

# Consumer Goods Ad\_Hoc Insights



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# CONTENTS



- About Company
- Problem Statement
- Target
- Data
- Request & Insights





## About Company:

- Atliq Hardwares is one of the leading computer hardware producers in India and well expanded in 26 other countries.
- The company produces products in 3 major categories, i.e. Peripherals & Accessories, PC, Networking & storage.
- The company has a total of 74 Customers like Neptune, Sage Leader, Vijay Sales, etc. to name some.



## Problem Statement:

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

However, the management noticed that they do not get enough insights to make quick and smart data-informed decisions. They want to expand their data analytics team by adding several junior data analysts. Tony Sharma, their data analytics director wanted to hire someone who is good at both tech and soft skills. Hence, he decided to conduct a SQL challenge which will help him understand both the skills.



## Target:

Assist the top management team to garner more insights about the business.

Make data-driven decisions to augment company business

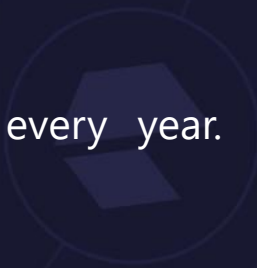




## Data:

- There are 4 fact tables
  - gross\_price
  - manufacturing\_cost
  - pre\_invoice\_deductions
  - sales\_monthly
- There are 2 dimension tables
  - customer details (dim\_customers)
  - product details (dim\_products).
- Sales data is available for fiscal year 2020-2021.

For Atliq Hardware, fiscal year commences from 1<sup>st</sup> September and terminates at 31<sup>st</sup> August every year.



**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 region = 'APAC'
and customer = 'Atliq Exclusive';
```



**Output:**

market
India
Indonesia
Japan
Philippines
South Korea
Australia
Newzealand
Bangladesh



# Visual and Insights



## Atliq Exclusive: A Strong Presence in the Asia-Pacific Region

- Atliq Exclusive operates in 8 key markets across the Asia-Pacific region.
- It boasts the highest number of stores in this region, surpassing other markets.

## Global Presence:

- Europe: 6 stores
- North America: 2 stores





**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 up_fy as (  
  select  
    count(distinct case when fiscal_year =2020 then product_code end) as unique_products_2020,  
    count(distinct case when fiscal_year =2021 then product_code end) as unique_products_2021  
  from fact_sales_monthly  
)  
  
select unique_products_2020,unique_products_2021,  
concat(  
  round(((unique_products_2021-unique_products_2020)*100)/unique_products_2020,2),  
  '%') as percentage_chg  
from up_fy;
```

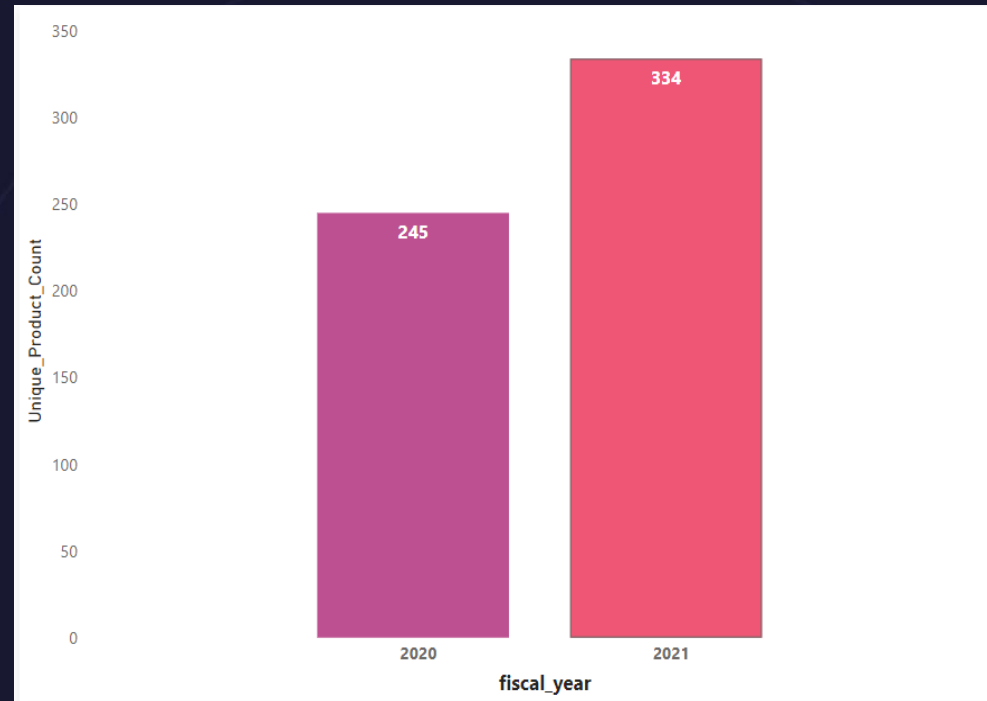


**Output:**

	unique_products_2020	unique_products_2021	percentage_chg
▶	245	334	36.33%



## Visual and Insights



- Atlique Hardwares has realized an increase of 36.33% in its new products.
- The company is responding to an increased market demand for new or diverse products. This could be driven by consumer trends, technological advancements, or a response to competitors.
- The rise in new products indicate a response to increased competition, where the company is trying to differentiate itself by offering more choices to consumers.

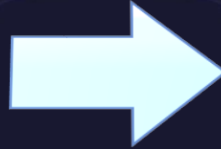


**Request 3:** Provide a report with all the unique product counts for each segment and sort them in descending order of product counts. The final output contains 2 fields: segment, product\_count.



### Query:

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

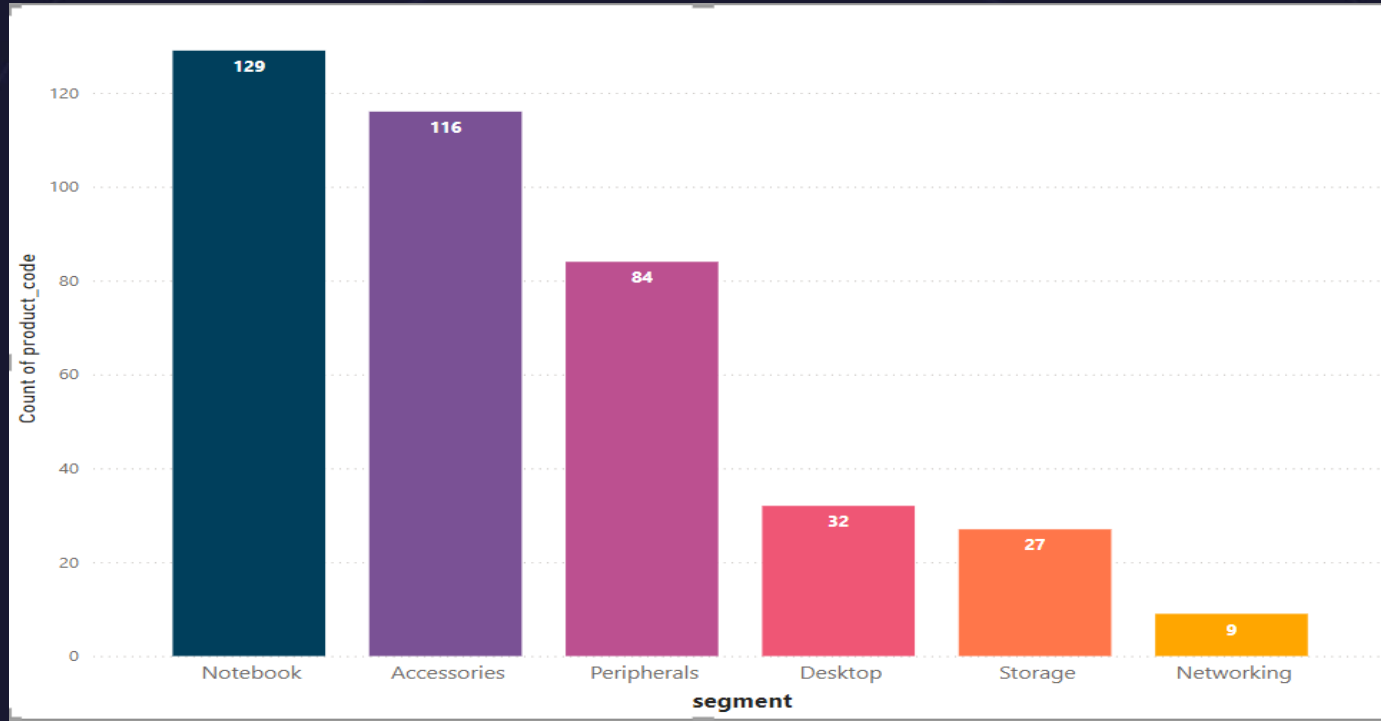


### Output:

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



## Visual and Insights



- The company has a broad range of products in the Notebook, Accessories, and Peripherals segments, with an average of around 110 products per segment. In contrast, the Desktop, Storage, and Network segments are underrepresented, with an average of just 23 products per segment.
- The Product Development team should prioritize evaluating and redesigning products to align with modern standards, especially in the underrepresented segments.




**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 upc_20_21 as(
  select
    prd.segment as segment,
    count(distinct case when fsm.fiscal_year=2020 then fsm.product_code end) as product_count_2020,
    count(distinct case when fsm.fiscal_year=2021 then fsm.product_code end) as product_count_2021
  from fact_sales_monthly fsm
  join dim_product prd
  on prd.product_code = fsm.product_code
  group by segment
)
select segment, product_count_2020, product_count_2021,
(product_count_2021-product_count_2020)as difference
from upc_20_21
order by difference desc;
```

### Output:

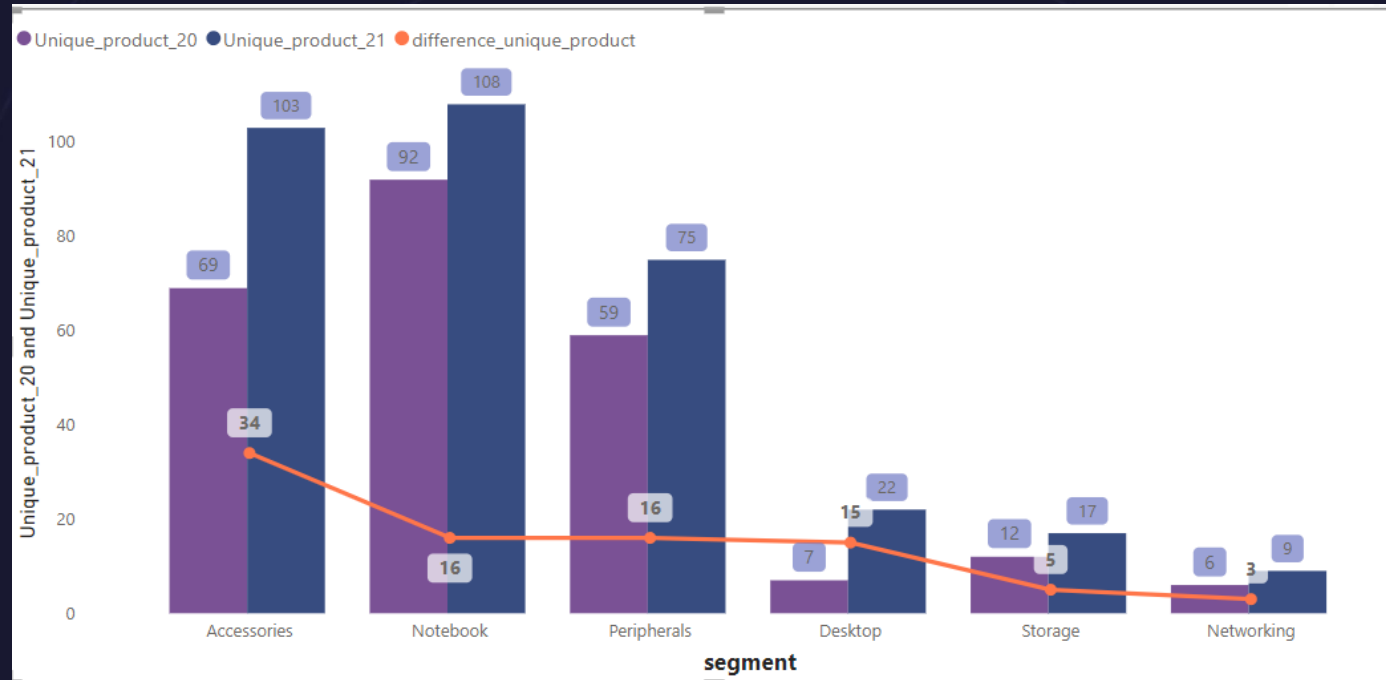


segment	product_count_2020	product_count_2021	difference
Accessories	69	103	34
Notebook	92	108	16
Peripherals	59	75	16
Desktop	7	22	15
Storage	12	17	5
Networking	6	9	3





# Visual and Insights



- The **Accessories** segment leads with the highest increase, adding 34 new unique products followed by Notebook, Peripherals, desktop, Storage and Networking with 16, 16, 15, 5, 3 respectively.
- **Focus on Networking Segment:** the company should explore potential market opportunities and consider increasing product development efforts in this area.
- **Strengthen Storage Segment:** The Storage segment shows limited growth. Analyzing customer needs and expanding the product range could help improve its market presence.
- **Continue Innovating in Accessories:** The Accessories segment is performing well. Maintaining this momentum with continuous innovation and market research will be crucial.


**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
fmc.product_code,
prd.product,
concat('$',round(fmc.manufacturing_cost,2)) as manufacturing_cost
from fact_manufacturing_cost fmc
join dim_product prd
on prd.product_code = fmc.product_code
where
fmc.manufacturing_cost = (select min(manufacturing_cost)from fact_manufacturing_cost)
or
fmc.manufacturing_cost = (select max(manufacturing_cost)from fact_manufacturing_cost)
order by fmc.manufacturing_cost desc;
```

### Output:



	product_code	product	manufacturing_cost
▶	A6120110206	AQ HOME Allin1 Gen 2	\$240.54
	A2118150101	AQ Master wired x1 Ms	\$0.89



# Visual and Insights



Highest Manufacturing Cost



AQ Home Allin 1 Gen 2  
Category:- Personal Desktop  
Cost: \$240.54

Lowest Manufacturing Cost



AQ Master wired x1 Ms (Standard 1)  
Category:- Mouse  
Cost: \$0.89



**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
inv_dis.customer_code,
cus.customer as customer,
concat(round((avg(pre_invoice_discount_pct)*100),2),'%') as average_discount_percentage
from fact_pre_invoice_deductions inv_dis
join dim_customer cus
on cus.customer_code = inv_dis.customer_code
where
inv_dis.fiscal_year = 2021
and
cus.market = 'India'
group by inv_dis.customer_code, cus.customer
order by avg(pre_invoice_discount_pct) desc
limit 5;
```

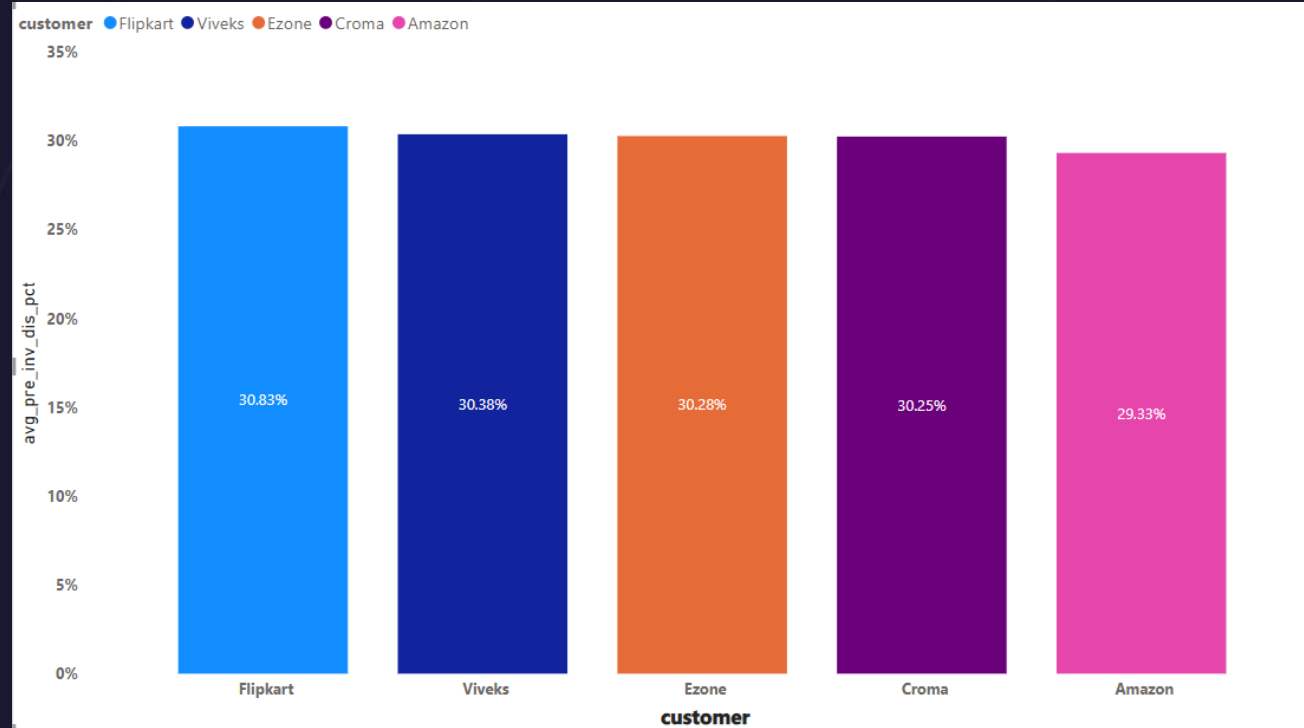
### Output:



	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%



# Visual and Insights



- Flipkart has received the highest pre-invoice discount percent i.e. 30.83 %, followed by Viveks, Ezone, Croma, Amazon.
- Top 5 Customers have a collective average of about 30.21%
- In the FY 2021, Average discount provided to all customers in Indian market was 24.16 %





**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(sm.date) as month_,
  year(sm.date) as year_,
  concat('$',round(sum((sm.sold_quantity*gp.gross_price)/1000000),2)) as Gross_sales_Amount
from fact_sales_monthly sm
join
dim_customer cus on cus.customer_code = sm.customer_code
join
fact_gross_price gp on gp.product_code = sm.product_code
where cus.customer = 'Atliq Exclusive'
group by month_, year_
order by year_, month_ ;
```

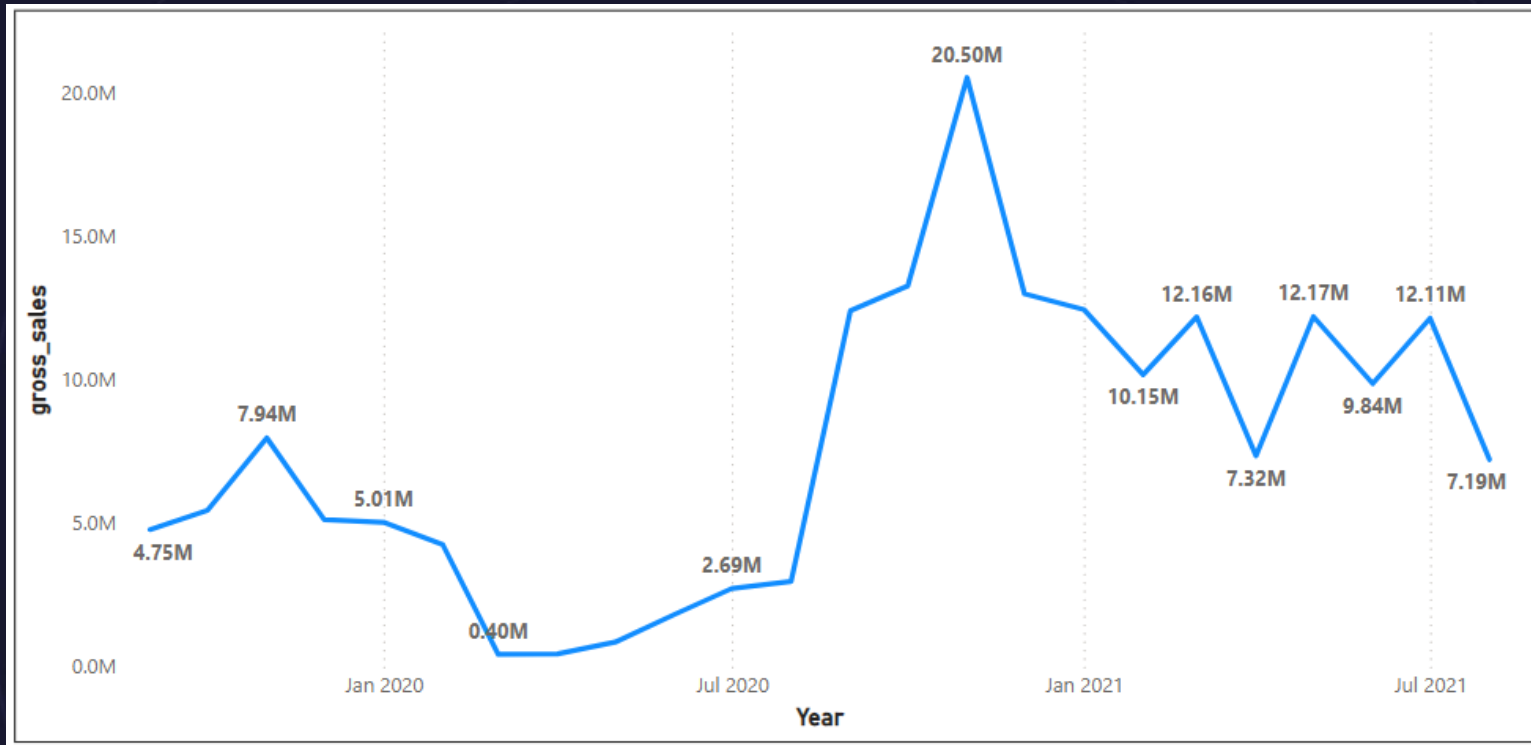


### Output:

	month_	year_	Gross_sales_Amount
▶	December	2019	\$9.76
	November	2019	\$15.23
	October	2019	\$10.38
	September	2019	\$9.09
	April	2020	\$0.80
	August	2020	\$5.64
	December	2020	\$20.41
	February	2020	\$8.08
	January	2020	\$9.58
	July	2020	\$5.15
	June	2020	\$3.43
	March	2020	\$0.77
	May	2020	\$1.59
	November	2020	\$32.25
	October	2020	\$21.02
	September	2020	\$19.53
	April	2021	\$11.48
	August	2021	\$11.32
	February	2021	\$15.99
	January	2021	\$19.57
	July	2021	\$19.04
	June	2021	\$15.46
	March	2021	\$19.15
	May	2021	\$19.20



# Visual and Insights



- **Lowest Sales:** In March 2020, sales hit their lowest point, dropping to **\$0.38 million**. This sharp decline was mainly due to the nationwide lockdowns imposed to control the spread of the virus, which led to temporary store closures.
- **Sales Recovery:** As lockdown restrictions were eased in September 2020, **Atliq Exclusive Stores** experienced a gradual sales recovery. The festive season in India and other markets provided a significant boost, driving increased foot traffic and consumer spending.
- **Peak Sales:** November 2020 became the most successful month for Atliq Exclusive Stores, with sales peaking at **\$20.46 million**. This surge likely reflects pent-up consumer demand from the lockdown period.



**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 (12,1,2) then 'Q2'
    when month(date) in (3,4,5) then 'Q3'
    else
      'Q4'
    end as Quarter_,
  sum(sold_quantity) as total_sold_quantity
from fact_sales_monthly sm
where fiscal_year = 2020
group by Quarter_
order by total_sold_quantity desc;
```

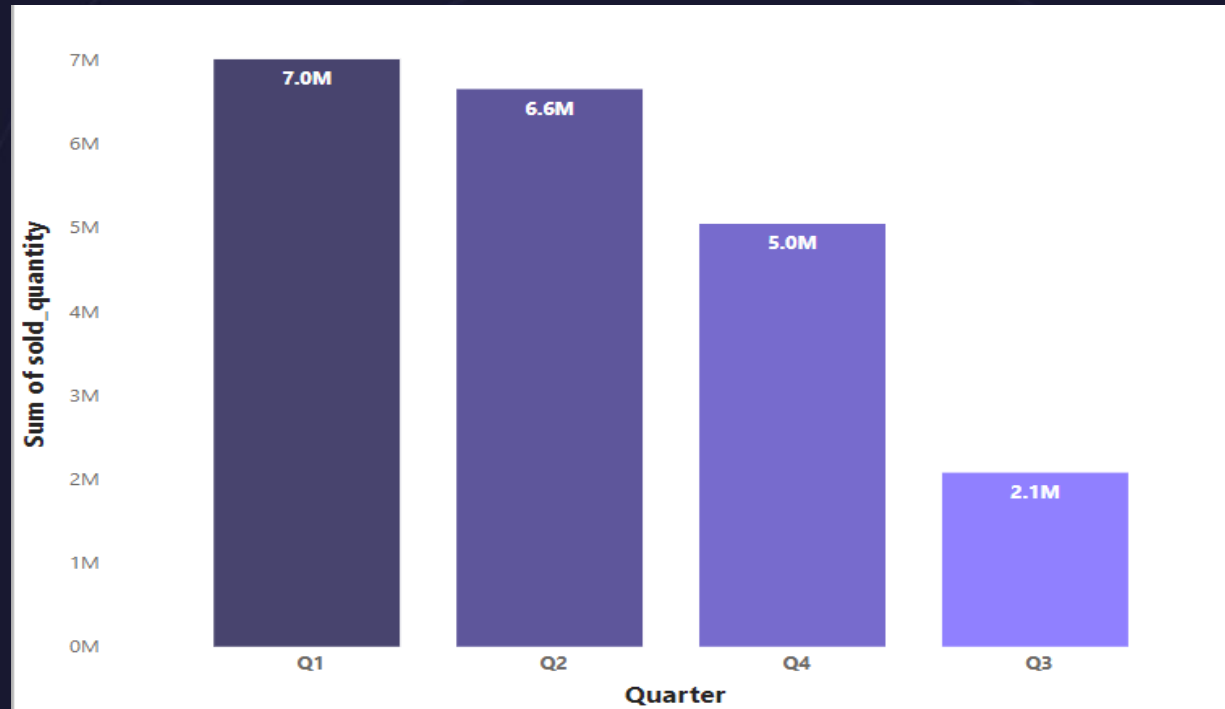


**Output:**

	Quarter_	total_sold_quantity
▶	Q1	7005619
	Q2	6649642
	Q4	5042541
	Q3	2075087



## Visual and Insights



- Q1 had the highest sales quantity, followed by Q2 and Q4. Q3 had the lowest sales quantity. The decrease in sales from Q1 to Q4 was fairly consistent, with a slight increase in sales from Q2 to Q3.
- Possible Explanations:
  - Compare sales trends with historical data to identify any seasonal patterns.
  - Review economic reports or news for periods corresponding to the sales data.
  - Analyze competitor activities during the quarters in question.
  - Investigate supply chain records or issues reported during the periods in question.



**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 gross_sales as(
  select cus.channel as channel,
  round(((sum(gp.gross_price*sm.sold_quantity))/1000000),2) as gross_sales_mln
  from dim_customer cus
  join fact_sales_monthly sm
  on sm.customer_code = cus.customer_code
  join fact_gross_price gp
  on gp.product_code = sm.product_code
  where sm.fiscal_year = 2021
  group by cus.channel)
select channel,
concat('$',gross_sales_mln) as gross_sales_mln,
concat(round((gross_sales_mln/sum(gross_sales_mln)over())*100,2),'%') as percentage
from gross_sales
group by channel
order by gross_sales_mln ;
```

**Output:**

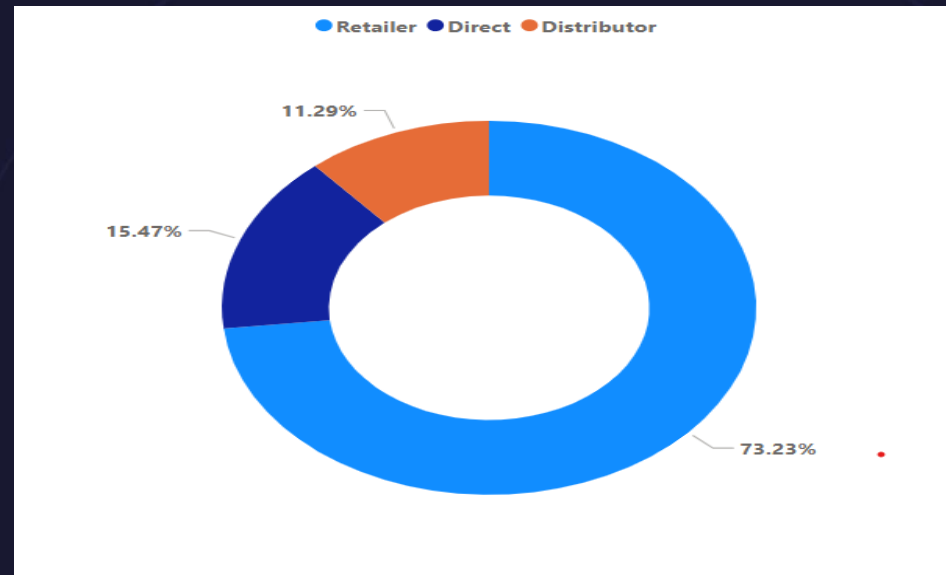
	channel	gross_sales_mln	percentage
▶	Retailer	\$1924.17	73.22%
	Distributor	\$297.18	11.31%
	Direct	\$406.69	15.48%





• **Direct Sales:** Direct channels contribute significantly but are substantially less influential than retailer sales, being nearly

## Visual and Insights



### Overall Distribution:

- **Retailer Sales :** 73.23% of total sales
- **Direct Channels:** 15.47% of total sales
- **Distributor Sales:** 11.29% of total sales

### Key Takeaways:

- **Direct Sales:** Direct channels are the primary source of revenue, indicating a strong direct-to-customer strategy and possibly a well-developed online or direct sales force.
- **Dominance of Retailer Sales:** Retailers contribute significantly but are substantially less influential than direct sales, being nearly five times smaller in comparison.
- **Distributor Sales:** Though the smallest, distributor sales still play a role in overall revenue, suggesting that they complement the primary sales channels.




**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.



### Query:

```
with rank_ as(
  select
    prd.division as division,
    sm.product_code as product_code,
    prd.product as product,
    sum(sold_quantity) as total_sold_quantity,
    dense_rank() over(partition by prd.division order by sum(sold_quantity) desc) as rank_order
  from fact_sales_monthly sm
  join dim_product prd
  on prd.product_code = sm.product_code
  where sm.fiscal_year = 2021
  group by division, product_code, product
)
select division, product_code, product, total_sold_quantity, rank_order
from rank_
where rank_order <= 3;
```

### Output:



	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



# Visual and Insights



## N & S Division:

- **Top-Selling Product:** AQ Pen Drive 2 IN 1, with 701,373 units sold.
- **Following Products:** Two variants of AQ Pen Drive DRC.
- **Insight:** The N & S Division exhibits strong performance with AQ Pen Drive products dominating the sales.

## P & A Division:

- **Top-Selling Product:** AQ Gamers Ms, with 428,498 units sold.
- **Following Products:** Two variants of AQ Maxima Ms.
- **Insight:** The P & A Division shows a clear preference for gaming-related products.

## PC Division:

- **Top-Selling Product:** AQ Digit, with significantly lower sales (17,434 units) compared to other divisions.
- **Insight:** The PC Division has underperformed relative to other divisions, indicating potential issues or gaps in the market.





Thank you

