# Consumer Goods
## Ad-hoc insights

Understand consumer trends for a competitive edge

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# Business Challenge Overview

**Company Overview**: Atliq Hardware is a leading computer hardware manufacturer in India, with a significant presence in international markets.

**Importance of Insights**: The company recognizes the value of gaining key insights.

**Current Challenges:**
   Management faces difficulties due to inadequate insights from past analytical reports.
. Lack of clear data, it's hard for the organization to spot sales trends.
. Evaluating product offerings.
. Understanding the pandemic's impact on growth goals.

**Management's Approach**: To address these issues, management relies on ad hoc requests to **Data analysts** for the necessary insights to make informed decisions.

**1** **Question:**

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

**Output:**

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

**Query:**

```sql
select
        distinct market
from dim_customer
where customer = "Atliq Exclusive" and region = "APAC";
```

**Question:**

What is the percentage of unique product increase in 2021 vs. 2020? The final output contains these fields,
- unique_products_2020
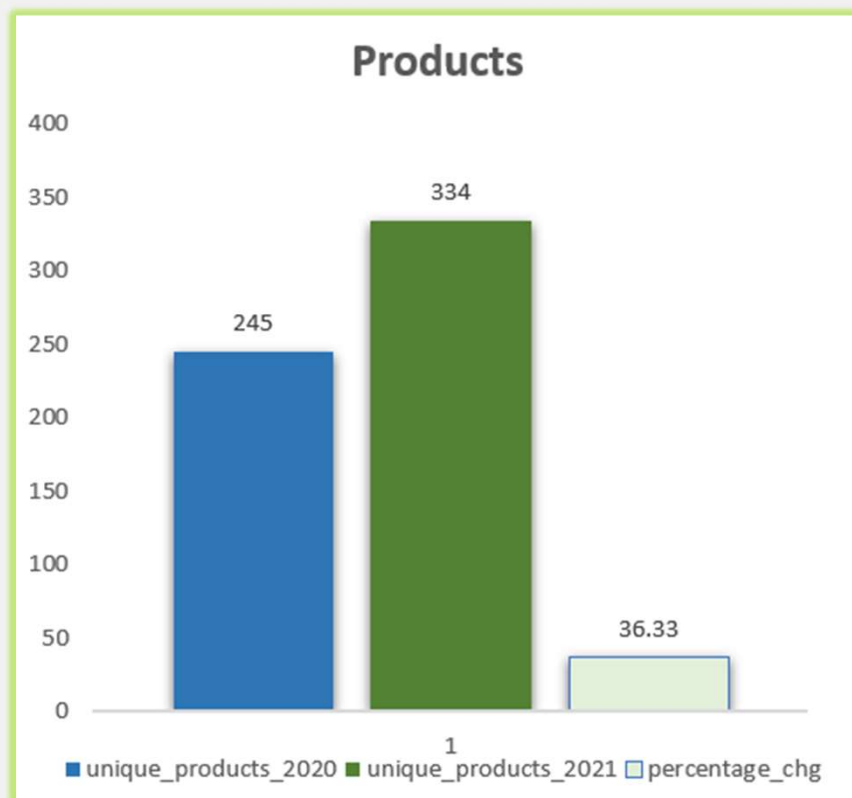- unique_products_2021
- percentage_chg

**Output:**

| unique_products_2020 | unique_products_2021 | percentage_chg |
|---|---|---|
| 245 | 334 | 36.33 |

**Query:**

```
with cte1 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 *,
    round(((unique_products_2021 - unique_products_2020)/unique_products_2020)*100,2) as percentage_chg
    from cte1;
```

From this visual,
we can see a significant increase in unique products offered by **AtliQ Hardwares**, rising from **245** in 2020 to **334** in 2021—a **36.33%** growth. This reflects a strong expansion in their product range within just one year.

**3** **Question:**

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,
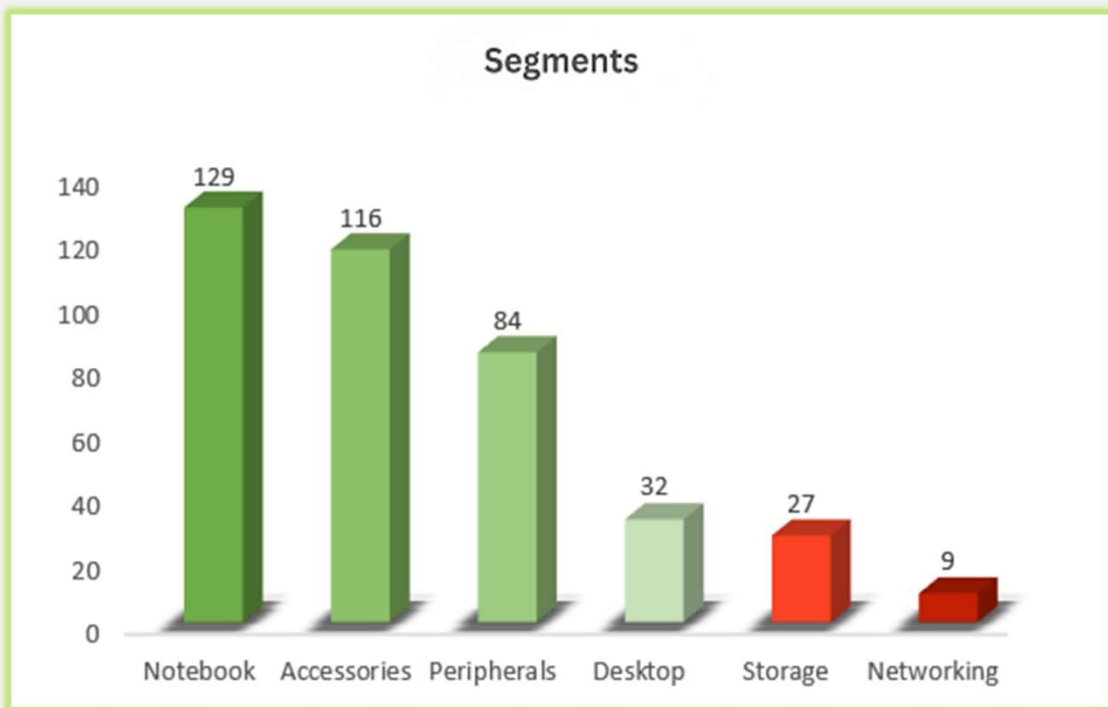- Segment
- product_count

**Output:**

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

**Query:**

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

This chart illustrates the product distribution at **AtliQ Hardwares**, showing various segments.

. **Notebooks** have the largest share with **129** products, followed by **Accessories** with **116** products, and **others**.

. The smallest segment is **Networking**, with only **9** products

Overall
**Notebooks** and **Accessories** hold the largest share of the product distribution at AtliQ Hardwares.

**4** **Question:**

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:**

| 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 |

**Query:**

```
with cte1 as (
        SELECT p.segment,
    count(distinct
        case
            when s.fiscal_year =2020 then product_code
        end ) as unique_products_2020,
    count(distinct
        case
            when s.fiscal_year =2021 then product_code
        end ) as unique_products_2021
    from dim_product p
    join fact_sales_monthly s
    using ( product_code )
    group by segment)
select *,
 (unique_products_2021 - unique_products_2020) as difference
from cte1
order by difference  desc ;
```
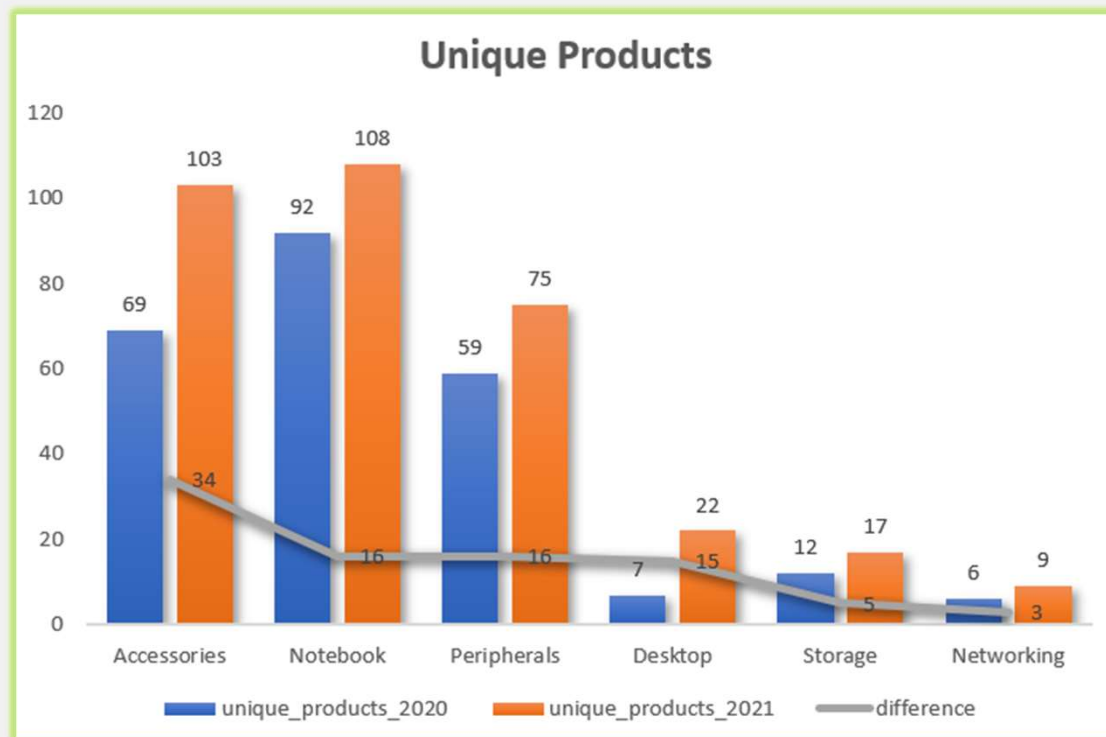
All segments experienced an increase in their product counts.

. The **Accessories** segment saw the most significant growth, with an increase of **34 units**, rising from **69** to **103**, followed by others.

. However, the **Storage** segment had a minimal increase of just **5 units**, rising from **12** to **17**,

. while the **Networking** segment saw a slight increase of 3 units, moving from **6** to **9**.

Overall, the data indicates a **positive** trend in product counts across all segments.

**5** **Question:**

Get the products that have the highest and lowest manufacturing costs. The final output should contain these fields,
- product_code
- product
- manufacturing_cost

**Output:**

**Query:**

| product_code | product | manufacturing_cost |
|---|---|---|
| A2118150101 | AQ Master wired x1 Ms | 0.8654 |
| A6121110208 | AQ HOME Allin1 Gen 2 | 263.4207 |

```
(SELECT product_code,
        p.product,
        m.manufacturing_cost
FROM fact_manufacturing_cost m
join dim_product p
using( product_code)
order by m.manufacturing_cost asc
limit 1)


union


(SELECT product_code,
        p.product,
        m.manufacturing_cost
FROM fact_manufacturing_cost m
join dim_product p
using(product_code)
order by m.manufacturing_cost desc
limit 1);
```

**5**
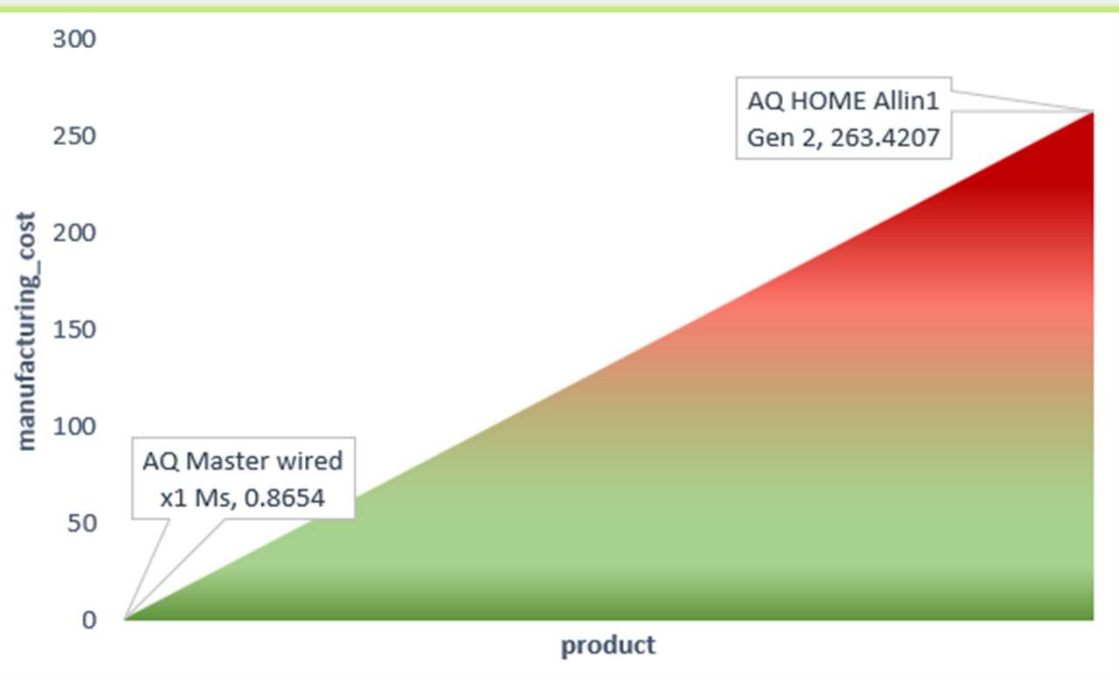
. **AQ Master Wired x1 Ms** has a low manufacturing cost of **0.8654** units and falls under the **Accessories** category, which means it has a **simpler build**.

. **AQ HOME Allin1 Gen 2** has a much higher cost of **263.4207** units and falls under the **Desktop** category, indicating a more **complex** and **expensive build**

**6** **Question:**

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
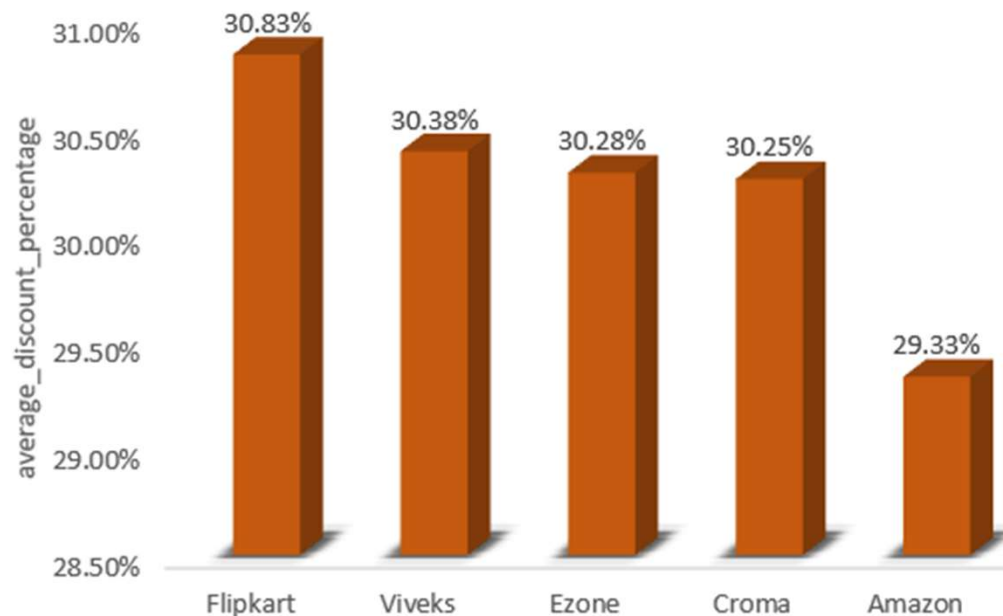- customer
- average_discount_percentage

**Output:**

| customer_code | customer | average_discount_percentage |
|---|---|---|
| 90002009 | Flipkart | 30.83 |
| 90002006 | Viveks | 30.38 |
| 90002003 | Ezone | 30.28 |
| 90002002 | Croma | 30.25 |
| 90002016 | Amazon | 29.33 |

**Query:**

```
select
    c.customer_code,
    c.customer,
    round(avg(pre.pre_invoice_discount_pct)*100,2) as average_discount_percentage
from dim_customer c
join fact_pre_invoice_deductions pre
using ( customer_code )
where fiscal_year =2021 and c.market = "india"
group by  c.customer_code, c.customer
ORDER BY average_discount_percentage  DESC
limit 5;
```

. The data shows the discount percentages offered by different retailers in the **Indian market**.

. **Flipkart** provides the **highest discount** at **30.83%,** making it the most favourable option for customers seeking maximum savings.

. **Amazon** offers the **lowest discount** at **29.33%,** indicating relatively fewer savings compared to other retailers. The remaining fall in between, with discount percentages close to **30%.**

Overall,
the discount rates are competitive, but **Flipkart** stands out as offering the highest discount in this market segment

**7** **Question:**

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:
- Month
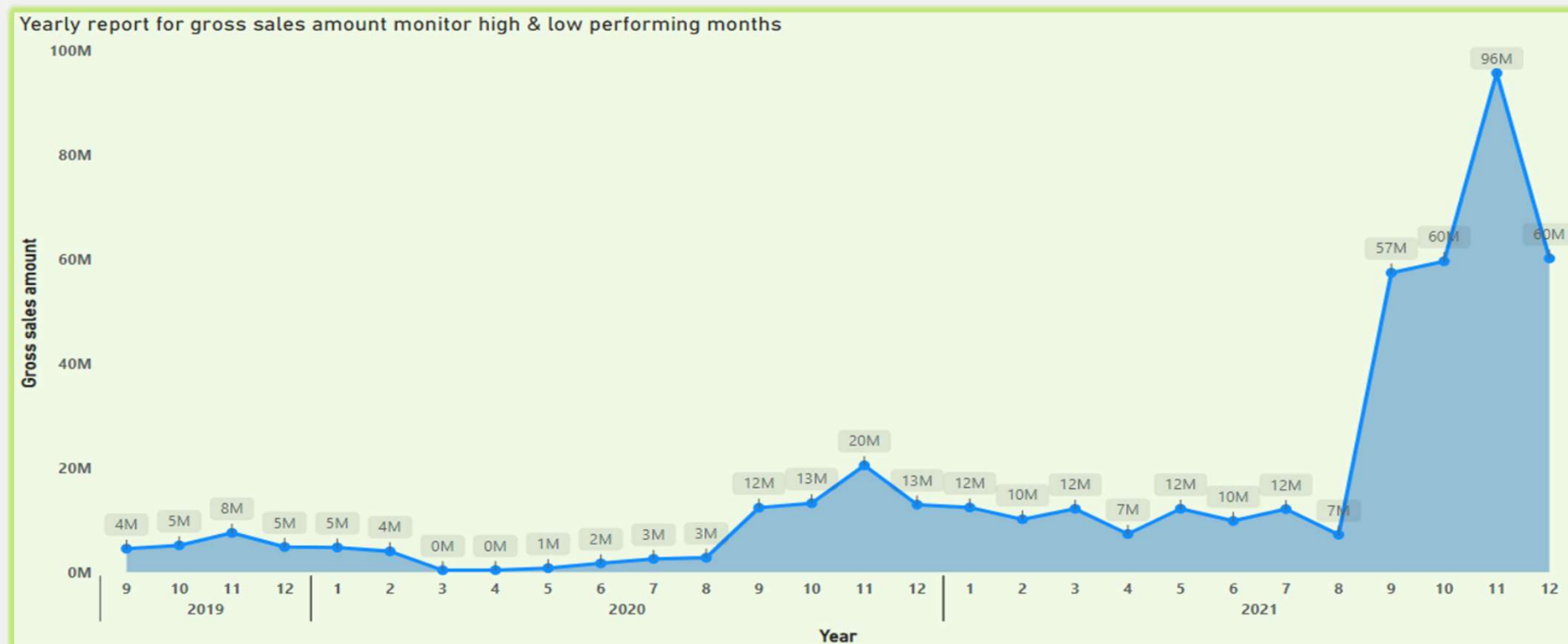- Year
- Gross sales Amount

**Query:**

```sql
select
        monthname(min(date)) as month,
        year(min(date)) as year,
        round(sum(s.sold_quantity * g.gross_price),2) as Gross_sales_Amount
from fact_sales_monthly s
join dim_customer c
on s.customer_code = c.customer_code
join fact_gross_price g
on s.product_code = g.product_code and
    s.fiscal_year = g.fiscal_year
where c.customer = "Atliq Exclusive"
AND YEAR(date) BETWEEN 2019 AND 2021
group by year(date), month(date)
order by year , month(date) asc;
```

**Output:**

| Month | Year | Gross sales Amount |
|---|---|---|
| September | 2019 | 4496259.672 |
| October | 2019 | 5135902.347 |
| November | 2019 | 7522892.561 |
| December | 2019 | 4830404.729 |
| January | 2020 | 4740600.161 |
| February | 2020 | 3996227.766 |
| March | 2020 | 378770.97 |
| April | 2020 | 395035.3535 |
| May | 2020 | 783813.4238 |
| June | 2020 | 1695216.601 |
| July | 2020 | 2551159.158 |
| August | 2020 | 2786648.26 |
| September | 2020 | 12353509.79 |
| October | 2020 | 13218636.2 |
| November | 2020 | 20464999.1 |
| December | 2020 | 12944659.65 |
| January | 2021 | 12399392.98 |
| February | 2021 | 10129735.57 |
| March | 2021 | 12144061.25 |
| April | 2021 | 7311999.955 |
| May | 2021 | 12150225.01 |
| June | 2021 | 9824521.011 |
| July | 2021 | 12092346.32 |
| August | 2021 | 7178707.59 |
| September | 2021 | 57397032.34 |
| October | 2021 | 59610755.9 |
| November | 2021 | 95686586.01 |
| December | 2021 | 60156297.03 |

Yearly report for gross sales amount monitor high & low performing months

. In **2019**, **November** saw the highest sales for that year, while **September** recorded the lowest.

. For **2020**, the peak month was **November**, which had the highest sales, and **March** was the month with the lowest sales.

. In **2021**, **November** also had the highest sales, while **August** recorded the lowest.

 Every month in **2021** saw an increase in sales compared to the previous year, indicating strong growth throughout that year, totalling approximately **$354.9 million**.  Additionally, **2020** had the **minimum sales**, totalling approximately **$27.8 million**.

Notably, every year shows an increase in sales during the month of **November**.

**8** **Question:**

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:**
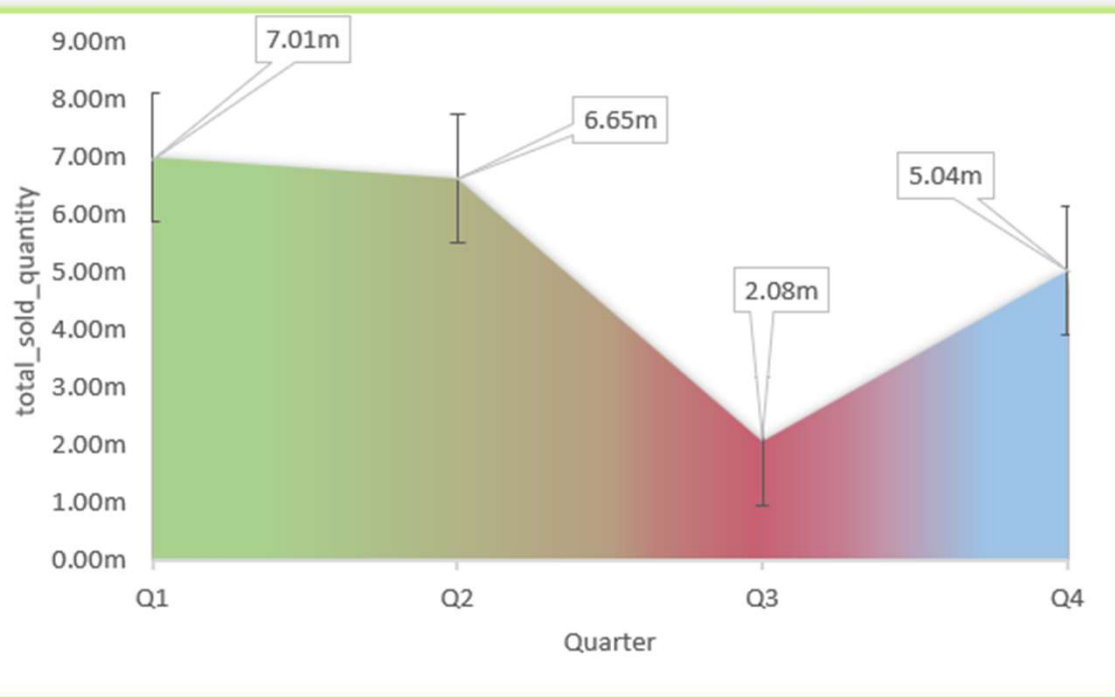
| Quarter | total_sold_quantity |
|---------|---------------------|
| Q1 | 7005619 |
| Q2 | 6649642 |
| Q3 | 2075087 |
| Q4 | 5042541 |

**Query:**

```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 Quarter,
    sum(sold_quantity) as total_sold_quantity
from fact_sales_monthly
where fiscal_year = 2020
group by  Quarter
order by Quarter asc;
```

. **Q1** had the **highest** total sold quantity at **7.01 million**, making it the best-performing quarter.

. **Q2** also performed well, with **6.65 million** sold. However, in **Q3**, there was a significant decline, with sales dropping to **2.08 million**, the lowest of all four quarters.

. Fortunately, **Q4** showed improvement, as sales increased to **5.04 million**.

**Question:**

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

**Output:**

| channel | gross_sales_mln | percentage |
|---|---|---|
| Retailer | 1219.08 | 73.23 |
| Direct | 257.53 | 15.47 |
| Distributor | 188.03 | 11.30 |

**Query:**

```sql
with cte1 as (
 select
        c.channel ,
        round(sum(s.sold_quantity * g.gross_price)/1000000,2) as gross_sales_mln
from fact_sales_monthly s
join dim_customer c
on s.customer_code = c.customer_code
join fact_gross_price g
on s.product_code = g.product_code and
   s.fiscal_year = g.fiscal_year
   where s.fiscal_year = 2021
   group by c.channel)
select
    channel ,
    gross_sales_mln,
     round(gross_sales_mln / sum(gross_sales_mln) over () *100 ,2) as percentage
    from cte1
    order by  gross_sales_mln desc;
```
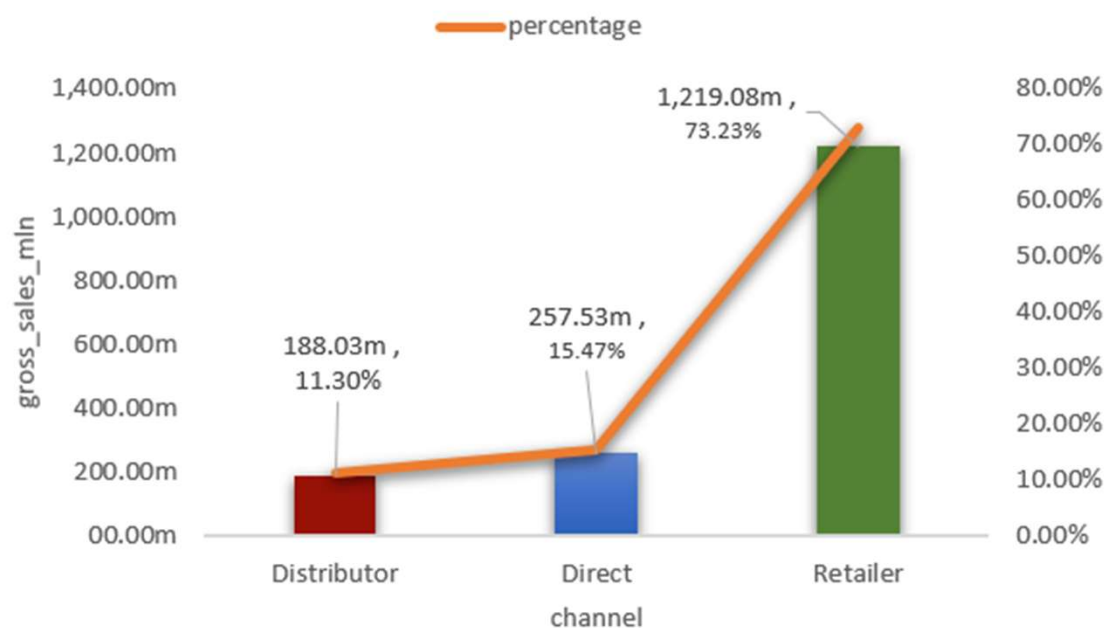
. In the fiscal year 2021, **AtliQ Hardware's** report shows that :

. The **Retailer channel** had the highest gross sales, reaching **1,219.08 million**, which made up **73.23%** of the total sales.

. The **Direct channel** recorded **257.53 million** in gross sales, contributing **15.47%**. Meanwhile,

. The **Distributor channel** had the lowest sales at **188.03 million**, accounting for **11.30%** of the total

**Question:**

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:**

```sql
with cte1 as (
        select
    s.product_code,
    p.division,
    p.product,
    sum(s.sold_quantity) as total_sold_quantity
from fact_sales_monthly s
join dim_product p
on s.product_code = p.product_code
where s.fiscal_year = 2021
group by p.product , p.division, s.product_code),

cte2 as (
    select * ,
        rank() over( partition by division order by total_sold_quantity desc ) as rnk
    from  cte1)
select *
from cte2
where rnk<=3 ;
```

**Output:**

| product_code | division | product | total_sold_quantity | rnk |
|---|---|---|---|---|
| A6720160103 | N & S | AQ Pen Drive 2 IN 1 | 701373 | 1 |
| A6818160202 | N & S | AQ Pen Drive DRC | 688003 | 2 |
| A6819160203 | N & S | AQ Pen Drive DRC | 676245 | 3 |
| A2319150302 | P & A | AQ Gamers Ms | 428498 | 1 |
| A2520150501 | P & A | AQ Maxima Ms | 419865 | 2 |
| A2520150504 | P & A | AQ Maxima Ms | 419471 | 3 |
| A4218110202 | PC | AQ Digit | 17434 | 1 |
| A4319110306 | PC | AQ Velocity | 17280 | 2 |
| A4218110208 | PC | AQ Digit | 17275 | 3 |
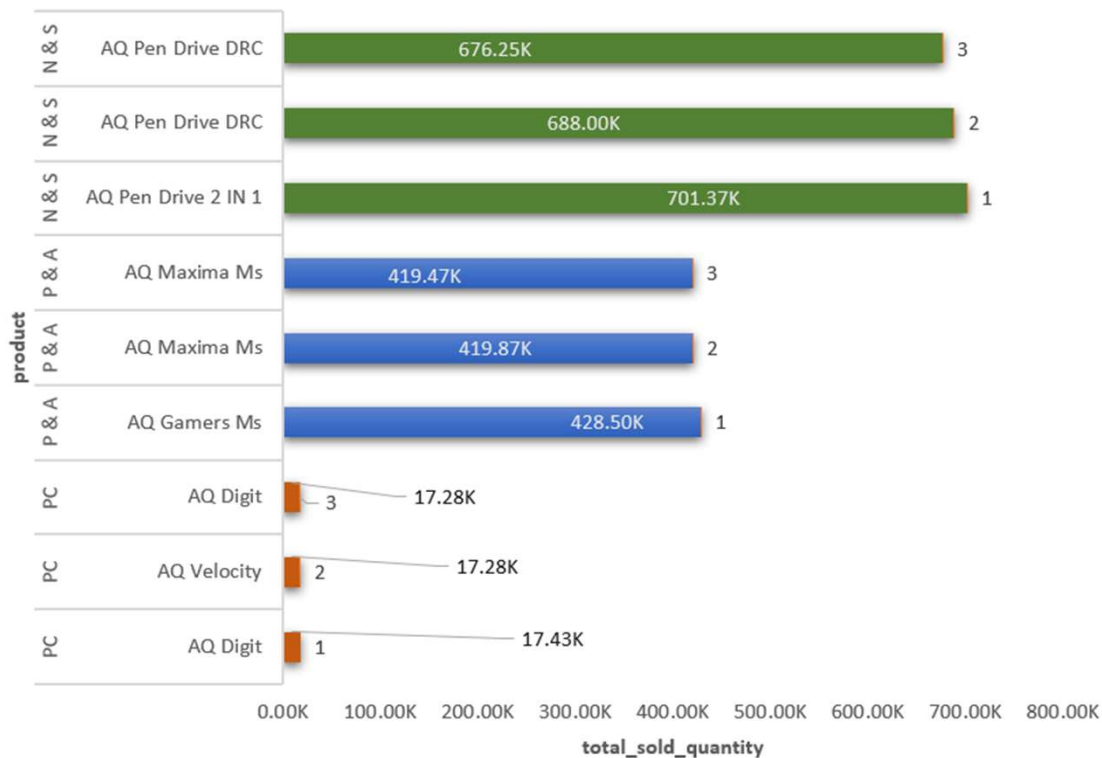
. In the fiscal year 2021, **AtliQ Hardware's** report shows that : From the top three Division

. the **AQ Pen Drive 2 IN 1** from the **N & S division**, with impressive sales of **701.37K**, ranking **1st** in its division.

. The product with the **lowest** total sold quantity is the **AQ Digit** from the **PC division**, which sold **17.28K** units and is ranked **3rd** in its division.

# Thank you