Atliq Hardwares

Consumer Goods Ad-hoc Insights

Presented by Komal Diwe

Atliq Hardwares

1. Introduction and Background of company
2. Atliq’s Business – Their Markets and Product lines
3. Structure of Data and Database Schema
4. Ad-hoc requests along with the queried results, visualizations and Insights

Agenda

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INTRODUCTION:

Atliq Hardware is a leading provider of hardware and peripherals in India and the Asia Pacific region with a commitment to delivering high-quality products and outstanding customer service, Atliq Hardware is dedicated to helping businesses and individuals to optimize their technology solutions.

BACKGROUND:

The management of Atliq Hardware informed the data analytics team to generate some insights regarding customer behaviors to make some data-driven decisions.

GOALS & SOLUTION:

Atliq Hardware wants to do ad-hoc analysis therefore analytical team assigned us a task to generate a report by running 10 ad-hoc requests.

We ran 10 ad-hoc requests using SQL to present meaningful insights to our stakeholders which will help our company to make data-driven decisions for their business's growth.

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Atliq's Markets

Becoming acquainted with Atliq's operations, including the markets they operate in and the products they offer.

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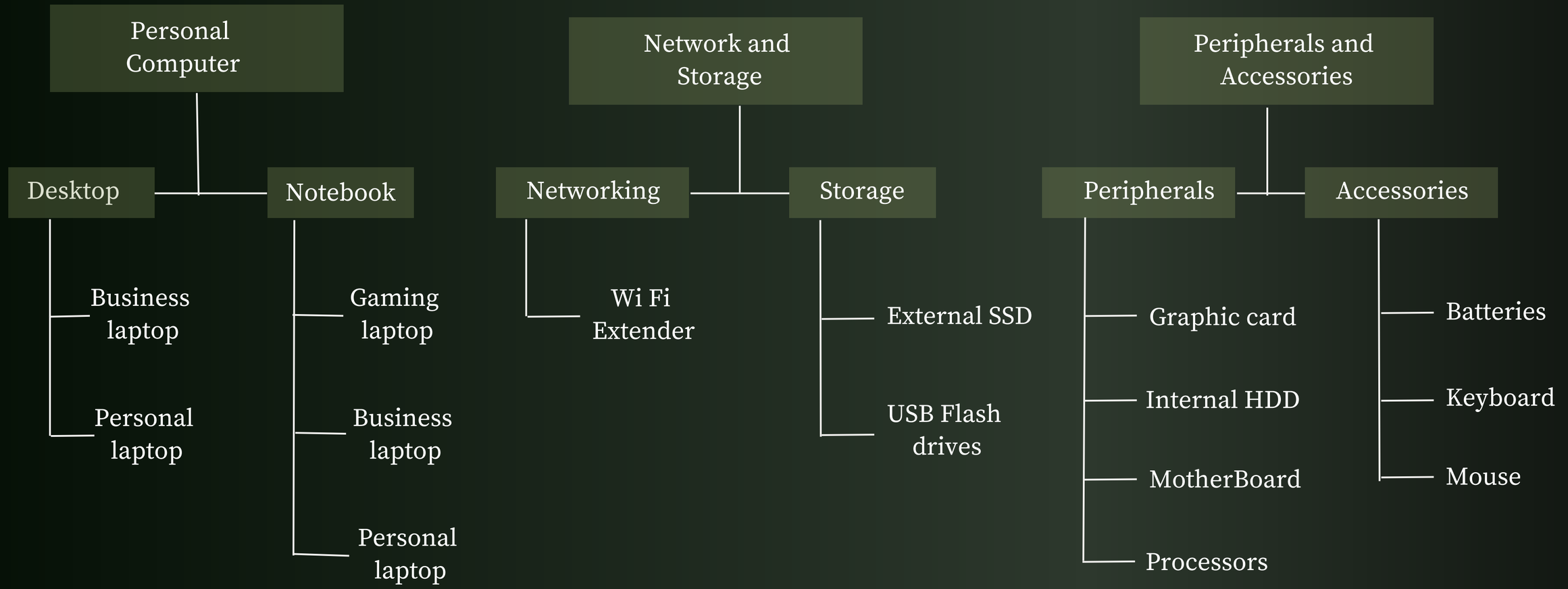
Atliq's Product Line



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Data Structure and Schema

Dim_customer: Data related to customers.

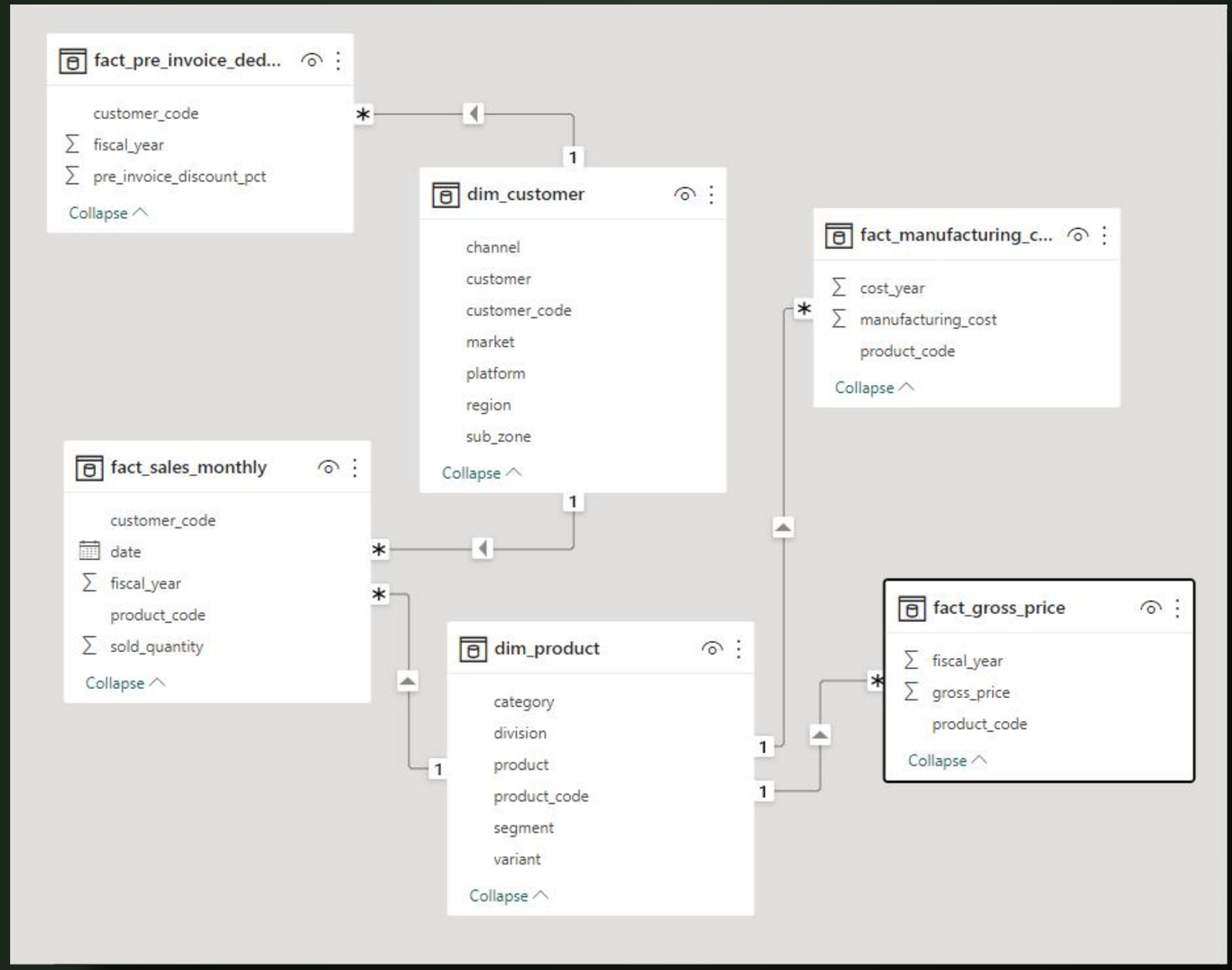
Dim_product: Data related to products.

Fact_gross_price: Gross price of each product.

Fact_manufacturing_cost: Manufacturing cost of each product during production.

Fact_pre_invoice_deduction: Pre invoice deduction of each product.

Fact_sales_monthly: This table contains monthly sales of each product



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Ad-hoc Requests, Queried Results, Insights and Visualization

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Request 1:

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

```sql
SELECT
DISTINCT market -- Select only unique market values
FROM dim_customer
-- Filter results to only include records for Atliq Exclusive customer in APAC region
WHERE customer = 'Atliq Exclusive' AND region = 'APAC';
GROUP BY
    account_id;
```

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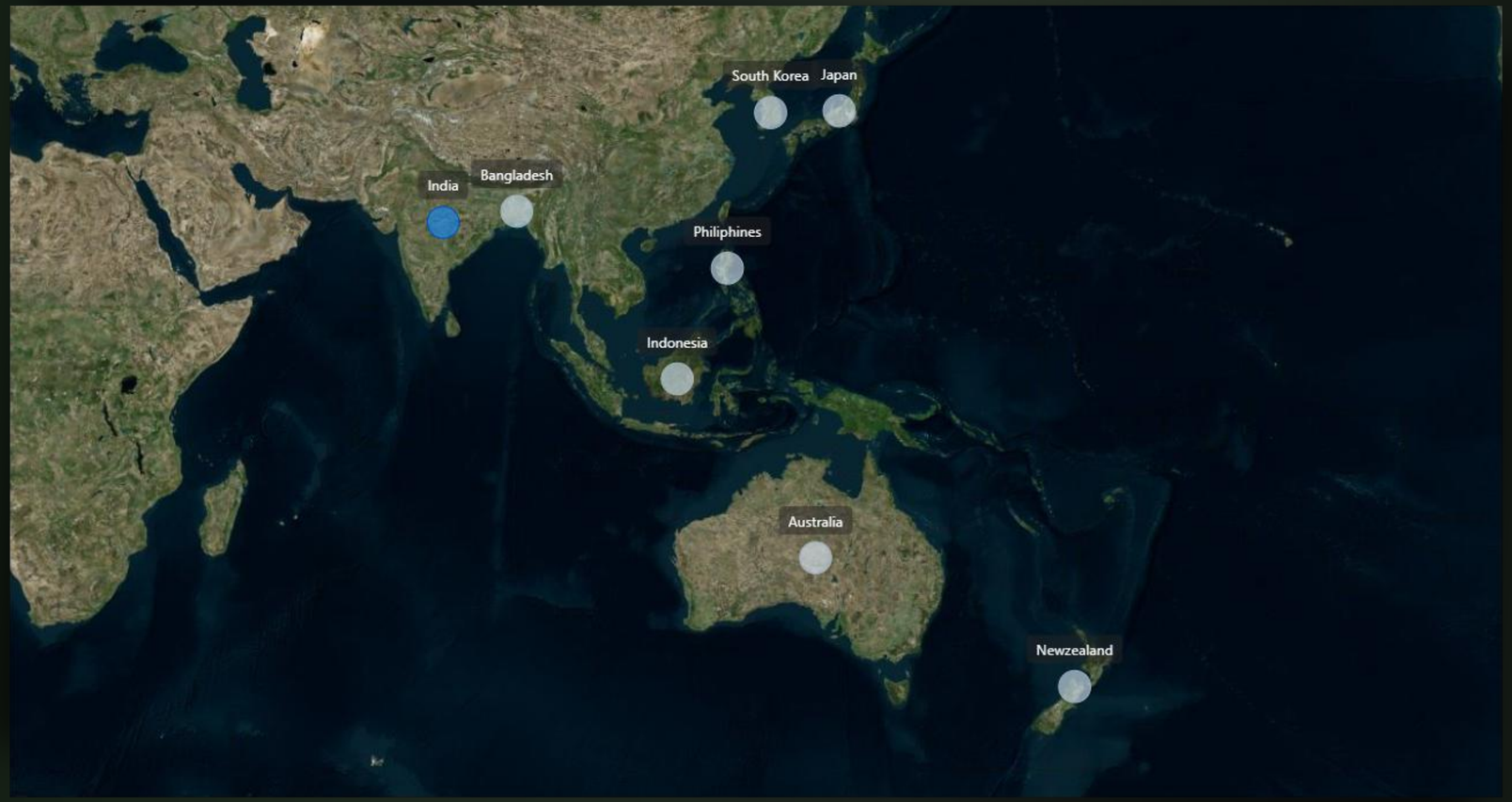
Our Exclusive store has established its presence in 8 major markets within the APAC region.

market
India
Indonesia
Japan
Philiphines
South Korea
Australia
Newzealand
Bangladesh



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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

```sql
WITH
  unique_products_2020 AS (
    SELECT
      COUNT(DISTINCT product_code) AS count
    FROM
      fact_sales_monthly
    WHERE
      fiscal_year = 2020
  ),
  unique_products_2021 AS (
    SELECT
      COUNT(DISTINCT product_code) AS count
    FROM
      fact_sales_monthly
    WHERE
      fiscal_year = 2021
  ),
  percentage_change AS (
    SELECT
      (((unique_products_2021.count - unique_products_2020.count) / unique_products_2020.count) * 100) AS percentage_chng
    FROM
      unique_products_2020,
      unique_products_2021
  )
SELECT
  unique_products_2020.count AS unique_products_2020,
  unique_products_2021.count AS unique_products_2021,
  percentage_change.percentage_chng
FROM
  unique_products_2020,
  unique_products_2021,
  percentage_change;
```

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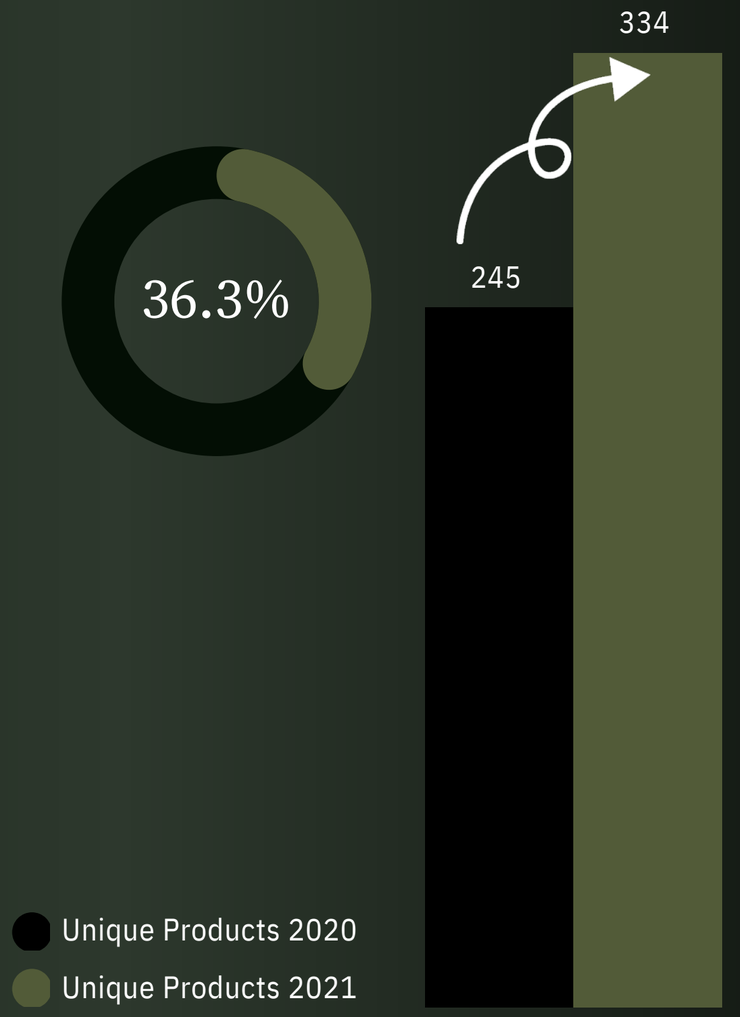
Product Growth Comparison: 2020 vs 2021

unique_products_2020	unique_products_2021	percentage_chng
245	334	36.3265

There is a significant increase in the number of unique products sold between 2020 and 2021, with a **36.33%** increase

with a total of 334 unique products sold in 2021 compared to 245 unique products in 2020.

This growth in the number of unique products sold can be considered a positive sign for the business, as it shows an increase in product variety and potential revenue streams.



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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

```sql
-- Select the segment and the count of distinct product codes
-- from the dim_product table
SELECT
    segment,
    count(DISTINCT product_code) as product_count
FROM
    dim_product
-- Group the results by the segment column
GROUP BY
    segment
-- Sort the results in descending order by the product count column
ORDER BY
    product_count DESC;
```

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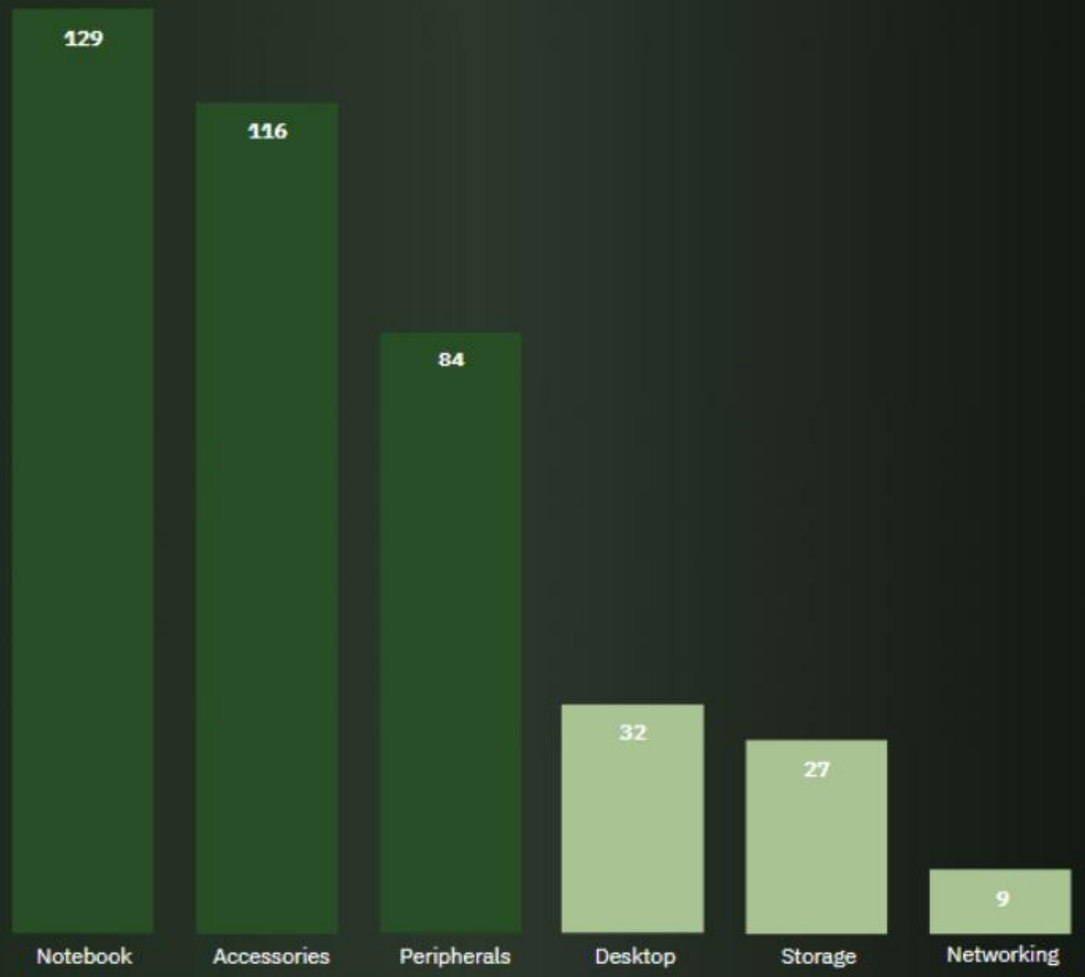
Notebooks and accessories have the highest number of unique products, **129** and **116** respectively, indicating their good performance.

Networking segment has only **9** unique products, suggesting poor performance.

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



We should focus on the successful segments and consider revising our strategy for the underperforming networking segment.

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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

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

```sql
with
f_2020 as (
    select segment, product_code
    from dim_product
    join fact_sales_monthly using (product_code)
    where fiscal_year = 2020
),
f_2021 as (
    select segment, product_code
    from dim_product
    join fact_sales_monthly using (product_code)
    where fiscal_year = 2021
),
f_2020_agg as (
    select segment, count(distinct product_code) as product_count_2020
    from f_2020
    group by segment
),
f_2021_agg as (
    select segment, count(distinct product_code) as product_count_2021
    from f_2021
    group by segment
)
select
    f_2020_agg.segment,
    f_2020_agg.product_count_2020,
    f_2021_agg.product_count_2021,
    (f_2021_agg.product_count_2021 - f_2020_agg.product_count_2020) as difference
from f_2020_agg
join f_2021_agg using (segment)
order by difference desc;t DESC;
```

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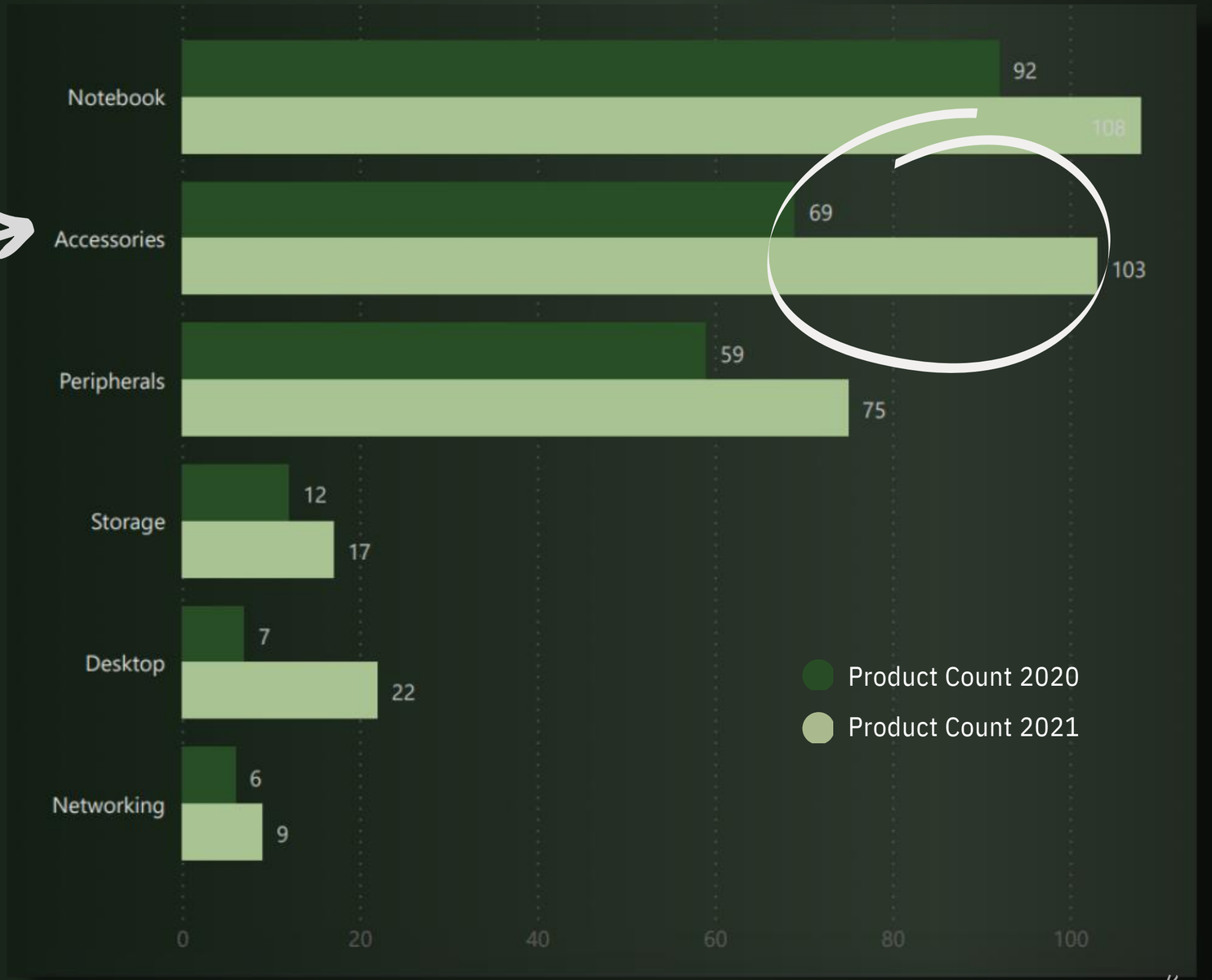
34%

Accessories segment has seen the greatest increase in product count, with **34** more unique products sold in 2021 than in 2020.

Networking segment has seen the smallest increase in product count, indicating that it is not performing well in terms of sales.



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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

```sql
SELECT product_code, product, manufacturing_cost
FROM dim_product
JOIN fact_manufacturing_cost USING (product_code)
WHERE manufacturing_cost IN (   -- filter the results to include only the rows where the "manufacturing_cost" column is equal to:
    SELECT MAX(manufacturing_cost) FROM fact_manufacturing_cost   -- the maximum value of "manufacturing_cost" in the "fact_manufacturing_cost" table
    UNION   -- combine the results of the previous query with:
    SELECT MIN(manufacturing_cost) FROM fact_manufacturing_cost   -- the minimum value of "manufacturing_cost" in the "fact_manufacturing_cost" table
);
```

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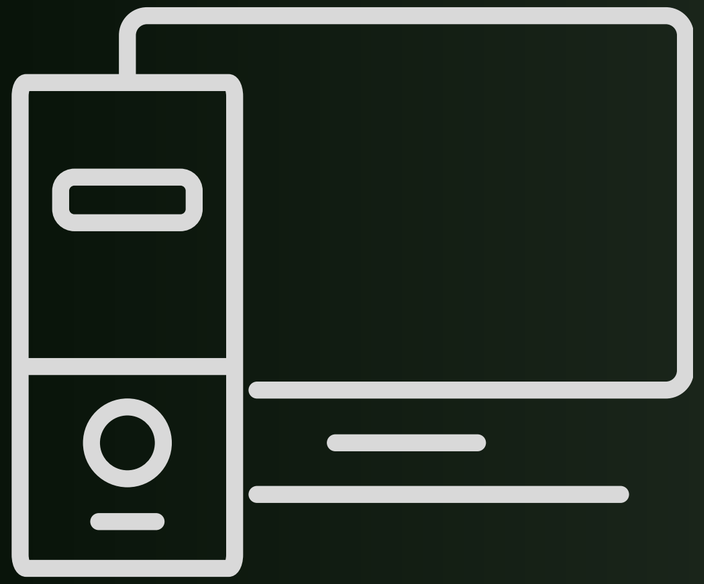
product_code	product	manufacturing_cost
A2118150101	AQ Master wired x1 Ms	0.8920
A6120110206	AQ HOME Allin1 Gen 2	240.5364

Highest manufacturing cost

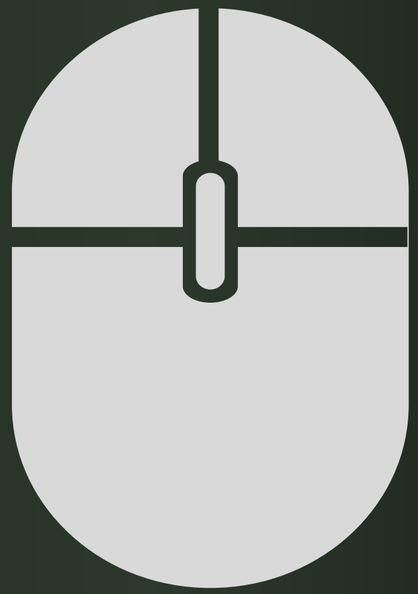


AQ HOME Allin1 Gen 2 (Plus 3)

Personal Desktop

240.54$

Lowest manufacturing cost



AQ Master wired x1 Ms (Standard 1)

Mouse

0.89$

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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

```sql
-- Select the customer_code, customer name and average discount percentage
-- for customers in the Indian market from the fact_pre_invoice_deductions and dim_customer
tables
SELECT
    dim_customer.customer_code,
    customer,
    round(((pre_invoice_discount_pct)*100), 2) AS average_discount_percentage
FROM
    fact_pre_invoice_deductions
    JOIN dim_customer ON fact_pre_invoice_deductions.customer_code =
dim_customer.customer_code
-- Filter the results to only include data from the 2021 fiscal year and the Indian market
WHERE
    fiscal_year = 2021
    AND market = 'India'
-- Group the results by customer_code and customer name
GROUP BY
    customer_code, customer
-- Order the results by the average discount percentage in descending order
-- and limit the output to the top 5 results
ORDER BY
    average_discount_percentage DESC
LIMIT 5;
```

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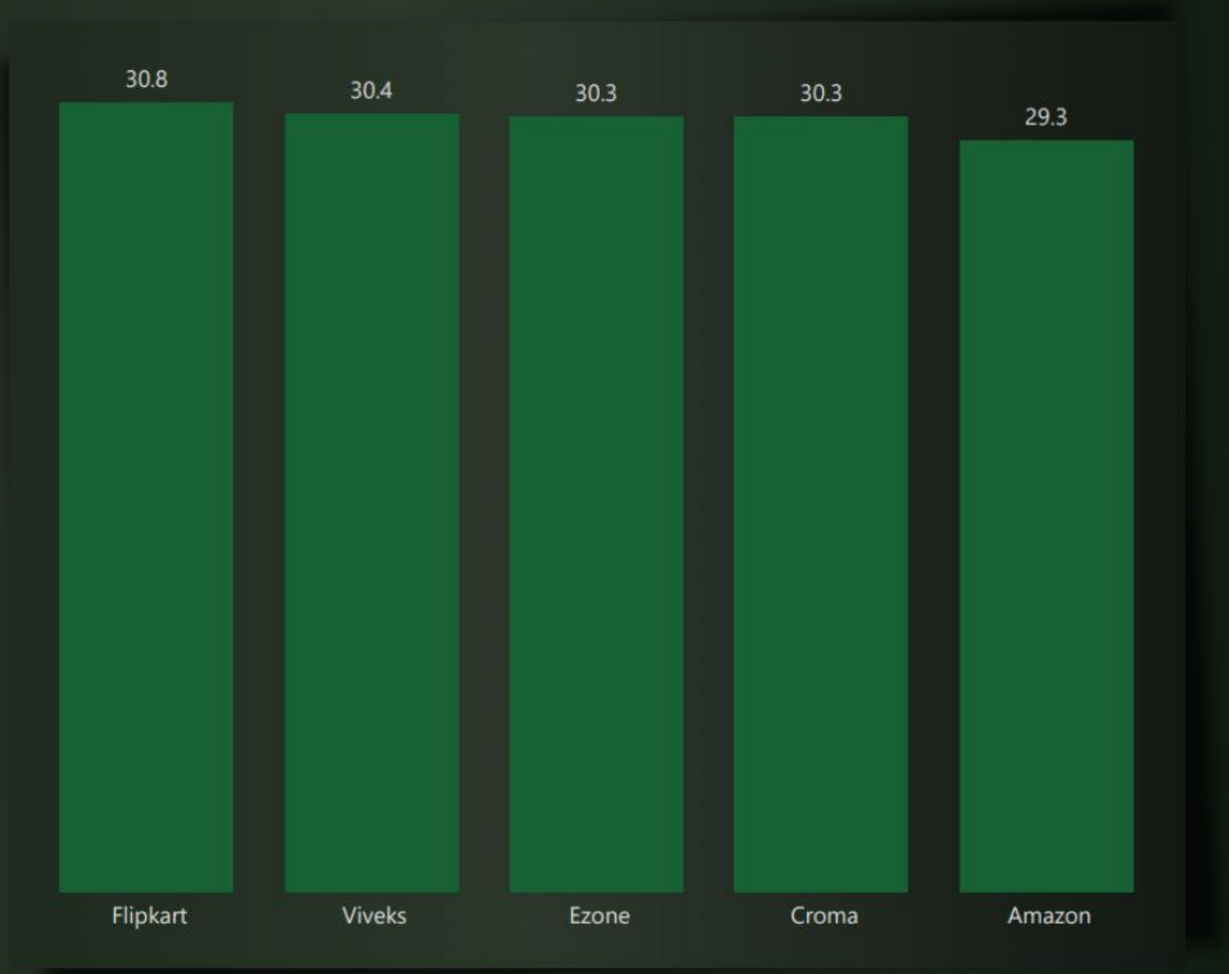
Top 5 Customers with Highest Average Pre-Invoice Discount Percentage in the Indian Market for Fiscal Year 2021

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

In 2021, the top 5 customers were offered similar pre-invoice discount percentages, with Flipkart being the most heavily discounted customer in the Indian market at **30.83%**.



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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

```sql
-- This query retrieves monthly gross sales amounts for a specific customer "Atliq Exclusive"
-- It joins the fact_sales_monthly table with dim_customer and fact_gross_price tables
-- to calculate gross sales amount by multiplying gross_price and sold_quantity and then aggregating at monthly level.
-- Finally, the results are ordered by year and month in ascending order.
SELECT
    DATE_FORMAT(fact_sales_monthly.date, '%M') AS Month,
    EXTRACT(YEAR FROM fact_sales_monthly.date) AS Year,
    ROUND(SUM((gross_price * sold_quantity)), 2) as gross_sales_amount
FROM fact_sales_monthly
JOIN dim_customer USING (customer_code)
JOIN fact_gross_price USING (product_code)
WHERE
  dim_customer.customer = 'Atliq Exclusive' -- Filters data for customer "Atliq Exclusive"
GROUP BY
  Month,
  Year
ORDER BY
  Year ASC,
  Month ASC;
```

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Monthly **Gross Sales** from September 2019 to August 2021

The sales amount was relatively **stable from September 2019 to February 2020**, but then dropped significantly in March and April 2020, which may be related to the COVID-19 pandemic.

However, the sales amount then began to **recover from May 2020** and has generally increased since then.

The sales amount in **November 2020** was much **higher** than in previous months, at over **32 million dollars.**

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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

```sql
WITH quarters AS (
--  with a derived column "Quarter" that assigns a quarter to each record based on its month
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'
WHEN MONTH(date) IN (6, 7, 8) THEN 'Q4'
END AS Quarter
FROM fact_sales_monthly
WHERE fiscal_year = 2020
)

-- select the Quarter column and the total quantity of sold products for each quarter
SELECT Quarter, SUM(sold_quantity) AS total_sold_quantity
FROM quarters
-- group the results by Quarter
GROUP BY Quarter
-- order the results by the total_sold_quantity in descending order
ORDER BY total_sold_quantity DESC;
```

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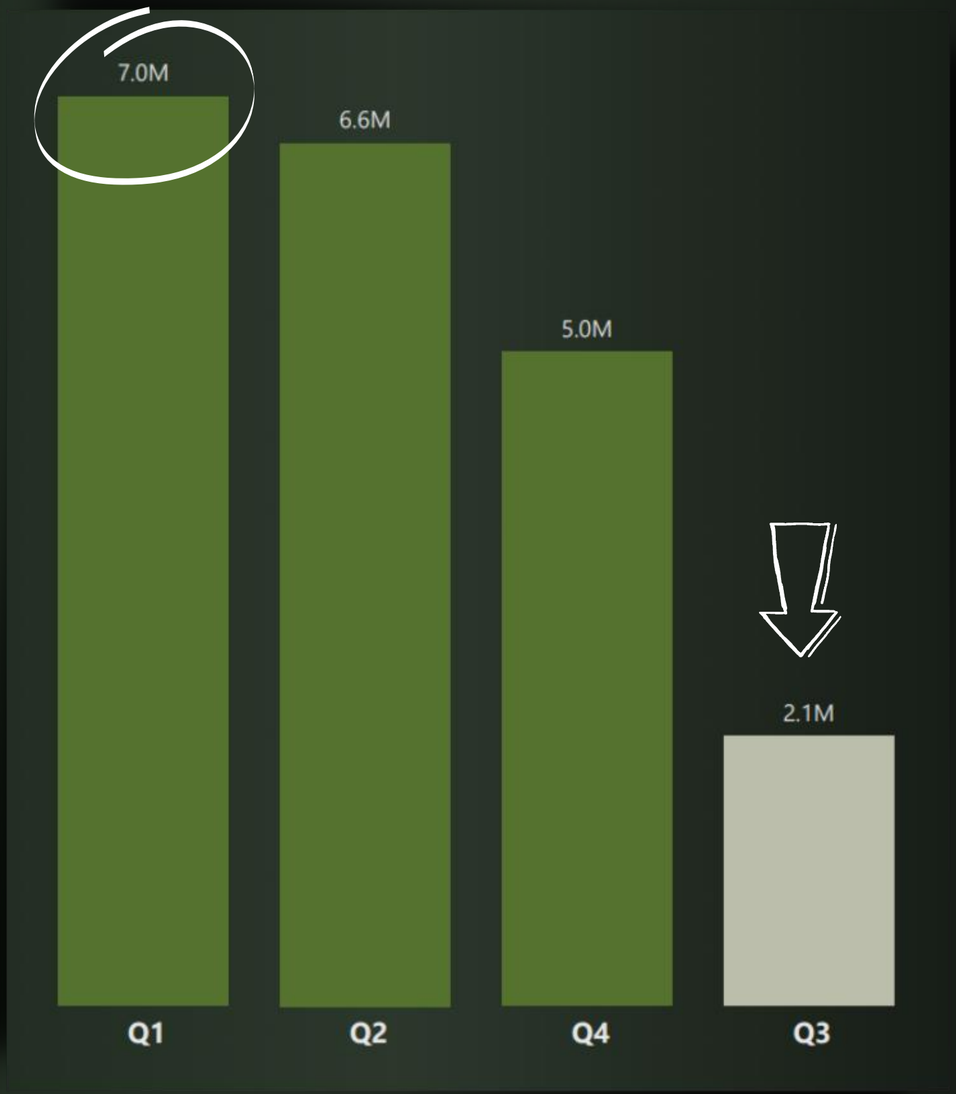
Quarter 1 has the **maximum** total sold quantity

Quarter	total_sold_quantity
Q1	7005619
Q2	6649642
Q4	5042541
Q3	2075087

During the third quarter of FY 2020, which coincided with the peak of the pandemic in March, April, and May, our total sold quantity dropped to 2.1 million.

However, we started to recover from this decline early on, and during the **fourth quarter, we experienced a significant rebound**.

This may be attributed to the increased demand for hardware, such as **desktops and notebooks**, as more students shifted to online coursework during this time.



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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

```sql
-- Create a common table expression called 'channel_gross' that aggregates sales data by channel
WITH channel_gross AS (
    -- Select the channel and calculate the gross sales in millions
    SELECT
        dim_customer.channel,
        ROUND(SUM(gross_price * sold_quantity), 2) AS gross_sales_mln
    FROM fact_sales_monthly
    JOIN dim_customer ON fact_sales_monthly.customer_code = dim_customer.customer_code
    JOIN fact_gross_price ON fact_sales_monthly.product_code = fact_gross_price.product_code
    WHERE fact_sales_monthly.fiscal_year = 2021
    GROUP BY dim_customer.channel
    ORDER BY gross_sales_mln DESC
)
-- Select the channel, gross sales, and the percentage of the total gross sales for each channel
SELECT
    channel,
    gross_sales_mln,
    ROUND((gross_sales_mln * 100 / sum(gross_sales_mln) over()), 3) AS percentage
FROM channel_gross;
```

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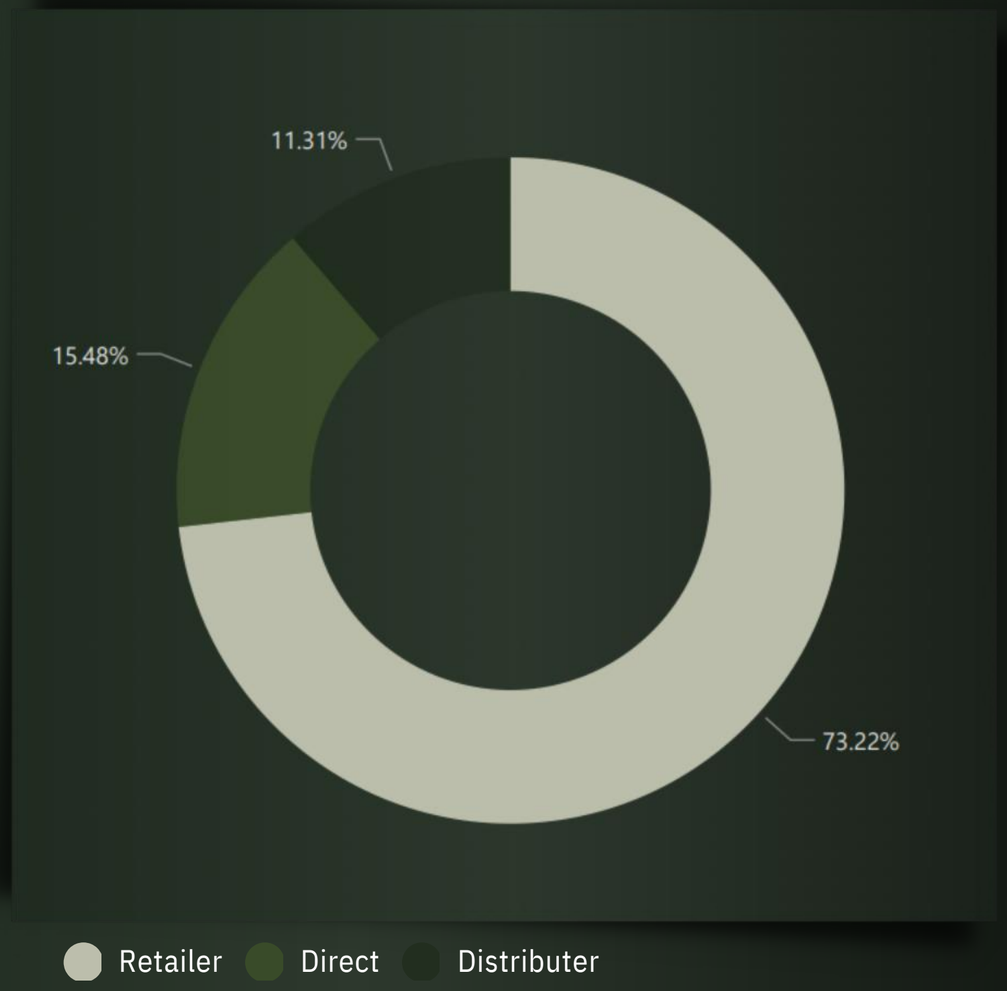
Sales Distribution by Channel

channel	gross_sales_mln	percentage
Retailer	1924170397.91	73.217
Direct	406686873.90	15.475
Distributor	297175879.72	11.308

The majority of sales, **73.217%**, came from **retailers**, while **15.475%** came **directly from the company** and **11.308%** came through **distributors.**



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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

```sql
-- Common Table Expression (CTE) to aggregate sales by division and product
WITH division_sales AS (
    SELECT
        dp.division,  -- Division of the product
        fsm.product_code,  -- Product code from the fact_sales_monthly table
        dp.product,  -- Name of the product
        SUM(fsm.sold_quantity) AS total_sold_quantity,  -- Total sold quantity of the product
        RANK() OVER (PARTITION BY dp.division ORDER BY SUM(fsm.sold_quantity) DESC) AS rank_order  -- Rank order
of the product within its division based on sold quantity
    FROM
        fact_sales_monthly fsm  -- Monthly sales data
        JOIN dim_product dp ON fsm.product_code = dp.product_code  -- Product information
    WHERE
        fsm.fiscal_year = 2021  -- Sales data from the 2021 fiscal year
    GROUP BY
        dp.division, fsm.product_code, dp.product  -- Grouping by division, product code, and product name
)
-- Query to get the top 3 products by sold quantity for each division
SELECT
    division_sales.division,  -- Division of the product
    division_sales.product_code,  -- Product code from the fact_sales_monthly table
    division_sales.product,  -- Name of the product
    division_sales.total_sold_quantity,  -- Total sold quantity of the product
    division_sales.rank_order  -- Rank order of the product within its division based on sold quantity
FROM
    division_sales  -- CTE to aggregate sales by division and product
WHERE
    division_sales.rank_order ⩽ 3;  -- Only selecting products with rank order ⩽ 3 (i.e., the top 3 products by
sold quantity for each division)
```

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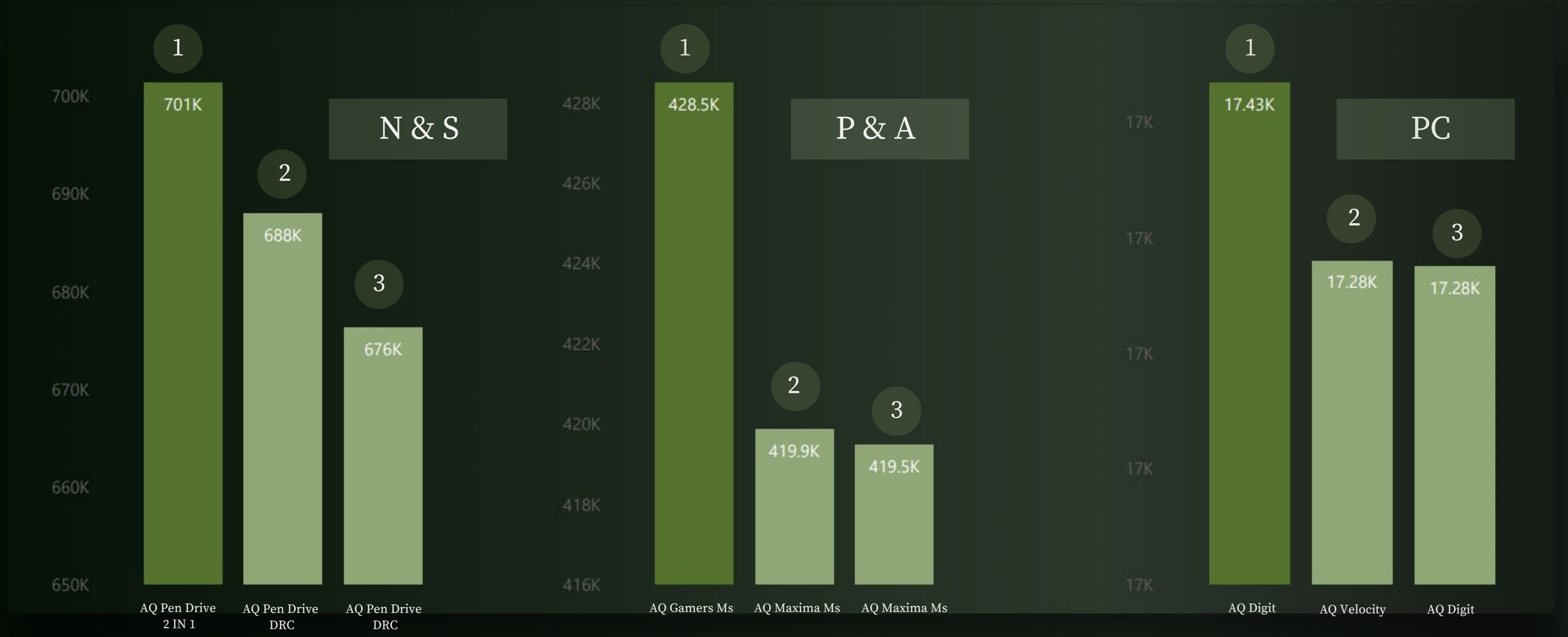
Top-Selling Products by Division and Product Code with Rank



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Top-Selling Products by Division and Product Code with Rank

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

The product "AQ Pen Drive 2 IN 1" sold the highest quantity overall, followed by "AQ Pen Drive DRC" and "AQ Gamers Ms".

The division "PC" has the three lowest selling products.

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Thank You

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