0.3028
90002002	Croma	0.3025
90002016	Amazon	0.2933

Top 5 Indian Customer with highest average discount Percentage by FY 2021



- Flipkart received the highest average pre-invoice discount.
- Amazon received the lowest average pre-invoice discount.

Request 7 - Get the complete report of the Gross sales amount for the customer “Atliq Exclusive” for each month. This analysis helps to understand low and high-performing months and take strategic decisions. The final report contains these columns:

Month

Year

Gross sales Amount

```sql
select CONCAT(MONTHname(sm.date), ' (', YEAR(sm.date), ')') AS 'Month', sm.fiscal_year
,sum(gc.gross_price*sm.sold_quantity) as gross_price_total
from fact_sales_monthly sm
join dim_customer dc
on sm.customer_code = dc.customer_code
join fact_gross_price gc
on gc.product_code = sm.product_code
where dc.customer = "Atliq Exclusive"
group by month , sm.fiscal_year
ORDER BY sm.fiscal_year ;
```

SQL QUERY

Month	fiscal_year	gross_price_total
September (2019)	2020	9092670.3392
October (2019)	2020	10378637.5961
November (2019)	2020	15231894.9669
December (2019)	2020	9755795.0577
January (2020)	2020	9584951.9393
February (2020)	2020	8083995.5479
March (2020)	2020	766976.4531
April (2020)	2020	800071.9543
May (2020)	2020	1586964.4768
June (2020)	2020	3429736.5712
July (2020)	2020	5151815.4020
August (2020)	2020	5638281.8287
September (2020)	2021	19530271.3028
October (2020)	2021	21016218.2095
November (2020)	2021	32247289.7946
December (2020)	2021	20409063.1769
January (2021)	2021	19570701.7102
February (2021)	2021	15986603.8883
March (2021)	2021	19149624.9239
April (2021)	2021	11483530.3032
May (2021)	2021	19204309.4095
June (2021)	2021	15457579.6626
July (2021)	2021	19044968.8164
August (2021)	2021	11324548.3409

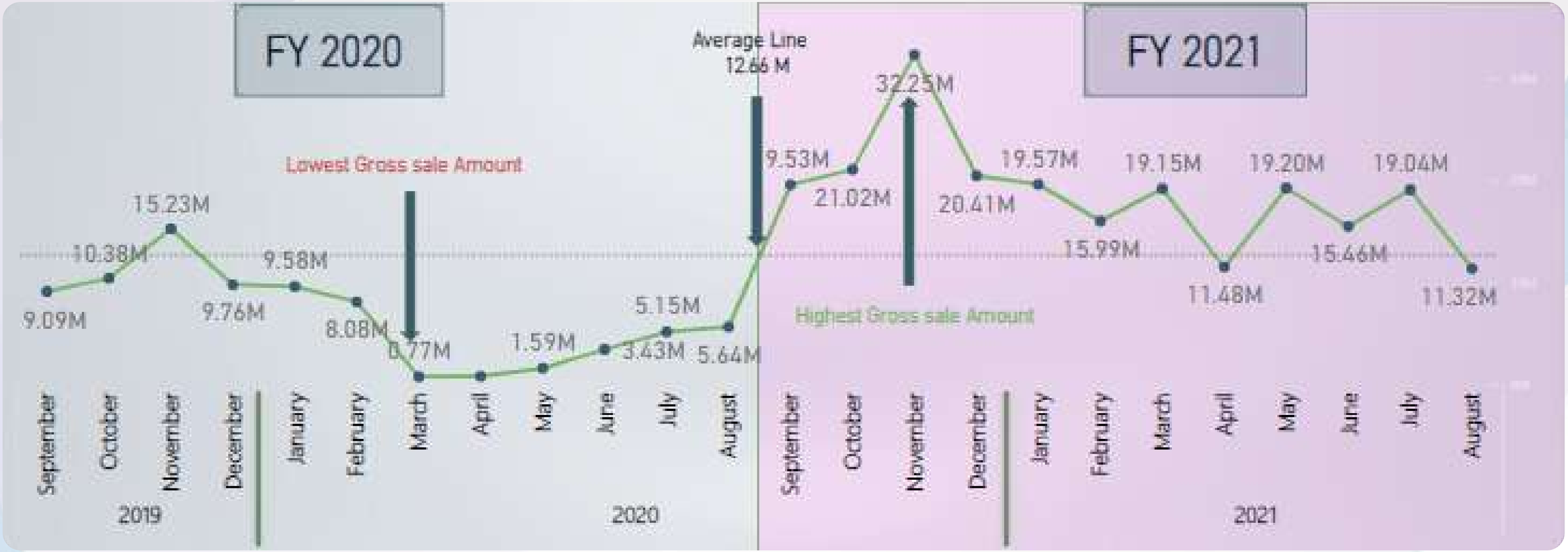
FY 2020
79.5 M

FY 2021
224.4M

- March 2020 (0.77M) recorded the Lowest Gross Sales total across both fiscal years.
- November 2021(32.25M) recorded the Highest Gross Sales total across both fiscal years.

Monthly Report on Gross Sales Amount

Atliq Exclusive



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
select
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 QTR
, sum(sold_quantity) AS total_qty_sold
FROM fact_sales_monthly
where fiscal_year = "2020"
group by QTR
order by total_qty_sold DESC
;
/* most product sold on 2020 fiscal year */

/*------------------------------------------------------------*/

/* total number of product sold on 2020 fiscal year  with month name column */
;
select
Concat(
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 ," [ ",monthname(date)," ] "
) as QTR_Month
, sum(sold_quantity) AS total_qty_sold
FROM fact_sales_monthly
where fiscal_year = "2020"
group by QTR_Month
;
```

SQL QUERY

QTR	total_qty_sold
Q1	7005619
Q2	6649642
Q4	5042541
Q3	2075087

- Fiscal year 2020 saw the Highest Product Sales in Quarter 1 (7.01 M) and the Lowest in Quarter 3 (2.08M)
- November 2021(32.25M) recorded the Highest Gross Sales total across both fiscal years.

QTR_Month	total_qty_sold
Q1 [September]	1764002
Q1 [October]	2190792
Q1 [November]	3050825
Q2 [December]	3184205
Q2 [January]	1762652
Q2 [February]	1702785
Q3 [March]	238961
Q3 [April]	819956
Q3 [May]	1016170
Q4 [June]	1559773
Q4 [July]	1692575
Q4 [August]	1790193

Total Sold Quantity in FY 2020 By Quarter

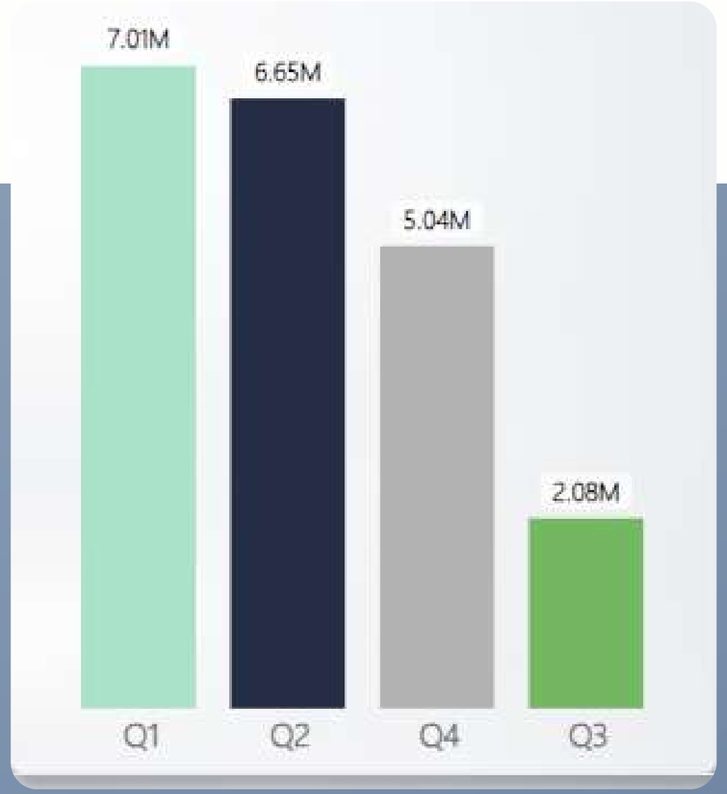
Month	Quarter	Total sold quantity
June	Q4	1.56M
July	Q4	1.69M
August	Q4	1.79M
March	Q3	0.24M
April	Q3	0.82M
May	Q3	1.02M
January	Q2	1.76M
February	Q2	1.70M
December	Q2	3.18M
September	Q1	1.76M
October	Q1	2.19M
November	Q1	3.05M

5.04 M

2.08 M

6.65 M

7.01 M



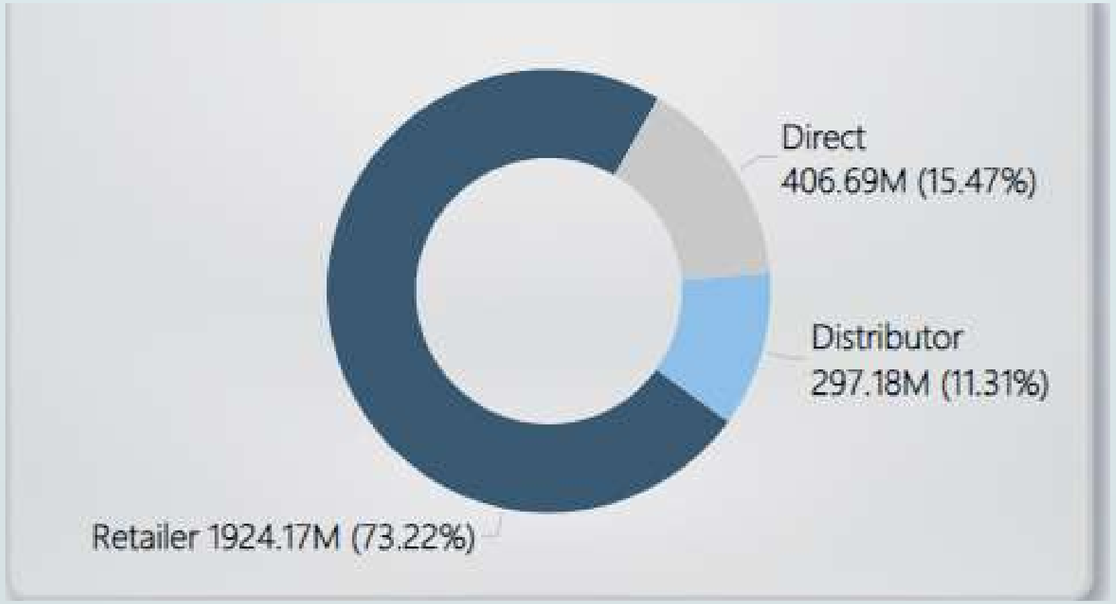
Request 9 - Which channel helped to bring more gross sales in the fiscal year 2021 and the percentage of contribution? The final output contains these fields,
channel
gross_sales_mln
percentage

```sql
SELECT
    channel,
    concat(round(SUM(sold_quantity * gross_price)/1000000,2) ," M " ) as  gross_sale_mln ,
    concat(round(SUM(sold_quantity * gross_price) / SUM(SUM(sold_quantity * gross_price))
    OVER () * 100,2), " % " ) AS percentage
FROM fact_sales_monthly sm
JOIN dim_customer dc ON sm.customer_code = dc.customer_code
JOIN fact_gross_price gp ON sm.product_code = gp.product_code
WHERE sm.fiscal_year = '2021'
GROUP BY channel
ORDER BY Percentage DESC ;
```

SQL QUERY

	channel	gross_sale_mln	percentage
▶	Retailer	1924.17 M	73.22 %
	Direct	406.69 M	15.47 %
	Distributor	297.18 M	11.31 %

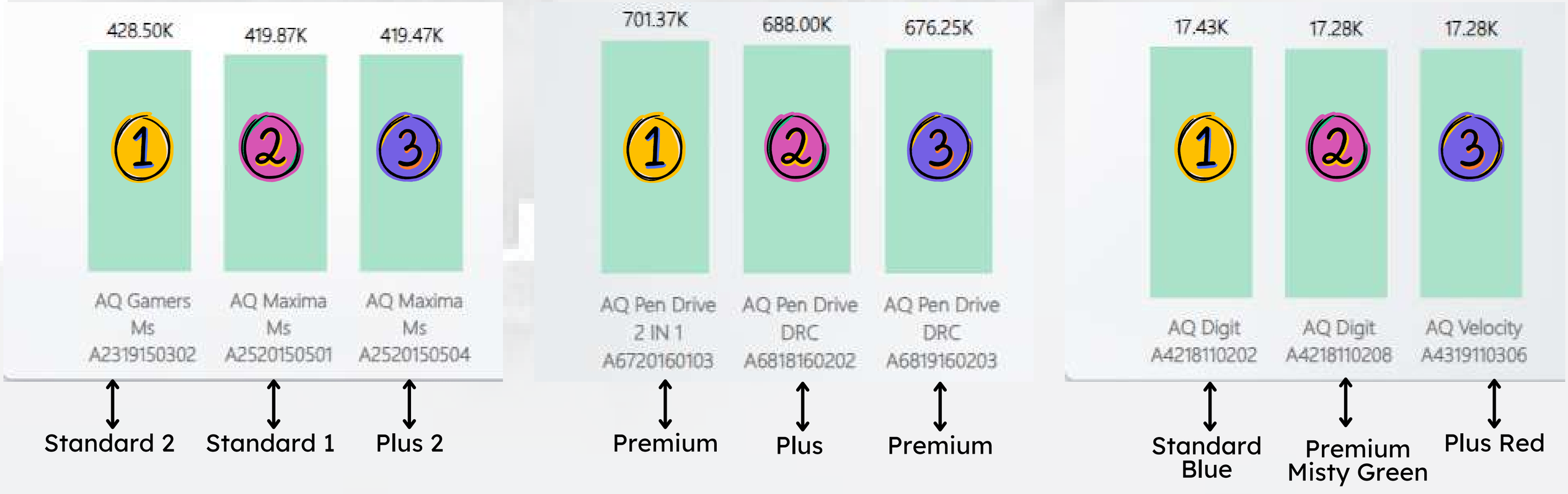
Total sales and contribution percentages across channels for FY 2021



The majority of sales, 73.22%, were made through Retailers, while only 11.31% came from the Distributor Channel.

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

Top 3 Best - Selling product in each Division for FY 2021



SQL QUERY

```sql
WITH Output1 AS
(
SELECT P.division, FS.product_code, P.product, SUM(FS.sold_quantity) AS Total_sold_quantity
FROM dim_product P JOIN fact_sales_monthly FS
ON P.product_code = FS.product_code
WHERE FS.fiscal_year = 2021
GROUP BY  FS.product_code, division, P.product
),
Output2 AS
(
SELECT division, product_code, product, Total_sold_quantity,
        RANK() OVER(PARTITION BY division ORDER BY Total_sold_quantity DESC) AS 'Rank_Order'
FROM Output1
)
 SELECT Output1.division, Output1.product_code, Output1.product, Output2.Total_sold_quantity,
 Output2.Rank_Order
 FROM Output1 JOIN Output2
 ON Output1.product_code = Output2.product_code
WHERE Output2.Rank_Order IN (1,2,3)
```

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

CODE BASICS