

# Provide Insights to Management in Consumer Goods Domain



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# Agenda



Company  
Overview



Objective



The Data



Ad-Hoc  
Requests and  
Insights

# Company Overview

- Atliq Hardwares (imaginary company) is one of the leading computer hardware producers in **India** and **well expanded in other countries too**.
- It has 74 customers in 27 countries along with **Asia Pacific(APAC)**, **Europe(EU)**, **North America(NA)** and **Latin America(LA)**.
- The company manufactures products in three major divisions namely **personal computer(PC)**, **peripherals** and **accessories(P&A)**, **networking** and **storage(N&S)**.
- They run their business on two platforms **E-commerce** and **Brick & Mortar**. They reach out the customer world through three channels **Direct**, **Distributor** and **Retailer**.

# Objective

Assist the management team to get actionable insights about the business by solving ad-hoc requests.

# The Data

The input data consists of sales data for fiscal year 2020-2021 along with other dimension table. Company's fiscal year starts from 1<sup>st</sup> September and ends on 31<sup>st</sup> August.

The data set has 4 fact tables and 2 dimension tables :-

- dim\_customer: Contains customer related data.
- dim\_product: Contains product related data.
- fact\_gross\_table: Contains gross price information for each product.
- fact\_manufacturing\_cost: Contains data for cost incurred in production of each product.
- fact\_pre\_invoice\_deductions: Contains pre-invoice deductions information for each product.
- fact\_sales\_monthly: Contains monthly sales data for each product.

# Ad-hoc requests, results and insights

- Request 1
- Request 2
- Request 3
- Request 4
- Request 5
- Request 6
- Request 7
- Request 8
- Request 9
- Request 10

# 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
	Philippines
	South Korea
	Australia
	Newzealand
	Bangladesh

# Insights:

- Atliq exclusive operates its business in 8 markets(countries) across APAC region.
- Atliq exclusive has max no. of markets in APAC region followed by EU(6), NA(2). LATAM has no market share.





## 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:

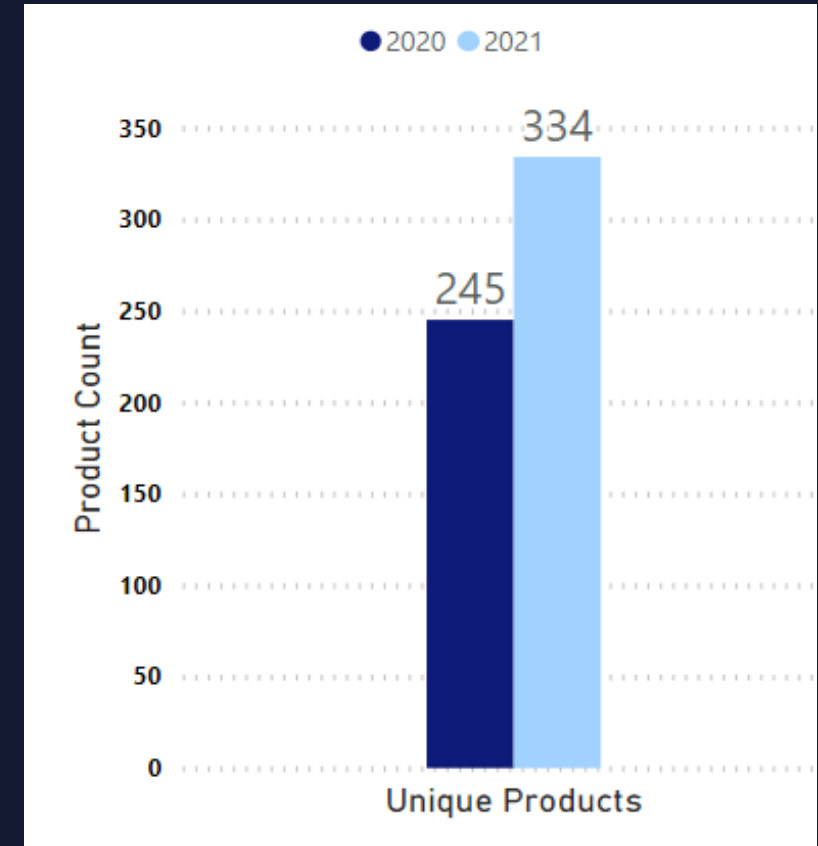
```
with cte1 as
    (select count(distinct product_code) as unique_product_2020
     from fact_gross_price
     where fiscal_year = 2020),
     cte2 as
    (select count(distinct product_code) as unique_product_2021
     from fact_gross_price
     where fiscal_year = 2021)
select *, round((unique_product_2021-unique_product_2020)*100/unique_product_2020, 2) as percentage_chg
from cte1
cross join cte2;
```

Output:

	unique_product_2020	unique_product_2021	percentage_chg
►	245	334	36.33

# Insights:

- There is a unique product increase of 36.33% in fiscal year 2020 to 2021.
- This is a considerable increase and it can help Atliq to increase its customer base.
- Being a covid affected time period it is a appreciated performance.



## 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 :  
segment  
product\_count

Query:

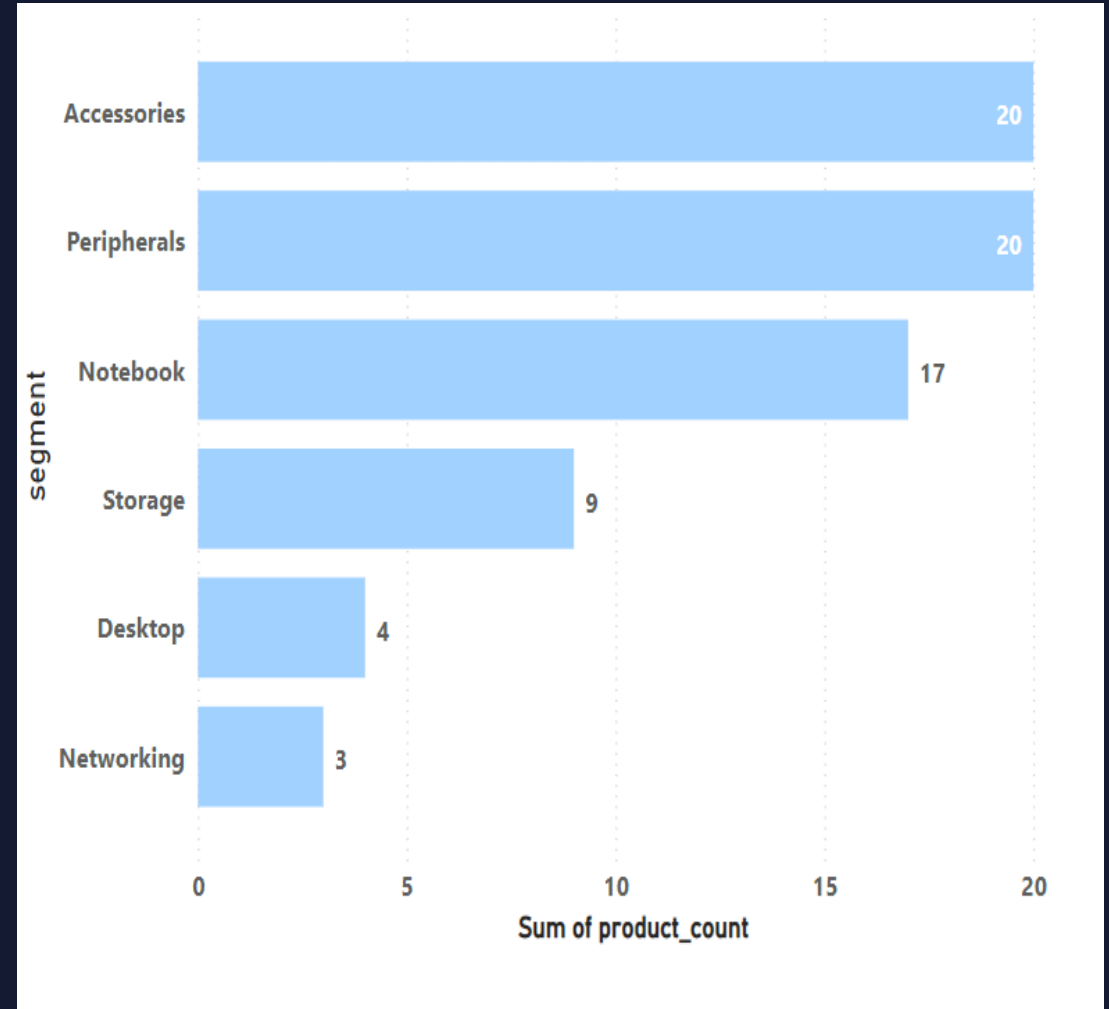
```
select segment, count(distinct product_code) as product_count
from dim_product
group by segment
order by product_count desc;
```

Output:

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

# Insights:

- Accessories and Peripheral segments have best unique product count. These segments may help in getting more sales as more products are there to choose from for customers.
- Storage, Networking and Desktop segments need to increase their unique product counts.



## 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

Query :

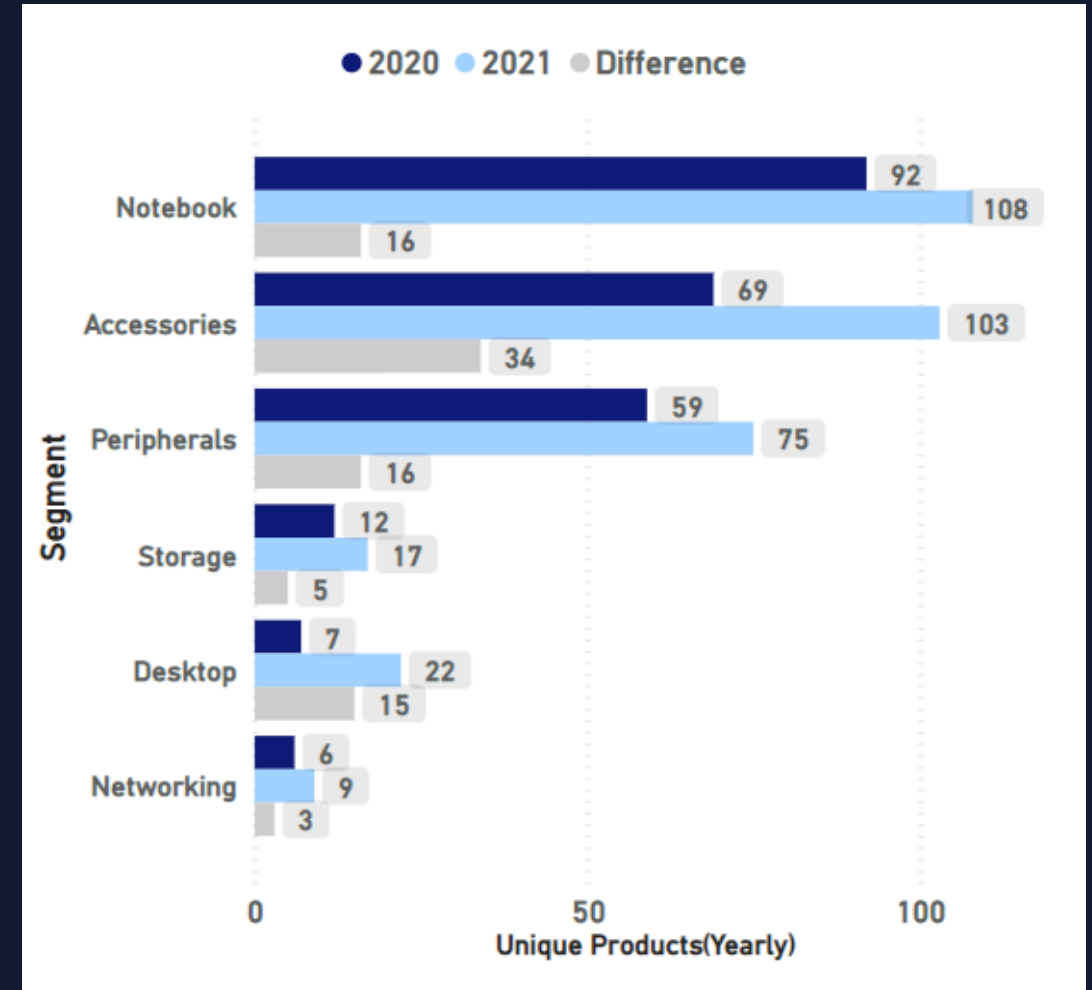
```
with unique_prod_2020 as
  (select p.segment as segment,
         count(distinct (p.product_code) ) as product_count_2020
   from dim_product p
  join fact_gross_price gp
    on gp.product_code = p.product_code
  where fiscal_year = 2020
  group by segment),
unique_prod_2021 as
  (select p.segment as segment,
         count(distinct (p.product_code) ) as product_count_2021
   from dim_product p
  join fact_gross_price gp
    on gp.product_code = p.product_code
  where fiscal_year = 2021
  group by segment)
select unique_prod_2020.segment as segment,
       product_count_2020, product_count_2021,
       round(product_count_2021-product_count_2020) as difference
 from unique_prod_2020
 join unique_prod_2021
    on unique_prod_2020.segment= unique_prod_2021.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

# Insights :

- Accessories segment topped in increasing the number of unique products from 2020 to 2021. A survey or questionnaire for end users could be organised to find the reason for this successful movement.
- Storage and Networking segment were much below par in increasing number of unique products going to 2021. A survey or questionnaire for end users could be organised to find the reason for this decline.



# Request 5:

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

The final output should contain :  
product\_code  
product  
manufacturing\_cost

Query :

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

Output :

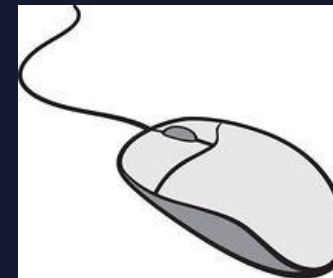
product_code	product	manufacturing_cost
A6120110206	AQ HOME Allin1 Gen 2	240.5364
A2118150101	AQ Master wired x1 Ms	0.8920

# Insights :

- Analysing deeper, the total manufacturing cost(for all quantities) incurred by Atliq is near about same, i.e. 5,99,231(single quantity cost \* total quantity manufactured) and 5,51,054 for lowest manufacturing cost product and highest manufacturing cost product respectively.
- Further analysing the sale data for both products. The AQ Master Wired x1 Ms (low manufacturing cost product) has given more profit to Atliq.



**Highest  
Manufacturing cost  
(\$240.5364)  
Product : AQ HOME  
allin 1 Gen 2  
Category : PC**



**Lowest Manufacturing  
cost  
(\$0.8920)  
Product : AQ Master  
Wired x1 Ms  
Category : Mouse**



## 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 :  
customer\_code  
customer  
average\_discount\_percentage

Query :

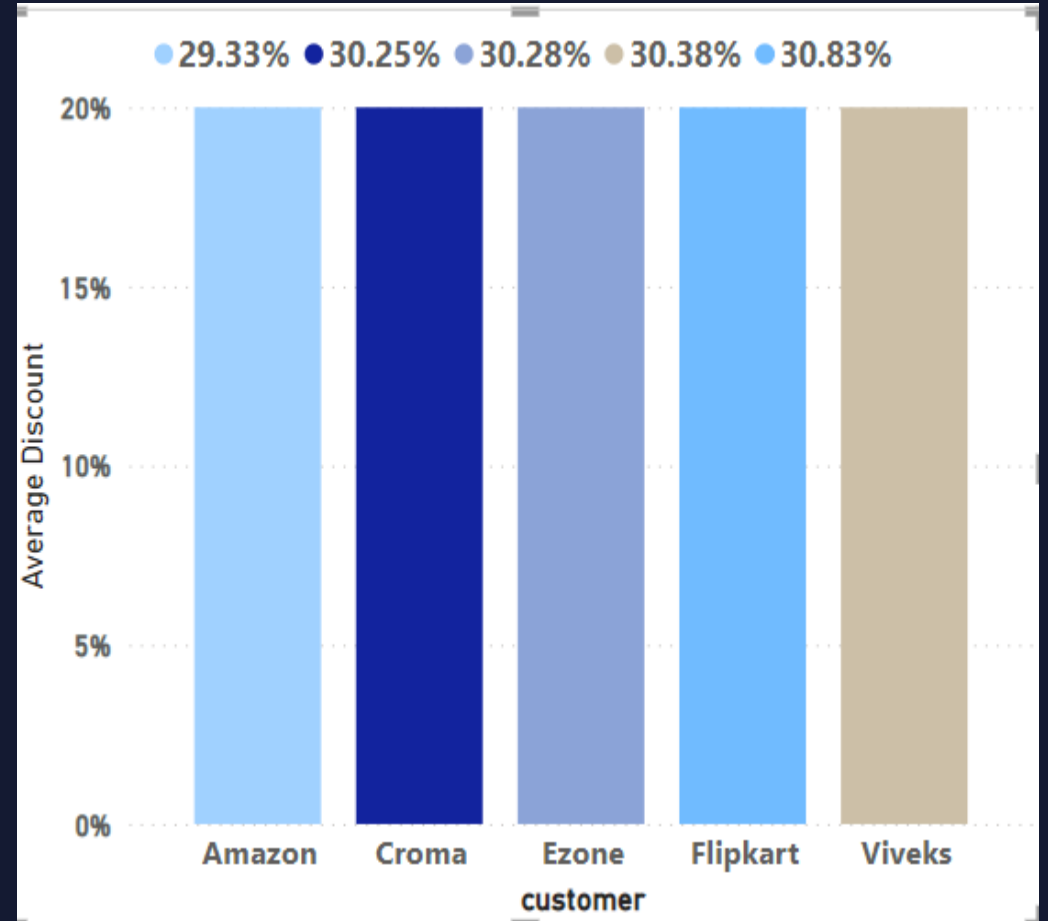
```
select i.customer_code,  
       c.customer,  
       concat(round(avg(pre_invoice_discount_pct)*100,2), '%') as avg_discount_percentage  
from fact_pre_invoice_deductions i  
join dim_customer c  
on c.customer_code = i.customer_code  
where fiscal_year = 2021 and c.market = 'india'  
group by c.customer_code  
order by avg(pre_invoice_discount_pct) desc  
limit 5;
```

Output :

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

# Insights :

- All top 5 performers in pre\_invoice\_discounting belong to retail channel.
- Analysing further, there is no pre\_invoice\_discounting data for customers belonging to distributor channel.
- In direct channel, Atliq exclusive has very low pre\_invoice\_discounting.
- In conclusion, major business was done with retail channel. Atliq should take measures to increase business in other channels.



# 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 :

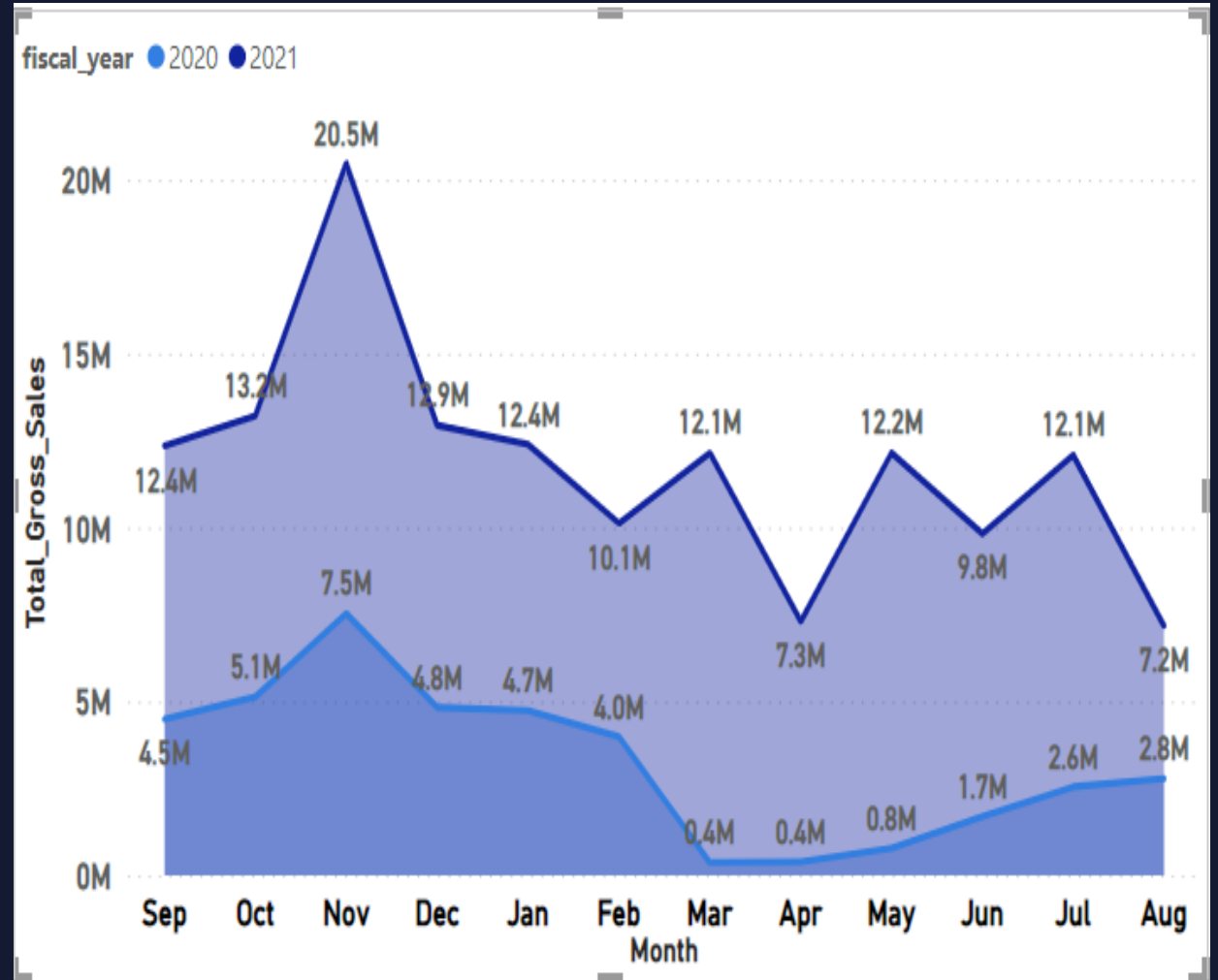
```
SELECT  
MONTHNAME(date) as month, year(date) AS year,  
ROUND(SUM((f.sold_quantity*g.gross_price))/1000000,2) AS Gross_sales_Amount  
FROM dim_customer c  
JOIN fact_sales_monthly f  
ON c.customer_code = f.customer_code  
JOIN fact_gross_price g  
ON f.product_code = g.product_code  
AND f.fiscal_year = g.fiscal_year  
WHERE c.customer = "Atliq Exclusive"  
GROUP BY month, year  
order by year;
```

Output :

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

# Insights :

- We can break the sales graph for each year into 2 parts i.e. Sep-Jan and Feb-Aug.
- Sep-Jan period is similar for both years. The important point here is shooting up of sales in Nov and then dropping. The reason cannot be festive season(Diwali, etc.) alone as the business operates in foreign countries also. Atliq needs to further gather data to analyse this key period.
- Feb-Aug period for both years show sales struggling to get back on track.



# 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 :

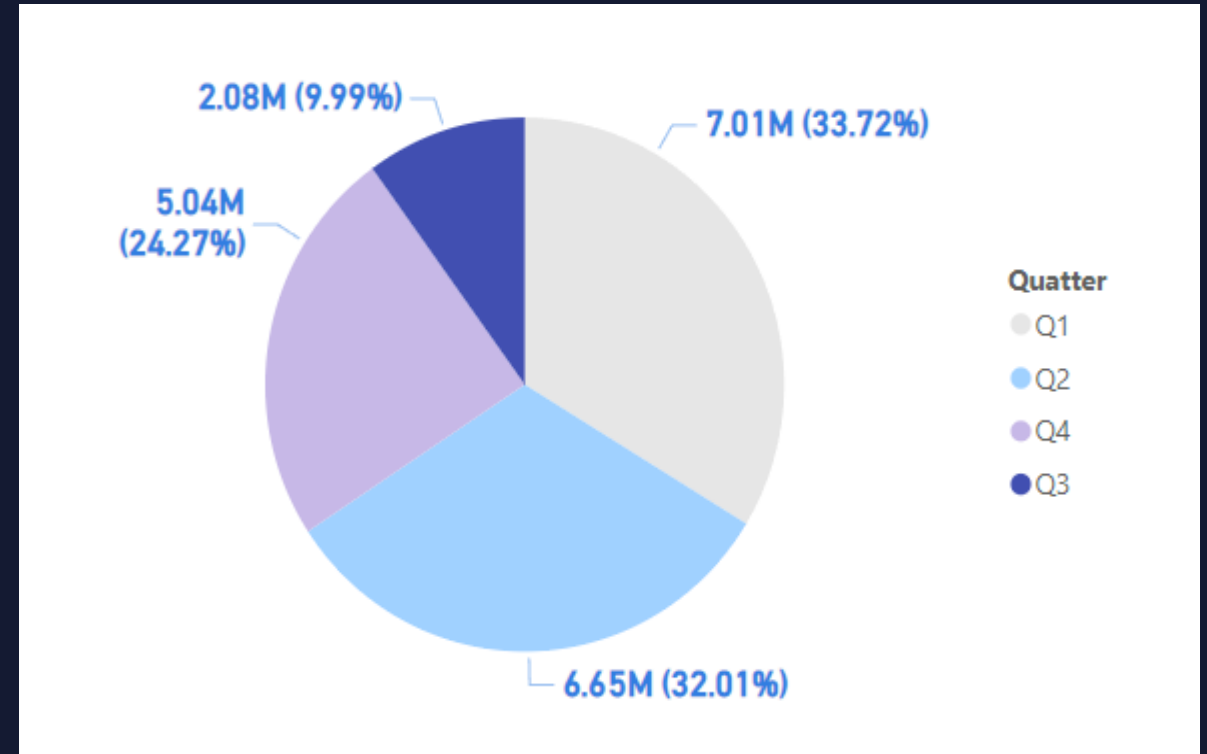
```
select
case
    WHEN month(date) in (9,10,11) then "Q1"
    WHEN month(date) in (12,01,02) then "Q2"
    WHEN month(date) in (03,04,05) then "Q3"
    else "Q4"
End As Quatter,
    round(sum(sold_quantity)/1000000,2) as total_sold_quantity_in_millions
from fact_sales_monthly
where fiscal_year = 2020
group by quatter
order by total_sold_quantity_in_millions desc;
```

Output :

Quatter	total_sold_quantity_in_million
Q1	7.01
Q2	6.65
Q4	5.04
Q3	2.08

# Insights :

- Q1 showed the highest total sales and then it decline till Q3. Finally, the total sales showed some recovery in Q4.
- The decline in total sales for Q2, Q3 is probably due Covid pandemic outbreak



# Request 9:

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

The final output contains :  
channel  
gross\_sales\_mln  
percentage

Query :

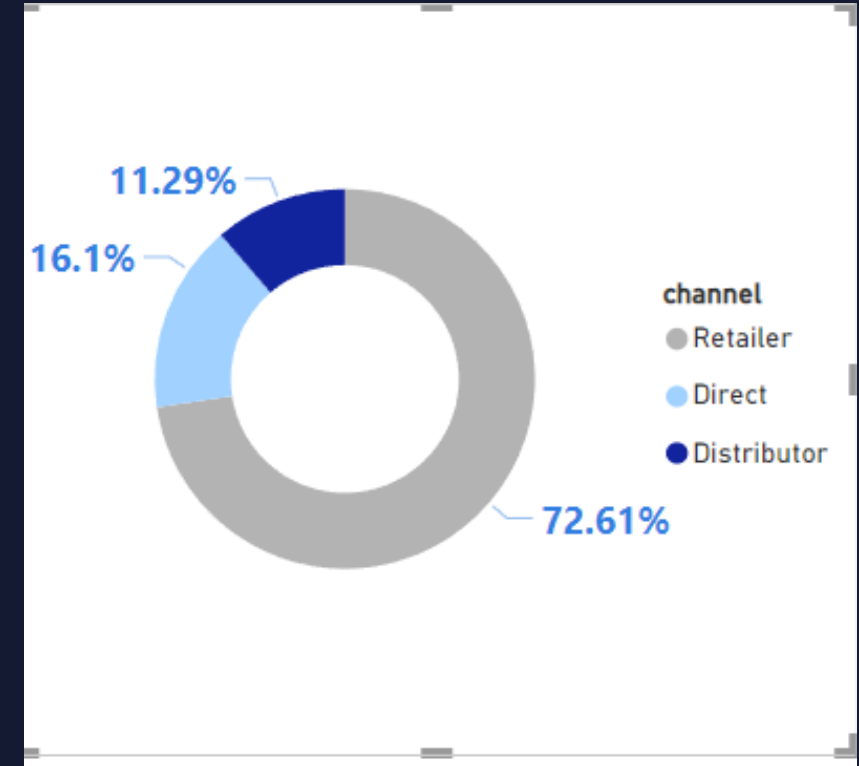
```
with gross_sales as
  (select c.channel,sum(gross_price*sold_quantity) as total_sale
   from dim_customer c
   join fact_sales_monthly s
   on c.customer_code = s.customer_code
   join fact_gross_price p
   on p.product_code = s.product_code
   where p.fiscal_year = 2021
   group by channel)
select channel, round(total_sale/1000000,2) as gross_sales_mln,
concat(round(total_sale/(sum(total_sale)over())*100,2),'%') AS percentage
from gross_sales
order by percentage desc;
```

Output :

channel	gross_sales_mln	percentage
Retailer	1606.39	72.61%
Direct	356.12	16.10%
Distributor	249.86	11.29%

# Insights :

- Retail channel topped among getting most gross sales. So, more products have to be promoted and sold through this channel.
- The performance of distributor channel was very poor. So, the company has to rethink about the distributor channel.
- After further analysis, the distributor channel have less customer and market capture. While direct channel has better market capture even though their customer capture is less.
- Covid has also affected distributor and sales got higher on ecommerce.





## 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 :  
division  
product\_code

Query :

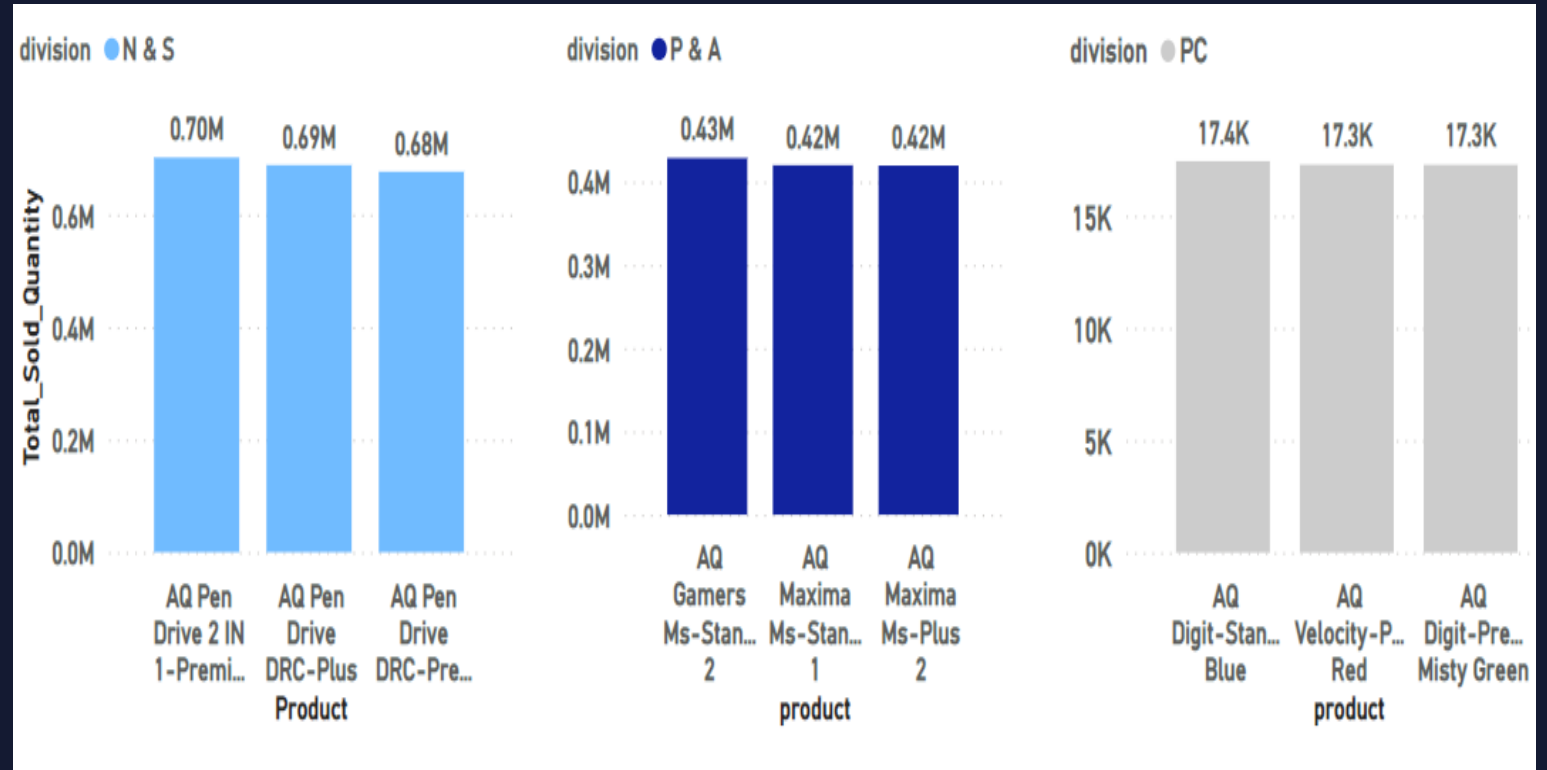
```
with cte as
(
select division, product_code,
CONCAT(product, "-", variant) AS product,
sum(sold_quantity) as total_sold_quantity
from dim_product
join fact_sales_monthly
using (product_code)
where fiscal_year = 2021
group by division, product_code),
rnk as
(
select *,
dense_rank() over (partition by division order by total_sold_quantity desc) as rank_order from cte)
select *
from rnk
where rank_order <4;
```

Output :

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

# Insights :

- All the products are performing neck to neck in their respective divisions.
- The three divisions have products with different price ranges and hence the different sold quantities can be expected.



Thank You !