Atliq Hardwares

Consumer Goods Ad-Hoc Insights

Presented by

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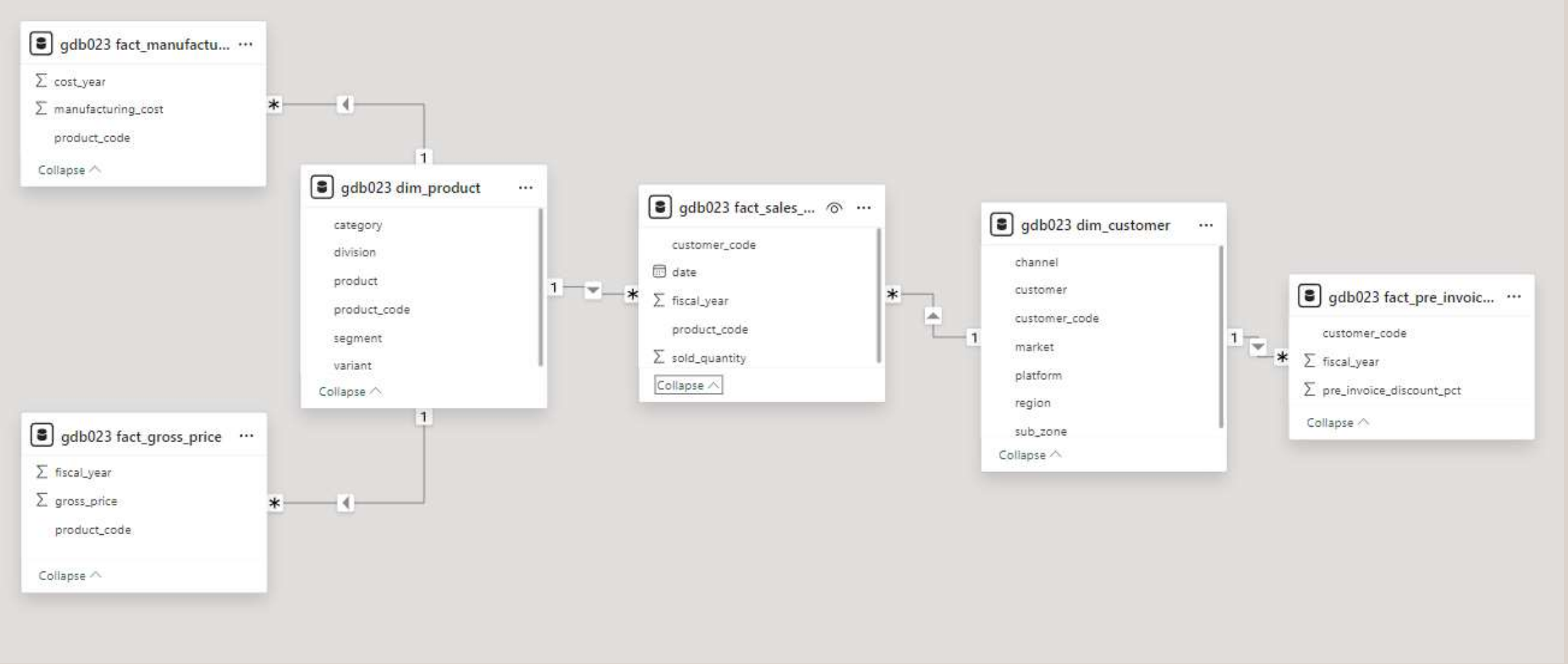
SQL PROJECT CHALLENGE

Introduction

- **Atliq Hardwares (imaginary company) is one of the leading computer hardware producers in India and well expanded in other countries too.**
- **The management noticed that they do not get enough insights to make quick and smart data-informed decisions.**
- **Plan to expand their data analytics team by adding several junior data analysts.**
- **Tony Sharma, the Data Analytics Director, sought to hire a candidate who excels in both technical expertise and soft skills.**
- **There are 10 ad hoc requests for which the business needs insights.**
- **Need to run a SQL query to answer these requests.**

INPUT DATA: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product_code
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gdb023 dim_product
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division
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pre_invoice_discount_pct
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gdb023 fact_gross_price
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REQUEST-1:

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

QUERY :

```
SELECT distinct market FROM gdb023.dim_customer
WHERE customer = 'Atliq Exclusive' AND region = 'APAC'
```

OUTPUT:

market
India
Indonesia
Japan
Philiphines
South Korea
Australia
Newzealand
Bangladesh

Insights:

"Atliq Exclusive" thrives across diverse markets in the APAC region, showcasing its strategic reach and influence.

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_change

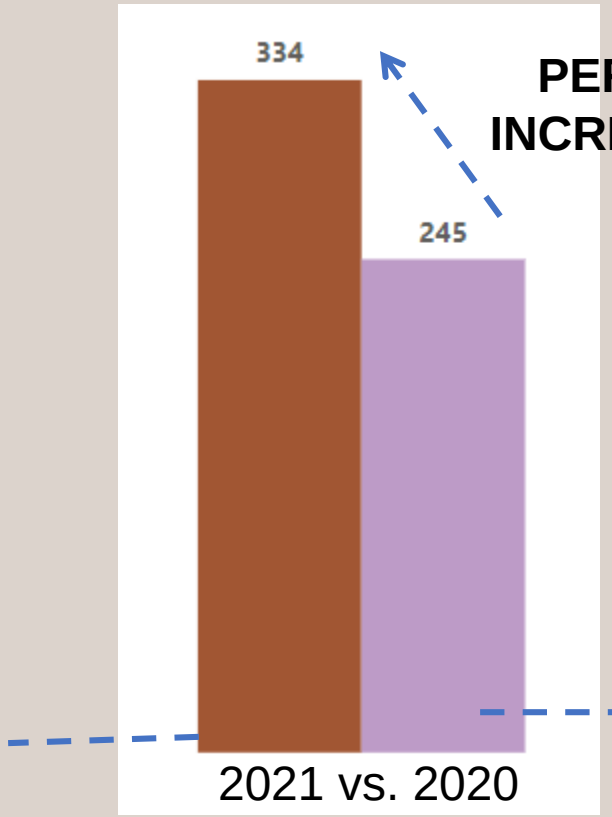
QUERY

```
WITH CTE1 AS (
SELECT COUNT(distinct product_code) AS UNIQUE_PRODUCTS_2020 FROM gdb023.fact_sales_monthly
WHERE fiscal_year = 2020),

CTE2 AS (
SELECT COUNT(distinct product_code) AS UNIQUE_PRODUCTS_2021 FROM gdb023.fact_sales_monthly
WHERE fiscal_year = 2021)

select *,
ROUND((CTE2.UNIQUE_PRODUCTS_2021 - CTE1.UNIQUE_PRODUCTS_2020) * 100/CTE1.UNIQUE_PRODUCTS_2020, 2) AS PERCENTAGE_CHANGE from CTE1, CTE2
```

OUTPUT:

	UNIQUE_PRODUCTS_2020	UNIQUE_PRODUCTS_2021	PERCENTAGE_CHANGE
▶	245	334	36.33

INSIGHTS:



PERCENTAGE INCREASE 36.33%

UNIQUE PRODUCT 2021

UNIQUE PRODUCT 2020

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

QUERY:

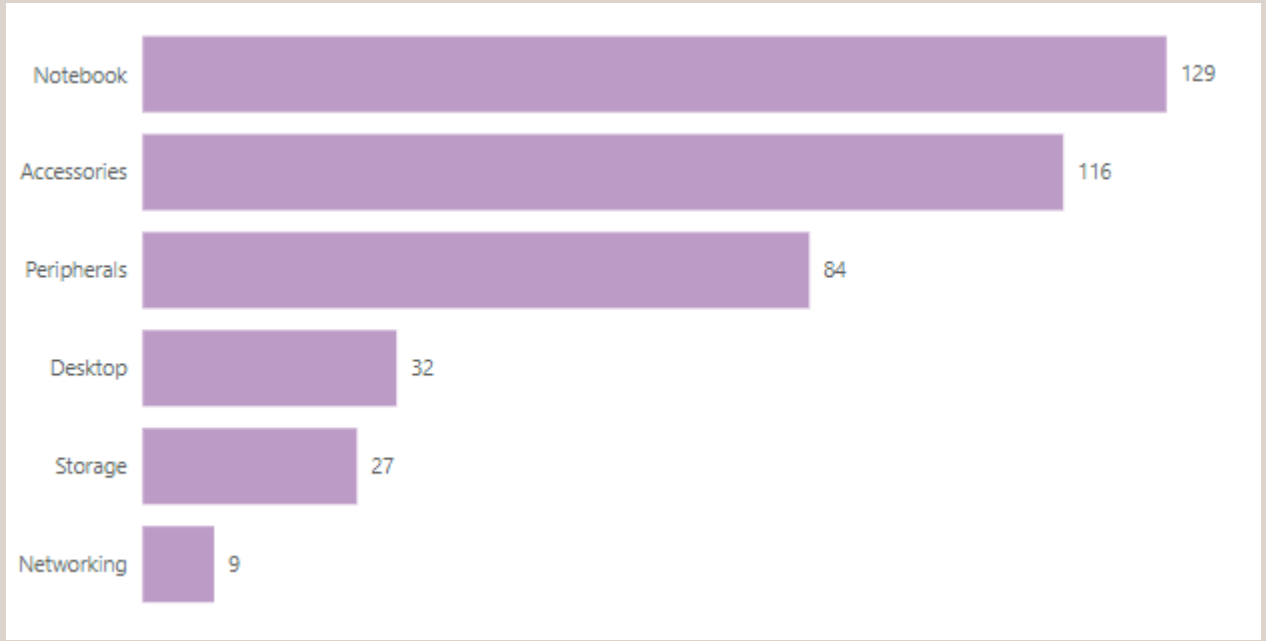
```
SELECT segment, COUNT(distinct product_code) as product_count FROM gdb023.dim_product
group by segment
order by product_count desc
```

INSIGHTS:

Segments like Notebooks, Accessories, and Peripherals lead with a high variety of products, while Desktop, Storage, and Networking show room for improvement in product diversity.

OUTPUT:

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



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:

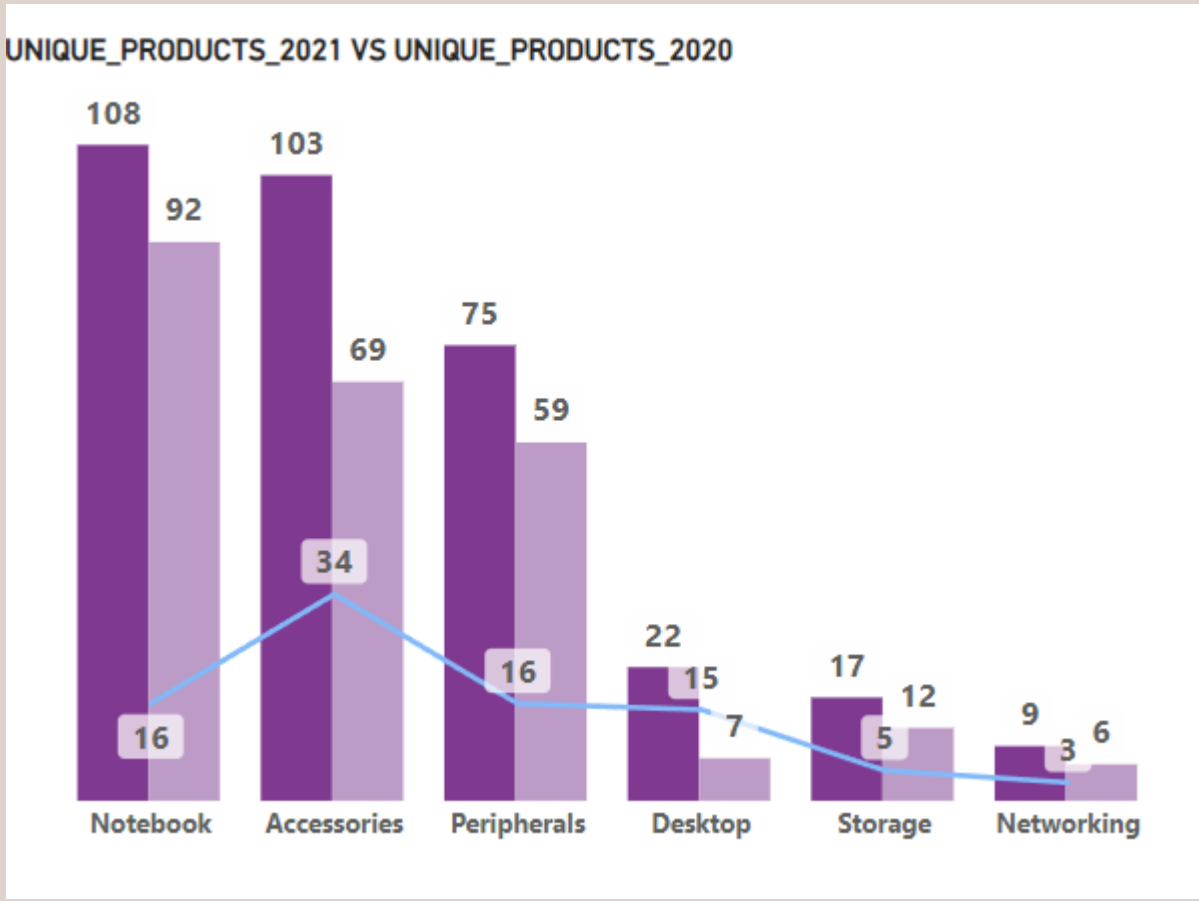
```
WITH CTE1 AS (SELECT segment,
    COUNT(DISTINCT CASE WHEN fiscal_year = 2020 THEN fs.product_code END) AS UNIQUE_PRODUCTS_2020,
    COUNT(DISTINCT CASE WHEN fiscal_year = 2021 THEN fs.product_code END) AS UNIQUE_PRODUCTS_2021
FROM gdb023.fact_sales_monthly as fs
join gdb023.dim_product as dp on fs.product_code = dp.product_code
group by segment)

SELECT *,
(UNIQUE_PRODUCTS_2021 - UNIQUE_PRODUCTS_2020) AS DIFFERENCE
FROM CTE1
order by DIFFERENCE DESC
```

INSIGHTS:

Accessories saw the highest growth in unique products from 2020 to 2021, while Storage and Networking had the least growth.

OUTPUT:

segment	UNIQUE_PRODUCTS_2020	UNIQUE_PRODUCTS_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



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 fm.product_code, dp.product, max(manufacturing_cost) as Manufacturing_Cost FROM gdb023.fact_manufacturing_cost fm
join gdb023.dim_product dp on fm.product_code = dp.product_code
group by fm.product_code, dp.product
order by  Manufacturing_Cost desc
limit 1)
union all
(SELECT fm.product_code, dp.product, min(manufacturing_cost) as Manufacturing_Cost FROM gdb023.fact_manufacturing_cost fm
join gdb023.dim_product dp on fm.product_code = dp.product_code
group by fm.product_code, dp.product
order by Manufacturing_Cost
limit 1)
```

OUTPUT:

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

INSIGHTS:

The AQ HOME Allin1 Gen 2 (DESKTOP) stands out with the highest manufacturing cost, while the AQ Master Wired (MOUSE) is the most cost-efficient to produce.

AQ HOME Allin1 Gen 2	$240.5364
AQ Master wired x1 Ms	$0.892

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:

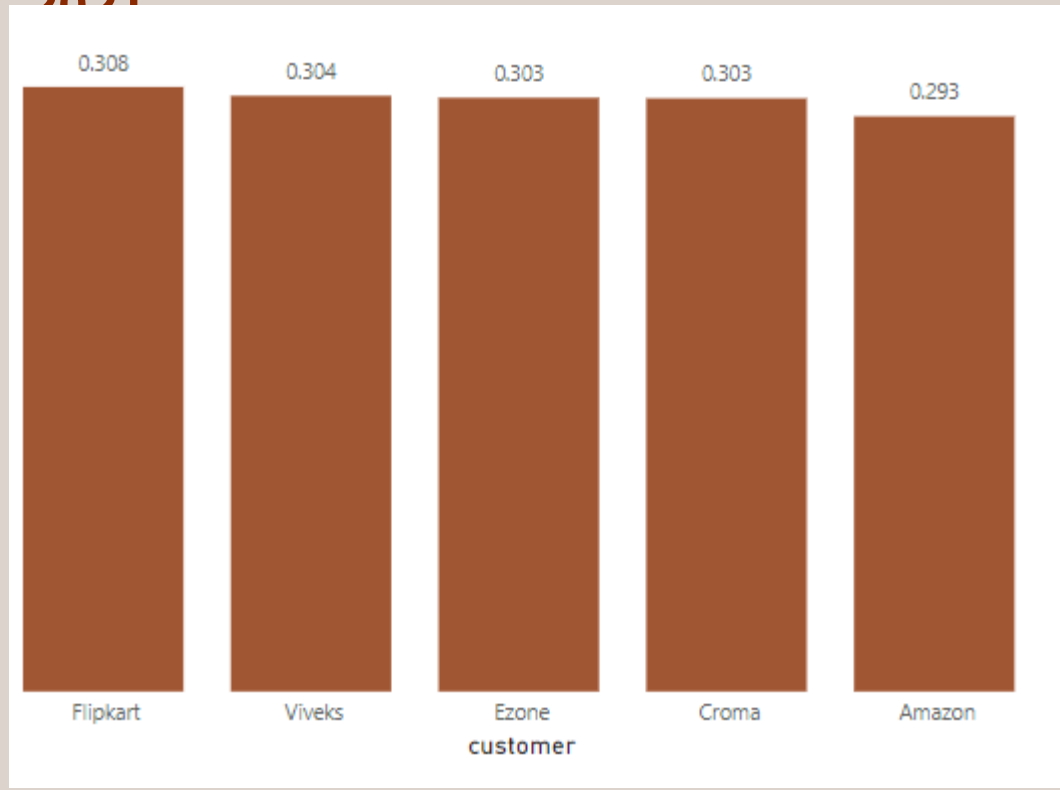
```
SELECT fp.customer_code, customer, round(avg(pre_invoice_discount_pct),4) as avg_dis_percent FROM gdb023.fact_pre_invoice_deductions fp
join gdb023.dim_customer dc on fp.customer_code = dc.customer_code
where fiscal_year = 2021 and market = 'India'
group by fp.customer_code, customer
order by avg_dis_percent desc
limit 5
```

INSIGHTS:

TOP 5 CUSTOMERS have highest average discount percentage for 2021

OUTPUT:

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



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(date) as month, year(date) as year,
round(sum(gross_price * sold_quantity),4) as gross_sales_Amount from gdb023.fact_sales_monthly fs
join gdb023.fact_gross_price fg on fs.product_code = fg.product_code
join gdb023.dim_customer dc on fs.customer_code = dc.customer_code
where customer = 'Atliq Exclusive'
group by year,month
order by year
```

OUTPUT:

month	year	gross_sales_Amount
December	2019	9755795.0577
November	2019	15231894.9669
October	2019	10378637.5961
September	2019	9092670.3392
April	2020	800071.9543
August	2020	5638281.8287
December	2020	20409063.1769
February	2020	8083995.5479
January	2020	9584951.9393
July	2020	5151815.4020
June	2020	3429736.5712
March	2020	766976.4531
May	2020	1586964.4768
November	2020	32247289.7946

INSIGHTS:

Compared to 2019, the decline in 2020 for "Atliq Exclusive" was mainly due to the impact of COVID-19, supply chain disruptions, and seasonal fluctuations, resulting in lower sales, with a significant increase in sales observed in September 2019.

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:

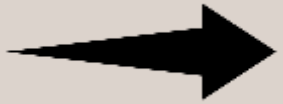
```
SELECT
CASE
WHEN MONTH(DATE) BETWEEN 9 AND 11 THEN 'Q1'
WHEN MONTH(DATE) in (12,1,2) THEN 'Q2'
WHEN MONTH(DATE) BETWEEN 3 AND 5 THEN 'Q3'
WHEN MONTH(DATE) BETWEEN 6 AND 8 THEN 'Q4'
END AS QUARTER,
CONCAT(ROUND(SUM(sold_quantity)/1000000,2),'M') as total_sold_quantity from gdb023.fact_sales_monthly
where fiscal_year = 2020
group by quarter
order by total_sold_quantity desc
```

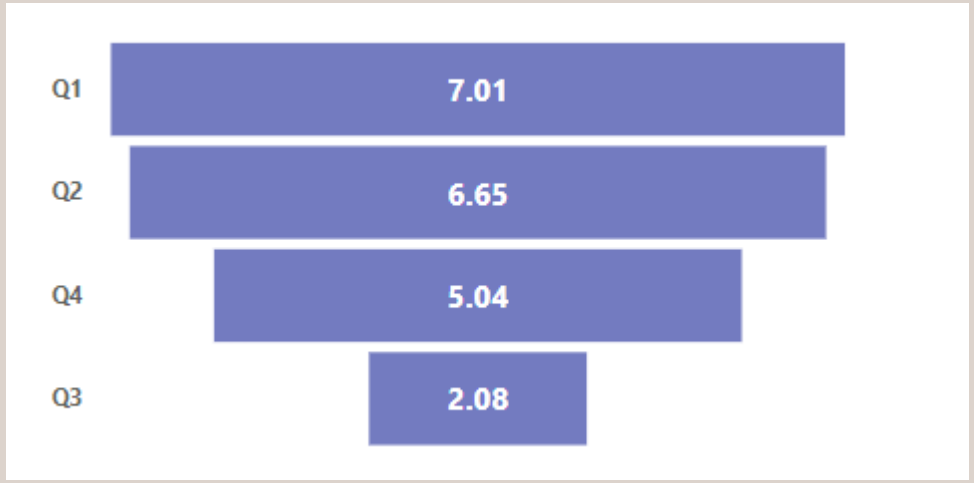
INSIGHTS:

The analysis of total sold quantity by quarter in 2020 highlights high sales from September to February, with a drop in sales from March to May, primarily due to the impact of COVID-19, providing insights for better inventory and sales strategy planning.

OUTPUT:

QUARTER	total_sold_quantity
Q1	7.01M
Q2	6.65M
Q4	5.04M
Q3	2.08M





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:

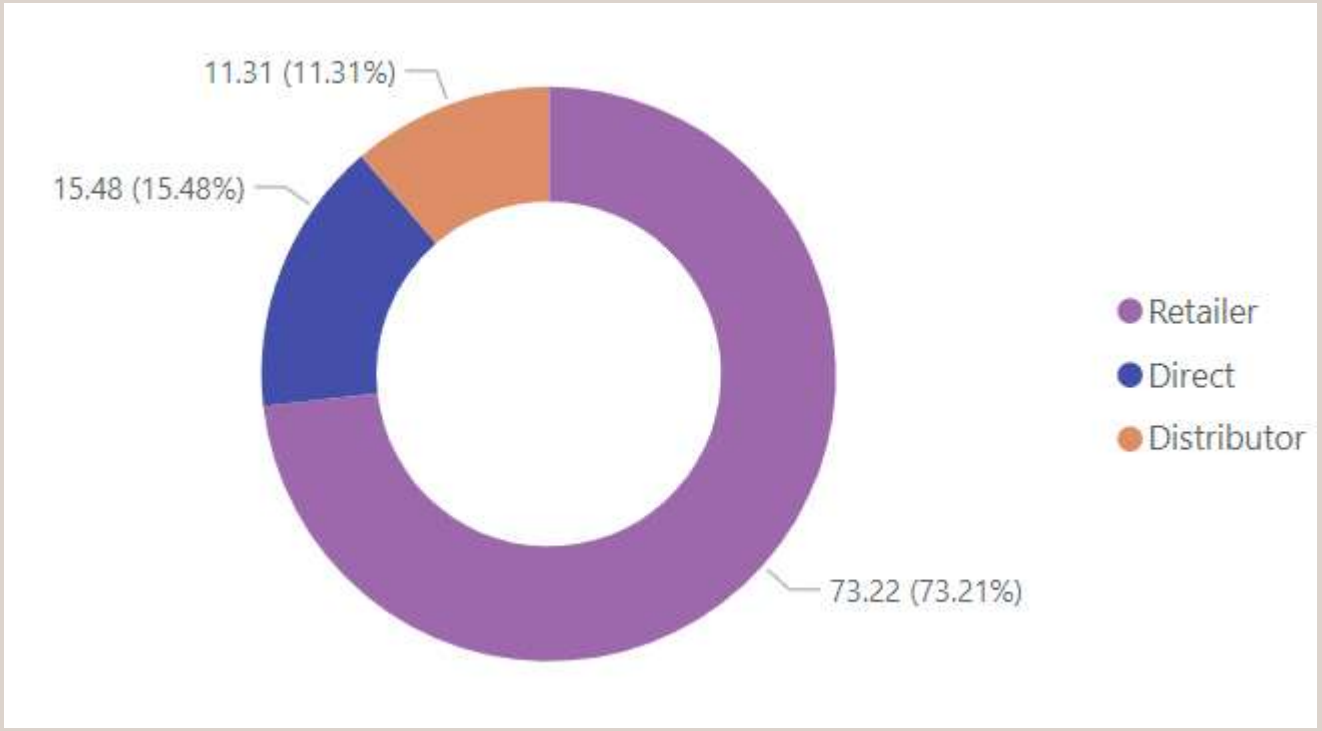
```
with CTE1 AS
(SELECT channel,
round(sum(gross_price * sold_quantity)/1000000,2) as gross_sales_mln  FROM gdb023.dim_customer dc
join gdb023.fact_sales_monthly fs on dc.customer_code = fs.customer_code
join gdb023.fact_gross_price fg on fs.product_code = fg.product_code
where fs.fiscal_year  = 2021
group by channel),

CTE2 AS (SELECT SUM(CTE1.gross_sales_mln) as total_sales from CTE1)

SELECT CTE1.channel,
concat(CTE1.gross_sales_mln,'M') as gross_sales_mln,
round((CTE1.gross_sales_mln * 100) / CTE2.total_sales, 2) AS percentage from cte1,CTE2
order by CTE1.gross_sales_mln desc
```

INSIGHTS:

In the fiscal year 2021, the Retailer channel generated the highest gross sales, contributing the largest percentage to overall sales.

OUTPUT:

channel	gross_sales_mln	percentage
Retailer	1924.17M	73.22
Direct	406.69M	15.48
Distributor	297.18M	11.31



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

QUERY:

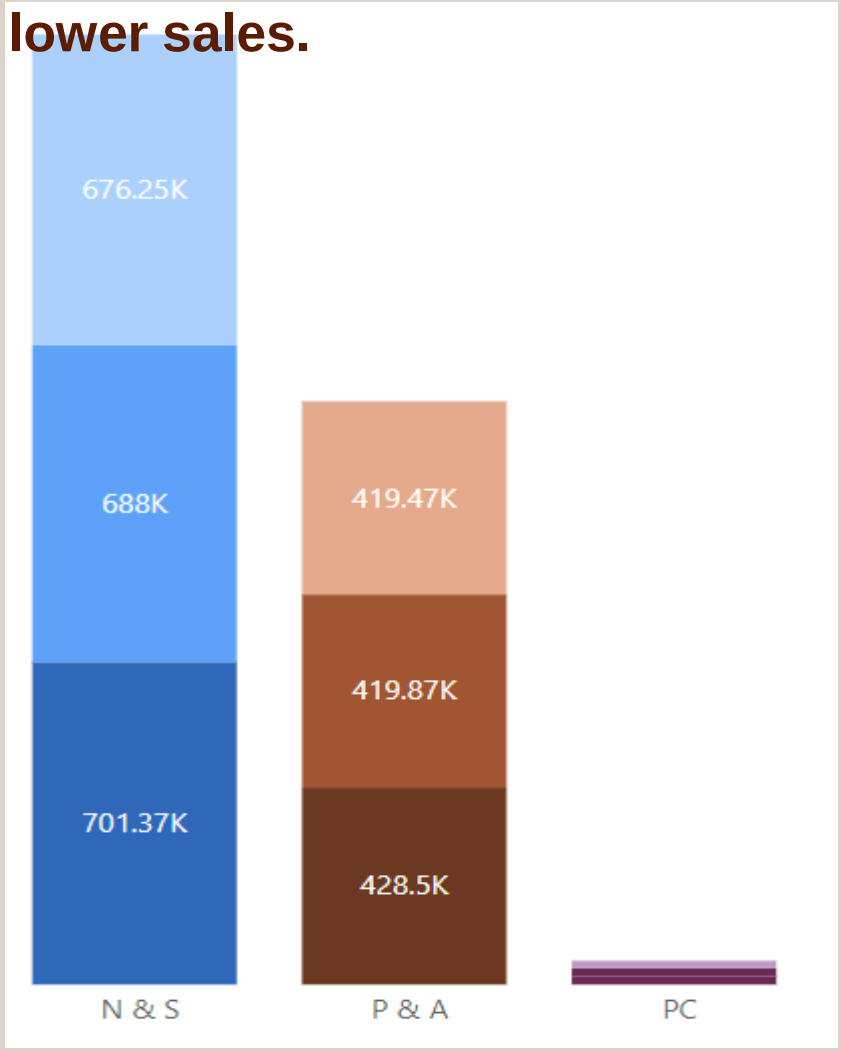
```
WITH CTE1 AS (
SELECT dp.division,
fs.product_code, dp.product,
SUM(fs.sold_quantity) as total_quantity,
rank() over (partition by dp.division order by sum(fs.sold_quantity) desc) as rank_order
from gdb023.dim_product dp
join gdb023.fact_sales_monthly fs
on dp.product_code = fs.product_code
where fiscal_year = 2021
group by dp.division, fs.product_code, product)

SELECT * FROM CTE1
where rank_order <= 3
order by division, rank_order
```

INSIGHTS:

The product "Pen Drive" dominated total sold quantity within the N & S division in 2021, securing the top rank. Other divisions showcased their best-performing products, while the P & C division had comparatively lower sales.

OUTPUT:

division	product_code	product	total_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



Summary

- Investigate the low sales in the P & C division to identify potential issues, such as product availability, pricing, or lack of targeted promotions, and address them with strategic interventions
- Given the popularity of products like "Pen Drive," consider expanding their availability to other divisions or introducing complementary products to capitalize on their demand.
- Use data on high and low-performing months to optimize inventory and launch targeted campaigns during peak sales periods, such as September to February.
- Strengthen the Retailer channel’s effectiveness through enhanced support and promotions while exploring opportunities to improve sales performance in other channels like Direct and Distributor.
- Monitor evolving consumer preferences across divisions and channels to adjust product portfolios and marketing strategies dynamically.

Thank you