AtliQ Hardware

AD-HOC ANALYSIS

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AtliQ Hardware

Atliq Hardwares, **a leading computer hardware producer in India**, has a well-established presence in other countries.

The management has observed a lack of actionable insights, which hinders their ability to make quick, data-driven decisions. To address this, they plan to expand their data analytics team by hiring several junior data analysts.

Tony Sharma, the Director of Data Analytics, wants to ensure candidates possess a strong combination of technical and soft skills. To evaluate these qualities, he has decided to conduct a **SQL challenge**, which will help assess the candidates' technical expertise and problem-solving approach.

Ad-Hoc Requests

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1. Provide the list of markets in which customer "Atliq Exclusive" operates its business in the APAC region?
2. What is the percentage of unique product increase in 2021 vs. 2020?
3. Provide a report with all the unique product counts for each segment and sort them in descending order of product counts.
4. Follow-up: Which segment had the most increase in unique products in 2021 vs 2020?
5. Get the products that have the highest and lowest manufacturing costs.
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.
7. Get the complete report of the Gross sales amount for the customer “Atliq Exclusive” for each month
8. In which quarter of 2020, got the maximum total_sold_quantity?
9. Which channel helped to bring more gross sales in the fiscal year 2021 and the percentage of contribution?
10. The Top 3 products in each division that have a high total_sold_quantity in the fiscal_year 2021?

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INPUT

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

```
SELECT DISTINCT
    (market), customer,
region
FROM
    dim_customer
WHERE
    customer = 'Atliq
Exclusive'
 AND region = 'APAC';
```

OUTPUT

market	customer	region
India	Atliq Exclusive	APAC
Indonesia	Atliq Exclusive	APAC
Japan	Atliq Exclusive	APAC
Philiphines	Atliq Exclusive	APAC
South Korea	Atliq Exclusive	APAC
Australia	Atliq Exclusive	APAC
Newzealand	Atliq Exclusive	APAC
Bangladesh	Atliq Exclusive	APAC

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

INPUT

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

- unique_products_2020
- unique_products_2

```
WITH upc as
 (SELECT distinct product_code,fiscal_year
FROM fact_sales_monthly)
,
  upc2 as (
SELECT
  (SELECT count(*) FROM upc
WHERE fiscal_year = 2020) as
unique_product_count_2020,
     (SELECT count(*) FROM upc
      WHERE fiscal_year = 2021) as
unique_product_count_2021
)
SELECT
unique_product_count_2020,
unique_product_count_2021,
round((unique_product_count_2021 -
unique_product_count_2020)*100/unique_product_count
_2020,2) as pct_chg
FROM upc2;
```

OUTPUT

unique_product_count_2020	unique_product_count_2021	pct_chg
245	334	36.33

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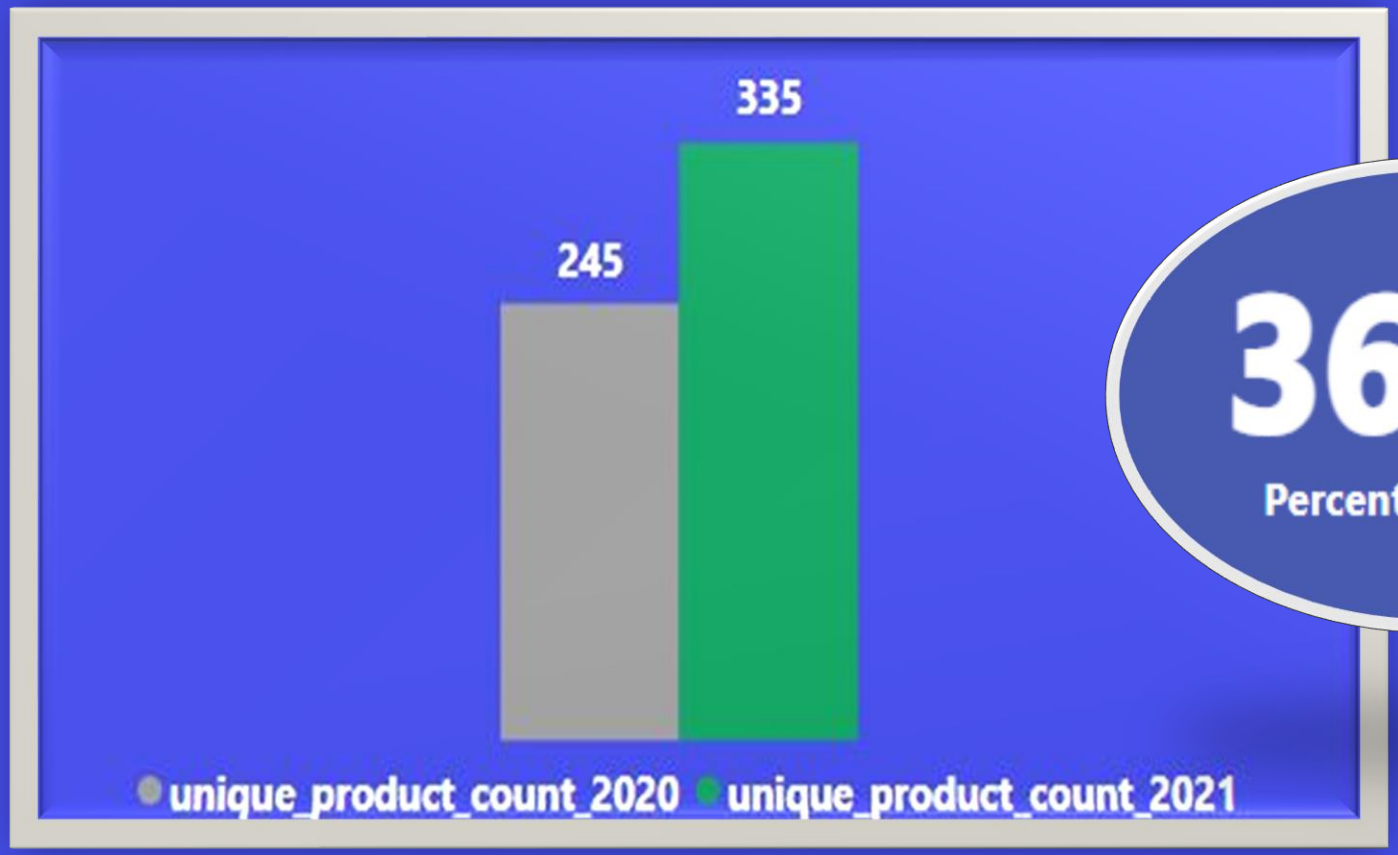
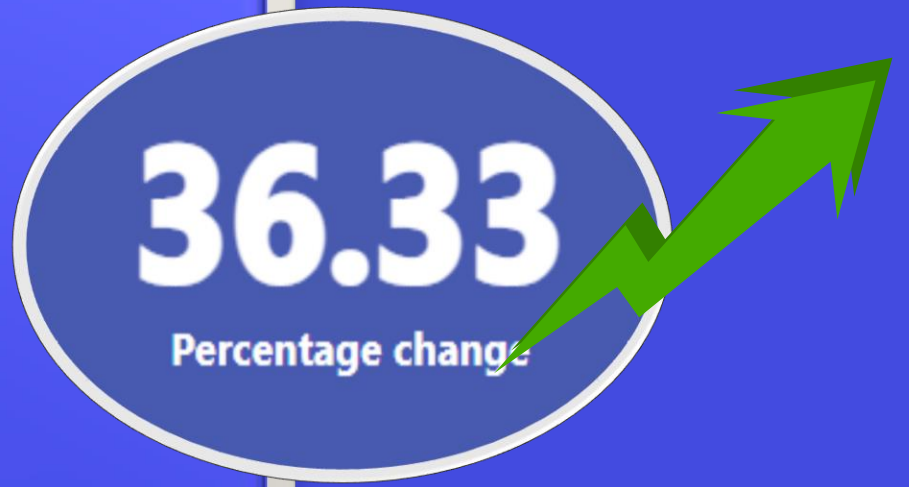
Insights





Adding more unique products or introducing new ones shows that AtliQ's products are in demand and the business is growing.

INPUT

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**

```
SELECT
    segment,
COUNT(product) 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

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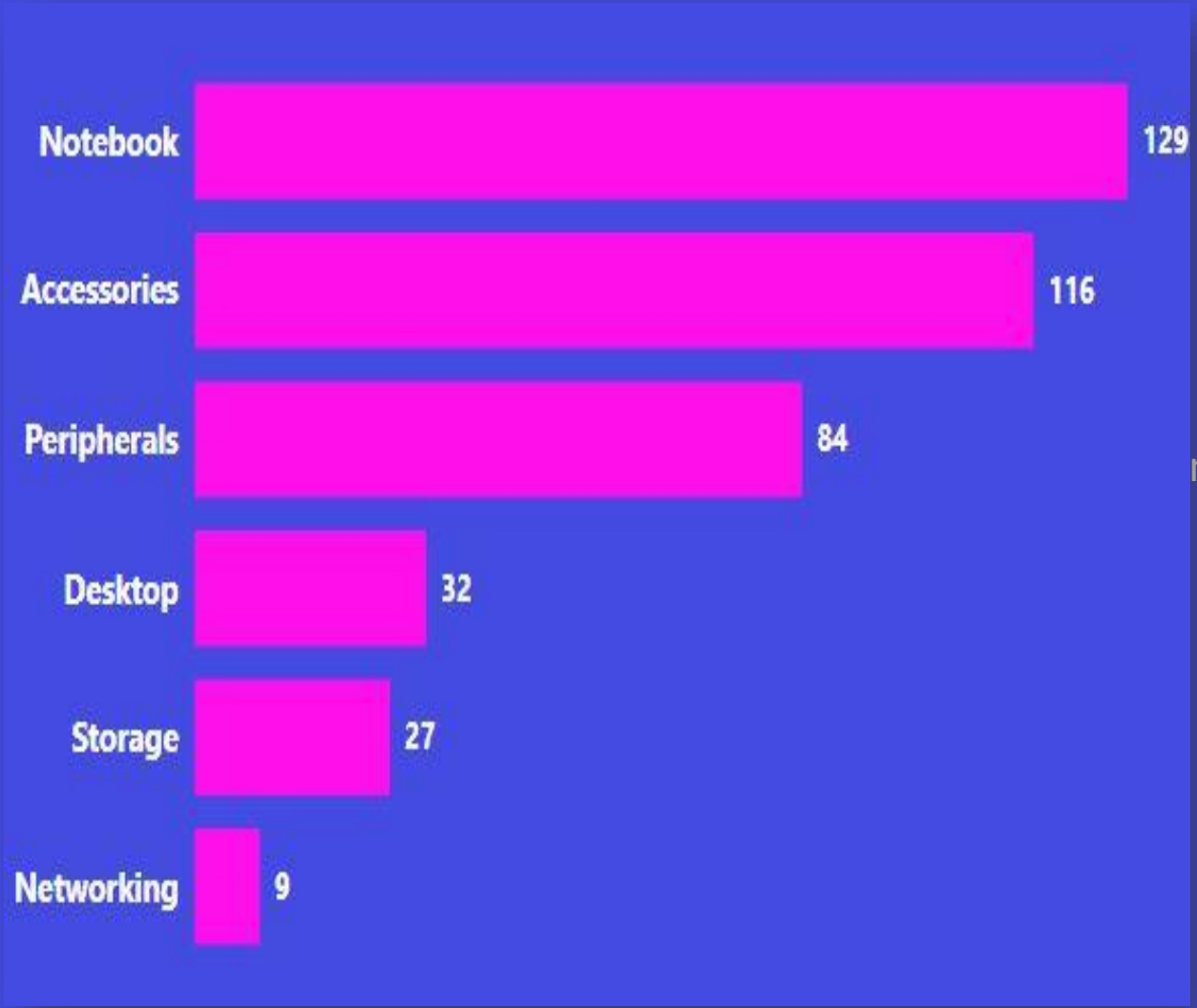
Insights



motions.

Notebooks & Accessories make up 56.6% of the products, indicating strong demand in these categories.

Peripherals represent 17.5% of the total, showing moderate interest in these products.

Desktop, Storage, & Networking account for just 17.1%, suggesting low demand in these areas.

There is **growth potential** for the smaller segments (17.1%) by introducing new products or running targeted promotions.

INPUT

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

```
WITH ProductCounts AS (
    SELECT
        segment,
        SUM(CASE WHEN fiscal_year = 2020 THEN
1 ELSE 0 END) AS product_count_2020,
        SUM(CASE WHEN fiscal_year = 2021 THEN
1 ELSE 0 END) AS product_count_2021
    FROM dim_product
    JOIN fact_gross_price
    USING (product_code)
    GROUP BY segment
)
SELECT
    segment,
    product_count_2020,
    product_count_2021,
    (product_count_2021 - product_count_2020)
AS difference
FROM ProductCounts
ORDER BY difference DESC
```

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OUTPUT

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

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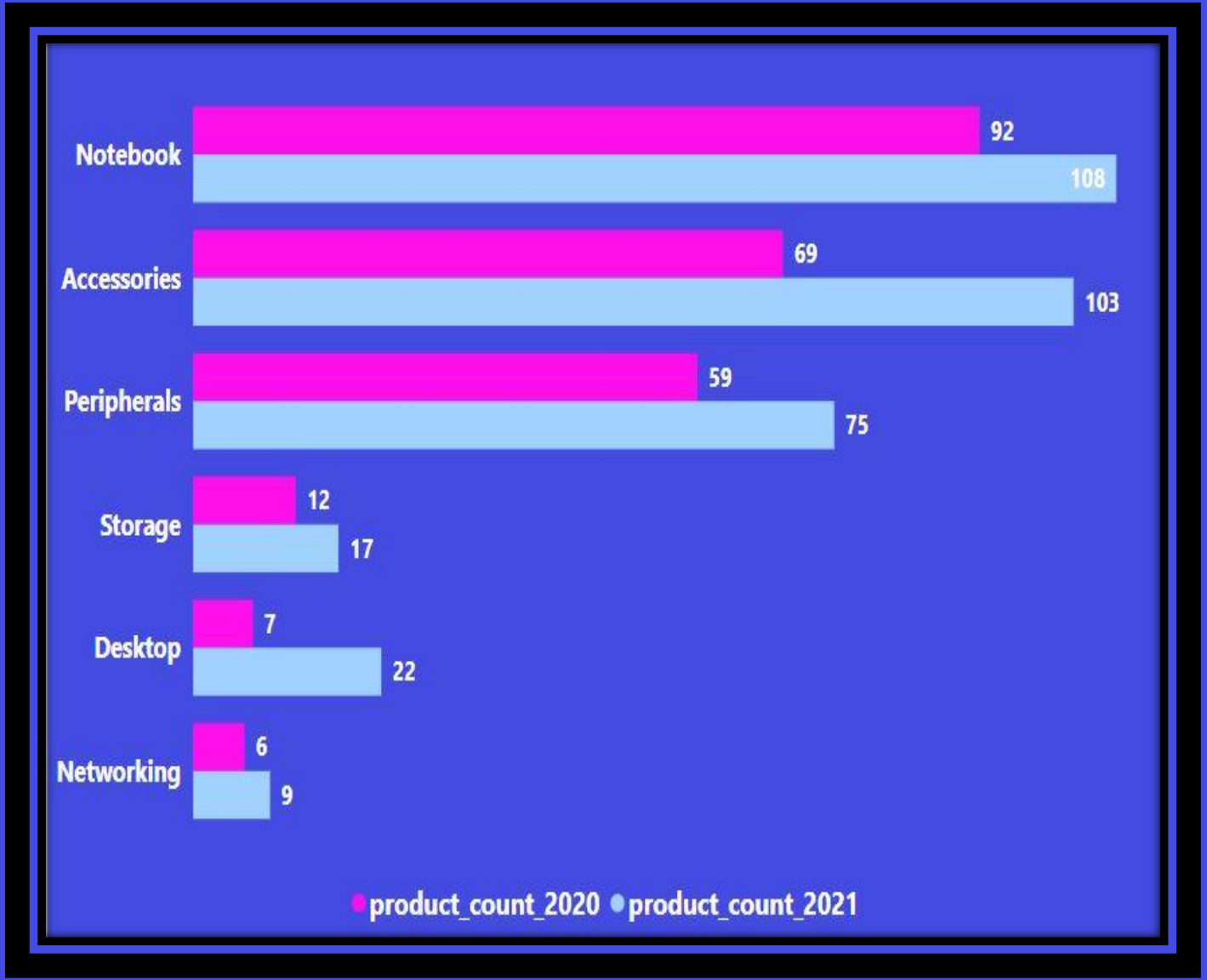
Insights



The **Networking** segment has shown the most noticeable growth in terms of adding new products.

Networking, **Accessories**, and **Peripherals** are experiencing a good rate of new product additions, suggesting a strong demand for products in these segments.

However, segments like **Storage**, **Desktop**, and **Networking** are lagging behind compared to **Notebooks** in terms of product growth.

To boost sales in the **Desktop**, **Storage**, and **Networking** segments, management should consider offering strategic promotions and discounts. This would help increase product sales and balance out the growth across all segments.

INPUT

5. Get the products that have the highest and lowest manufacturing costs. The final output should contain these fields,

- product_code
- product
- manufacturing_cost

```
SELECT
     product_code, product,
manufacturing_cost
FROM
     fact_manufacturing_cost
          JOIN
     dim_product USING (product_code)
WHERE
     manufacturing_cost = (SELECT
               MAX(manufacturing_cost)
          FROM
               fact_manufacturing_cost)
          OR manufacturing_cost = (SELECT
               MIN(manufacturing_cost)
          FROM
               fact_manufacturing_cost)
ORDER BY manufacturing_cost DESC
```

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OUTPUT

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

INPUT

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

```
SELECT
    c.customer_code,
    c.customer,
    ROUND(AVG(d.pre_invoice_discount_pct)
* 100, 2) AS avg_discount_pct
FROM
    dim_customer c
        JOIN
    fact_pre_invoice_deductions d USING
(customer_code)
WHERE
    c.market = 'India'
        AND d.fiscal_year = 2021
GROUP BY c.customer_code , c.customer
ORDER BY avg_discount_pct DESC
LIMIT 5
```

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OUTPUT

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

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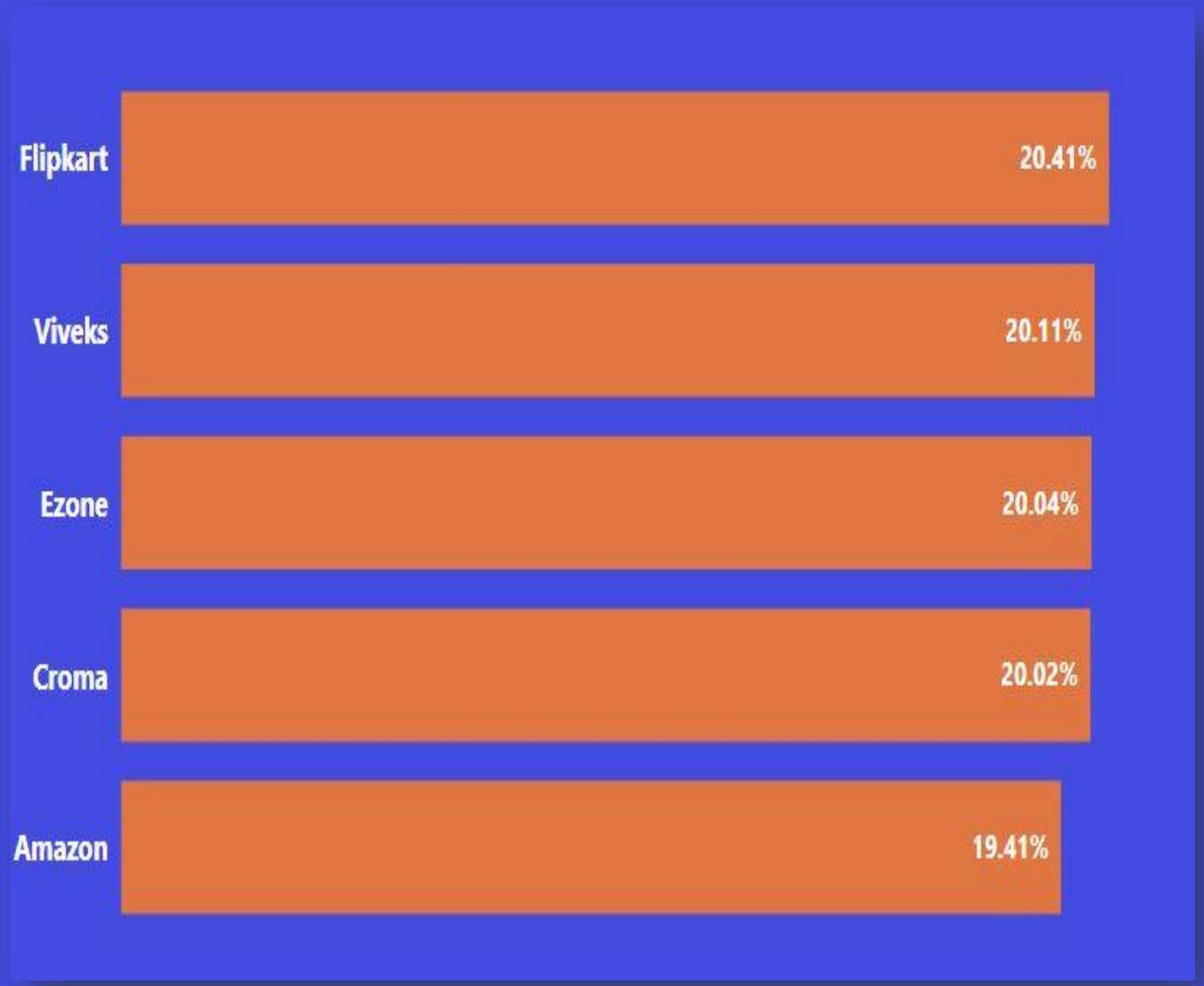
Insights



Flipkart has the highest average pre-discount value (30.83), indicating that customers may be spending more on products here compared to other stores.

Viveks, **Ezone**, and **Croma** have fairly close pre-discount averages, with only slight differences, suggesting similar spending behavior among customers for these stores.

Amazon has the lowest pre-discount value (29.33), which could mean that customers are spending slightly less here before discounts are applied.

The differences in pre-discount values across these customers could indicate varying pricing strategies, with Flipkart likely offering higher-priced products or better value compared to Amazon.

INPUT

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:

- customer_code
- customer
- average_discount_percentage

```
SELECT
    MONTHNAME(s.date) AS month,
    YEAR(s.date) AS year,
    CONCAT(ROUND(SUM(sold_quantity
* gross_price) / 1000000,
                    2),
            'M') AS gross_sales_amount
FROM
    fact_gross_price g
        JOIN
    fact_sales_monthly s USING
(product_code)
        JOIN
    dim_customer c USING (customer_code)
WHERE
    customer = 'Atliq Exclusive'
GROUP BY month , year
```

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OUTPUT

month	year	gross_sales_amount
September	2019	9.09M
October	2019	10.38M
November	2019	15.23M
December	2019	9.76M
January	2020	9.58M
February	2020	8.08M
March	2020	0.77M
April	2020	0.80M
May	2020	1.59M
June	2020	3.43M
July	2020	5.15M
August	2020	5.64M
September	2020	19.53M
October	2020	21.02M
November	2020	32.25M
December	2020	20.41M
January	2021	19.57M
February	2021	15.99M
March	2021	19.15M
April	2021	11.48M
May	2021	19.20M
June	2021	15.46M
July	2021	19.04M
August	2021	11.32M

INPUT

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

```
SELECT
    QUARTER(DATE_ADD(date, INTERVAL 4
MONTH)) AS quarter,
    CONCAT(ROUND(SUM(sold_quantity) /
1000000, 2),
            'M') AS
total_sold_quantity
FROM
    fact_sales_monthly
WHERE
    fiscal_year = 2020
GROUP BY quarter
ORDER BY total_sold_quantity DESC
```

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OUTPUT

quarter	total_sold_quantity
1	7.01M
2	6.65M
4	5.04M
3	2.08M

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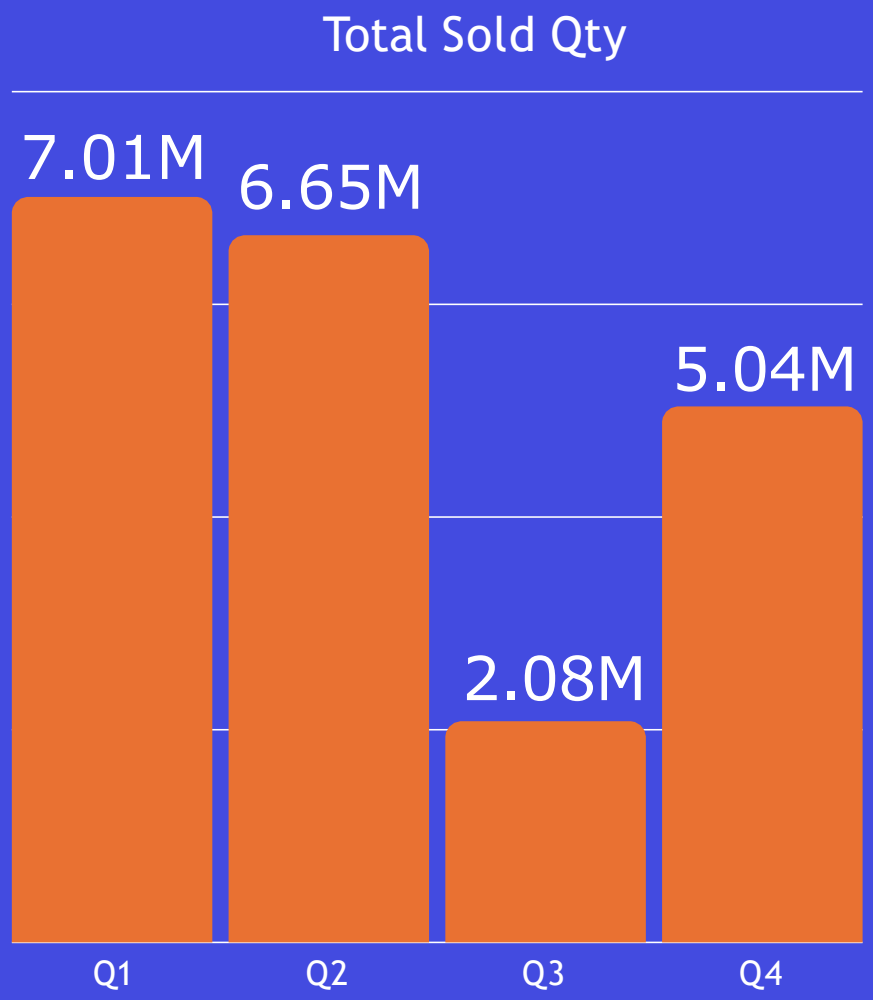

In Fiscal Year 2020, Quarter 1 saw the highest number of units sold compared to all the other quarters, indicating strong sales performance at the start of the year.

AtliQ experienced a significant drop in sales during FY-2020 Quarter 3, with only 2.08 million units sold, largely due to the impact of the COVID-19 pandemic.

In Fiscal Year 2020 Quarter 4, AtliQ experienced a strong recovery in sales, driven by the reopening of markets and educational institutions, which boosted demand for their products.

INPUT

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

```
WITH cte AS
(SELECT
    channel, ROUND(SUM(sold_quantity *
gross_price)/1000000,2) AS gross_sales_mln
FROM
    dim_customer c
        JOIN
    fact_sales_monthly s USING (customer_code)
        JOIN
    fact_gross_price g USING (product_code)
    WHERE
    s.fiscal_year = 2021
    GROUP BY channel
    ORDER BY gross_sales_mln desc
)
SELECT
*,
 CONCAT(ROUND((gross_sales_mln / SUM(gross_sales_mln)
OVER ()) * 100, 2),'%') AS percentage
FROM cte
GROUP BY channel,gross_sales_mln;
```

OUTPUT

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

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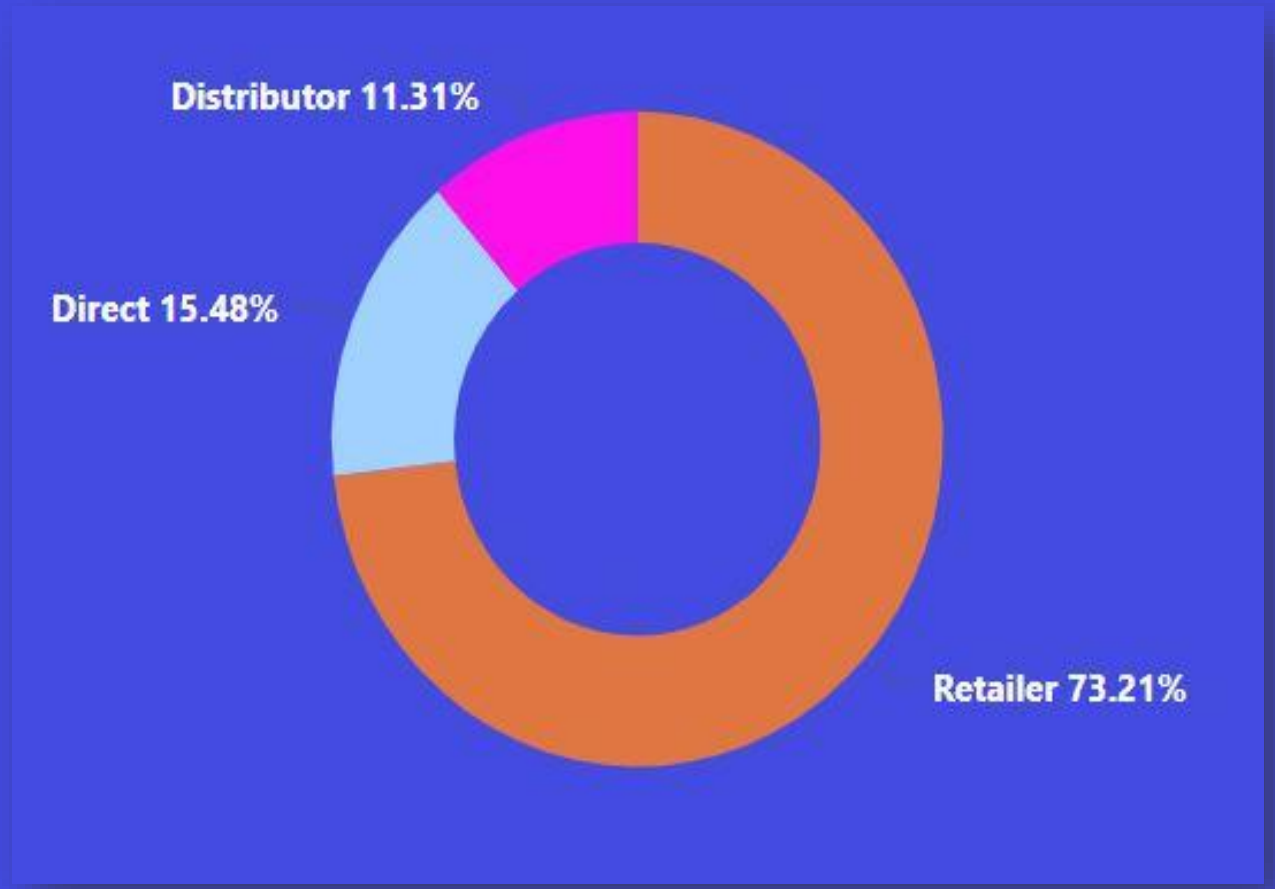
Insights



- **Retailer** channel dominates sales, contributing **73.21%** of the total gross sales (3708.46 million), indicating that most of AtliQ's sales come from retailers.
- **Direct** sales contribute **15.48%** of the total sales (784.14 million), showing a moderate share of the overall sales.
- **Distributor** channel makes up **11.31%** of total sales (572.86 million), representing a smaller portion compared to Retailer and Direct sales.

INPUT

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

```
WITH cte AS
(SELECT
    division,
    product_code,
    product,
    SUM(sold_quantity) AS total_sold_quantity
FROM
    dim_product p
        JOIN
    fact_sales_monthly s USING (product_code)
WHERE
    fiscal_year = 2021
GROUP BY division , product_code , product)
,
 cte2 AS
(SELECT
*, RANK() OVER(PARTITION BY division ORDER BY
total_sold_quantity DESC) AS rankk
FROM cte)

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

OUTPUT

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division	product_code	product	total_sold_quantity	rankk
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

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