
# CONSUMER GOODS AD-HOC INSIGHTS

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# ATLIQ HARDWARES

## INTRODUCTION:

Atliq Hardwares (imaginary company) is one of the leading computer hardware producers in India and well expanded in other countries too.

## GOALS & SOLUTION:

- The management of Atliq Hardware informed the data analytics team to generate some insights regarding customer behaviors to make some data-driven decisions.
- Atliq Hardware wants to do ad-hoc analysis therefore analytical team assigned us a task to generate a report by running 10 ad-hoc requests.
- We ran 10 ad-hoc requests using SQL to present meaningful insights to our stakeholders which will help our company to make data-driven decisions for their business's growth.

# DATA MODEL

Dim_customer: Data related to customers

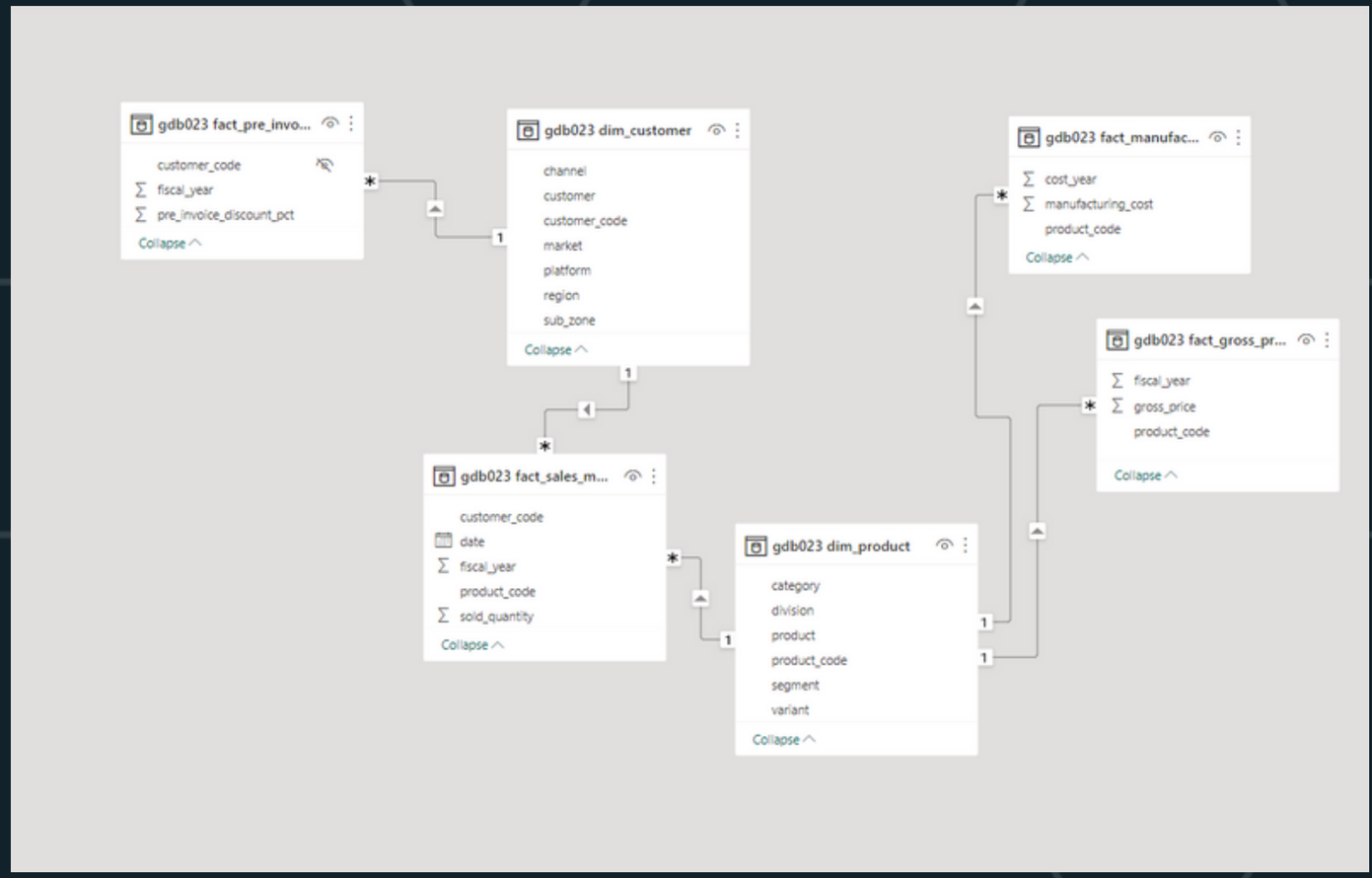
Dim_product: Data related to products.

Fact_gross_price: Gross price of each product.

Fact_manufacturing_cost: Manufacturing cost of each product during production.

Fact_pre_invoice_deduction: Pre invoice deduction of each product.

Fact_sales_monthly: This table contains monthly sales of each product



# AD-HOC REQUESTS, QUERIED RESULTS, INSIGHTS AND VISUALIZATION

# REQUEST 1:

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

**Input Query:**

```
SELECT distinct market FROM gdb023.dim_customer
where customer = "Atliq Exclusive"
and region ="APAC"
```

**Output Table:**

| market |
|---|
| India |
| Indonesia |
| Japan |
| Philiphines |
| South Korea |
| Australia |
| Newzealand |
| Bangladesh |

# REQUEST 2:

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

**Input Query:**

```
WITH Unique_2020 as
(SELECT COUNT(DISTINCT(product_code)) AS unique_products_2020
FROM gdb023.fact_manufacturing_cost
WHERE cost_year = 2020 ),
Unique_2021 as
(SELECT COUNT(DISTINCT(product_code)) AS unique_products_2021
FROM gdb023.fact_manufacturing_cost
WHERE cost_year = 2021 )

SELECT Unique_2020.unique_products_2020 , Unique_2021.unique_products_2021,
(Unique_2021.unique_products_2021 - Unique_2020.unique_products_2020)*100/Unique_2020.unique_products_2020
AS percentage_chg
FROM Unique_2020 cross join Unique_2021
```

# 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

**Output Query:**

| | unique_products_2020 | unique_products_2021 | percentage_chg |
|---|---|---|---|
| ▶ | 245 | 334 | 36.3265 |
| ▶ | 245 | 334 | 36.3265 |

- The table shows that there were 245 unique products in 2020, and this number increased to 334 unique products in 2021
- This means that the number of unique products in this category increased by 36.3265% from 2020 to 2021. This is a significant increase, indicating growth in the category over the past year.

## 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

**Input Query:**

```
SELECT segment,count(distinct product) as product_count
 FROM gdb023.dim_product
 group by segment
 order by product_count desc
```

**Output Table:**

| segment | product_count |
|---|---|
| Accessories | 20 |
| Peripherals | 20 |
| Notebook | 17 |
| Storage | 9 |
| Desktop | 4 |
| Networking | 3 |

## 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

### Insights

- The segment with the highest number of products is "Notebook" with 17 products, followed by "Accessories" and "Peripherals" with 20 products each. The segment with the lowest number of products is "Networking" with only 3 products.
- We should focus on the successful segments and consider revising our strategy for the underperforming networking segment.

# 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

## Input Query:

```
with cte1 as(
SELECT p.segment,count(distinct p.product) as product_count_2020
 FROM gdb023.dim_product as p
 join gdb023.fact_sales_monthly as sal
 on p.product_code=sal.product_code
 where sal.fiscal_year=2020
 group by segment),
 cte2 as (
 SELECT p.segment,count(distinct p.product) as product_count_2021
 FROM gdb023.dim_product as p
 join gdb023.fact_sales_monthly as sal
 on p.product_code=sal.product_code
 where sal.fiscal_year=2021
 group by segment)
 select  cte1.segment,cte1.product_count_2020,cte2.product_count_2021,
 (cte2.product_count_2021-cte1.product_count_2020) as difference
 from cte1 join cte2
on cte1.segment = cte2.segment
order by difference
```

## Output Table:

| segment | product_count_2020 | product_count_2021 | difference |
|---|---|---|---|
| Networking | 2 | 3 | 1 |
| Storage | 6 | 7 | 1 |
| Desktop | 1 | 3 | 2 |
| Notebook | 14 | 16 | 2 |
| Peripherals | 15 | 20 | 5 |
| Accessories | 13 | 19 | 6 |

## 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

**Insights**

- The segment with the highest number of products is "Notebook" with 17 products, followed by "Accessories" and "Peripherals" with 20 products each. The segment with the lowest number of products is "Networking" with only 3 products. We should focus on the successful segments and consider revising our strategy for the underperforming networking segment.
- In terms of the total number of products, Accessories had the highest product count in both 2020 and 2021

## 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

### Input Query:

```
SELECT m.product_code,p.product,m.manufacturing_cost
FROM gdb023.dim_product as p  join gdb023.fact_manufacturing_cost as m
on p.product_code=m.product_code
where m.manufacturing_cost=(select max(manufacturing_cost) FROM gdb023.fact_manufacturing_cost )
or
m.manufacturing_cost=(select min(manufacturing_cost) FROM gdb023.fact_manufacturing_cost )
```

## REQUEST 5:

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

### Output Table

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

## 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

### Input Query:

```
SELECT cus.customer_code,cus.customer,
avg(round(inv.pre_invoice_discount_pct,2))*100
as average_discount_percentage
FROM gdb023.dim_customer as Cus
join gdb023.fact_pre_invoice_deductions as inv
on cus.customer_code = inv.customer_code
where inv.fiscal_year=2021
and cus.market='India'
group by cus.customer,cus.customer_code
order by average_discount_percentage desc
limit 5
```

### Output Table:

| customer_code | customer | average_discount_percentage |
|---|---|---|
| 90002009 | Flipkart | 31.000000 |
| 90002006 | Viveks | 30.000000 |
| 90002002 | Croma | 30.000000 |
| 90002003 | Ezone | 30.000000 |
| 90002016 | Amazon | 29.000000 |

## 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

### Insights

- Flipkart has the highest average discount percentage of 31%.
- Knowing the average discount percentage of customers can be useful for companies to understand their pricing strategies and competitiveness in the market. Companies may offer discounts as a way to attract and retain customers, but too high of a discount percentage could potentially hurt profitability.

## 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

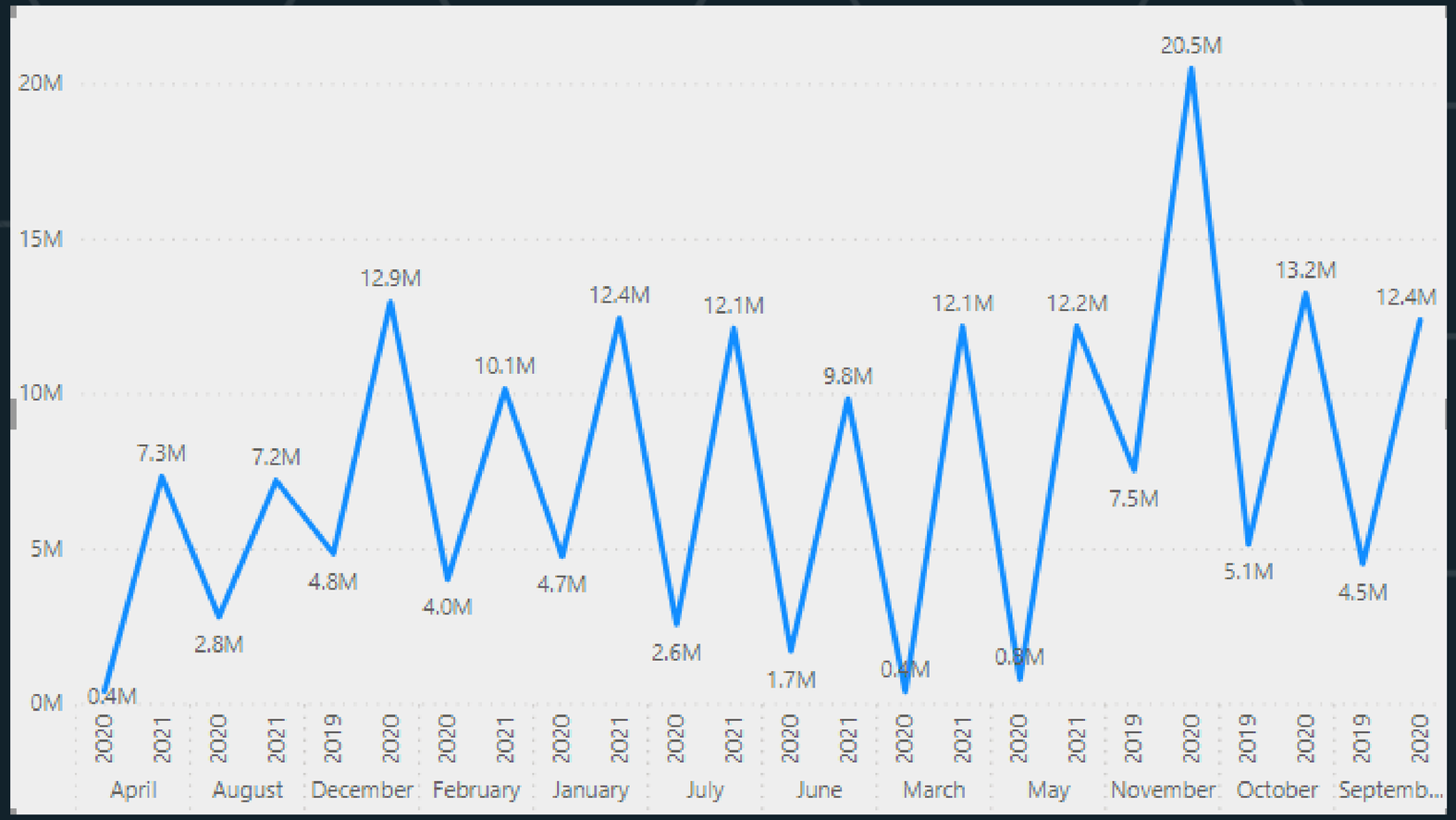
### Input Query:

```
SELECT monthname(sal.date) as month,year(sal.date) as year,
round(sum((gro.gross_price*sal.sold_quantity)),2)
as Gross_sales_Amount
FROM gdb023.dim_customer as cus
inner join gdb023.fact_sales_monthly as sal
on cus.customer_code=sal.customer_code
inner join gdb023.fact_gross_price as gro
on sal.product_code=gro.product_code
and sal.fiscal_year=gro.fiscal_year
where cus.customer= 'Atliq Exclusive'
group by month,year
order by year
```

# 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

## Output:



## 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

### Insights

- The table shows that gross sales amount fluctuated significantly over time.

- Additionally, the table shows a general increasing trend in gross sales amount from September 2019 to November 2020, followed by a decrease in gross sales amount in December 2020 and January 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

### Input Query:

```
SELECT
case
when month(date) in (9,10,11) then 'quarter1'
when month(date) in (12,1,2) then 'quarter2'
when month(date) in (3,4,5) then 'quarter3'
when month(date) in (6,7,8) then 'quarter4'
end as quarter,sum(sold_quantity) as total_sold_quantity
 FROM gdb023.fact_sales_monthly
 where fiscal_year=2020
 group by quarter
```

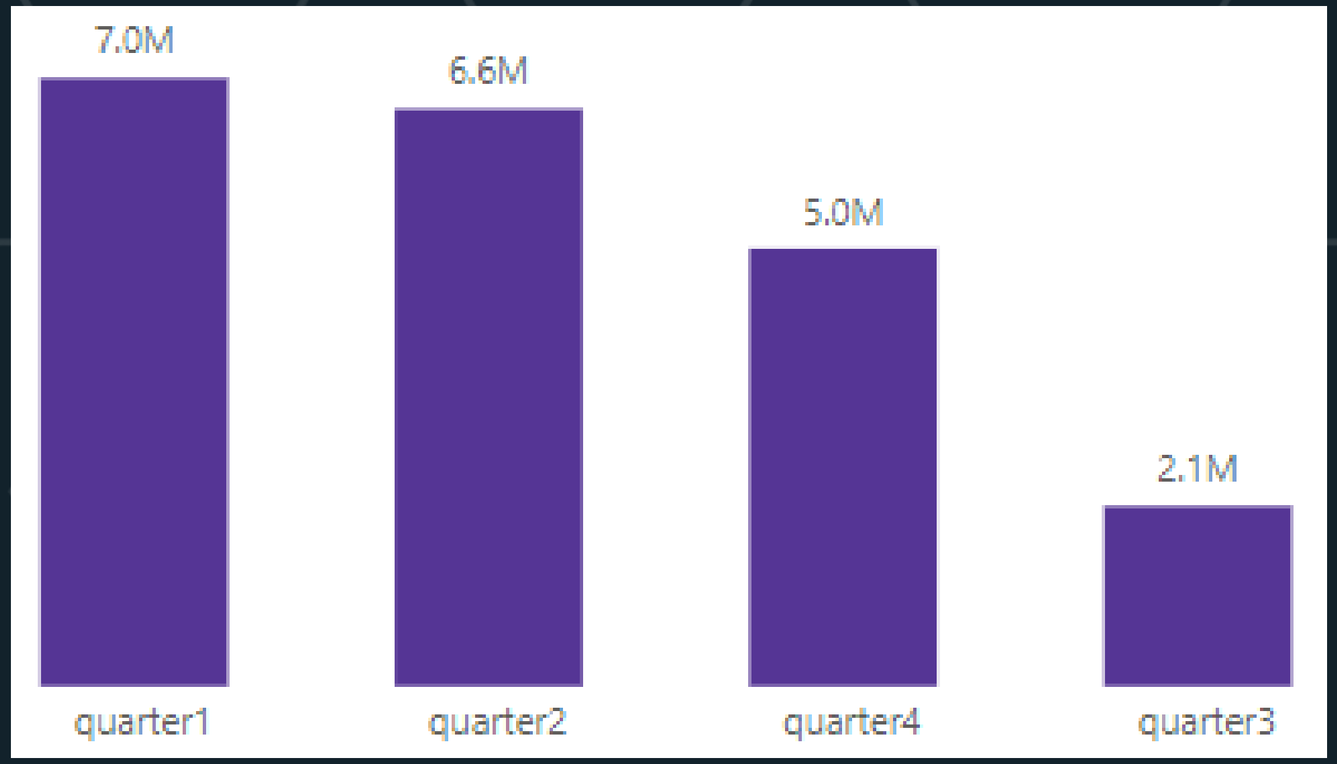
### Output Table:

| quarter | total_sold_quantity |
|---|---|
| quarter1 | 7005619 |
| quarter2 | 6649642 |
| quarter3 | 2075087 |
| quarter4 | 5042541 |

## 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

**Output:**



## 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

### Insights

- The total quantity of products sold in Quarter 1 of 2020 was 7,005,619, which was the highest total quantity of products sold for any quarter in the time period specified.
- Quarter 2 of 2020 was 6,649,642, which was lower than the total quantity of products sold in Quarter 1. This decrease in sales may be attributed to the impact of the COVID-19 pandemic on the global economy, as many businesses were forced to close or reduce operations due to lockdowns and restrictions.

## REQUEST 9:

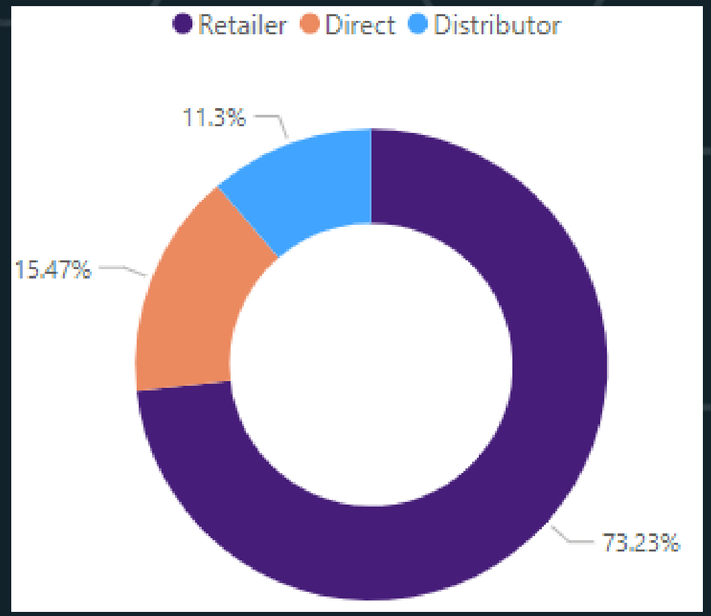
Which channel helped to bring more gross sales in the fiscal year 2021 and the percentage of contribution? The final output contains these fields:
channel, gross_sales_mln, percentage

### Input Query:

```
with cte1 as(
SELECT channel,
round(SUM(gro.gross_price * sal.sold_quantity))/1000000
AS 'gross_sales_mln'
FROM gdb023.fact_gross_price as gro
inner join gdb023.fact_sales_monthly as sal
on gro.product_code=sal.product_code
and gro.fiscal_year=sal.fiscal_year
inner join gdb023.dim_customer as cus
on cus.customer_code=sal.customer_code
where sal.fiscal_year=2021
group by channel)
select *,round((gross_sales_mln*100))/sum(gross_sales_mln)
over () as  percentage_contrib
from cte1
order by percentage_contrib desc
```

### Output Table:

| channel | gross_sales_mln | percentage_contrib |
|---|---|---|
| Retailer | 1219.0816 | 73.2339 |
| Direct | 257.5320 | 15.4706 |
| Distributor | 188.0256 | 11.2955 |



## 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

### Insights

- The data suggests that the company's sales are heavily dependent on the retailer channel, as it accounts for the majority of gross sales. The company may want to consider diversifying its sales channels to reduce its reliance on retailers and increase sales through other channels such as direct or distributor.

# 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

## Input Query:

```
with cte1 as(
SELECT p.division,p.product_code,p.product,
sum(sal.sold_quantity) as tot_sold_qnty
FROM gdb023.dim_product as p
join gdb023.fact_sales_monthly as sal
on p.product_code=sal.product_code
where sal.fiscal_year=2021
group by p.division,p.product_code,p.product
),
cte2 as(
select *, RANK() OVER
(PARTITION BY division ORDER BY tot_sold_qnty DESC)
 AS Rank_order from cte1 )

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

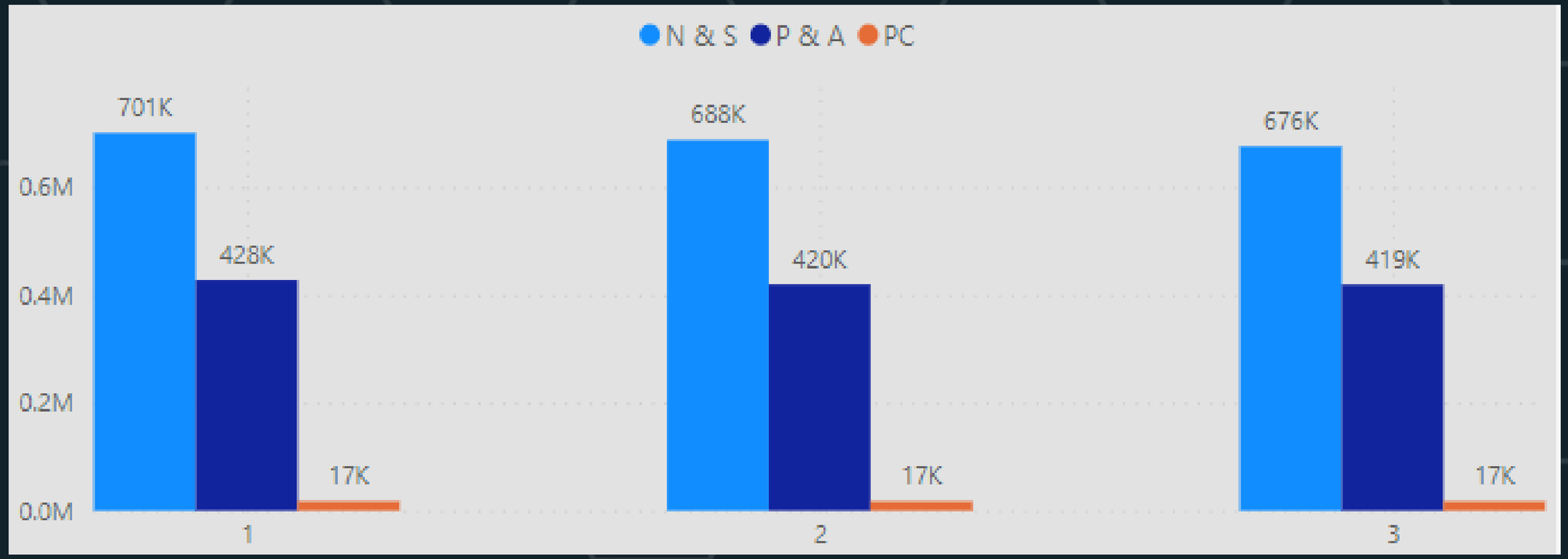
## Output Table:

| division | product_code | product | tot_sold_qnty | 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 |

# 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

## Output



## 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

### Insights

- The "N & S" division has the highest total sold quantity among the three divisions listed.
- The "P & A" division has the second highest total sold quantity, followed by the "PC" division which has the lowest total sold quantity

# THANK YOU

Presented by

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