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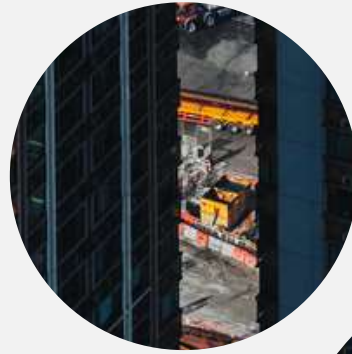
Introduction

Atliq Hardware stands out as a prominent computer hardware manufacturer in India, boasting a significant global presence with operations spanning across 27 countries. With a robust customer base of 74 clients, Atliq Hardware has firmly established itself in regions such as Asia Pacific (APAC), Europe (EU), North America (NA), and Latin America (LATAM).

The company specializes in three main product divisions, each contributing to its diverse portfolio: Peripherals and Accessories (P & A), Network and Storage (N & S), and Personal Computer (PC). This comprehensive range of products positions Atliq Hardware as a versatile and reliable choice for consumers worldwide.

Business Scenario

Provide insights to the management by solving Ad-hoc requests

Database overview

Fiscal Year Data:
  - Available for 2020 and 2021.
  The fiscal year runs from September 1st to August 31st.

Database Structure (atliq_hardware_db):
The Given Database contains 6 tables,
  1. Customers (dim_customer):

  2. Products (dim_product):

  3. Gross Prices (fact_gross_price):

  4. Manufacturing Costs (fact_manufacturing_cost):

  5. Pre-Invoice Deductions (fact_pre_invoice_deductions):

  6. Monthly Sales (fact_sales_monthly)

Key Points for Understanding:
- Data spans fiscal years 2020 and 2021.
-The fiscal year starts on September 1st.
- Six main table structures are given, customer, product, pricing, costs, deductions, and sales data.

Ad-hoc Requests

Grow your Business

Request-1

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

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

market
India
Indonesia
Japan
Philiphines
South Korea
Australia
Newzealand
Bangladesh

Atliq Exclusive conducts its business across eight diverse countries within the Asia-Pacific (APAC) region.
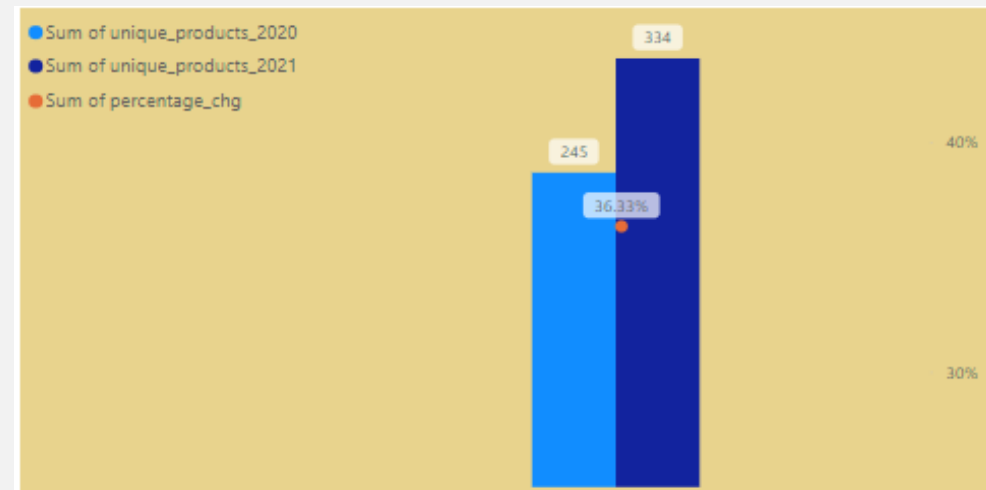
Request-2

What is the percentage of unique product increase in 2021 vs. 2020?

```
WITH Fy_sales 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)/(unique_products_2020) * 100, 2), '%')
AS percentage_chg
FROM Fy_sales;
```

The substantial growth of 36.33% in unique product count from 2020 to 2021 suggests a significant expansion of the business over the past year.

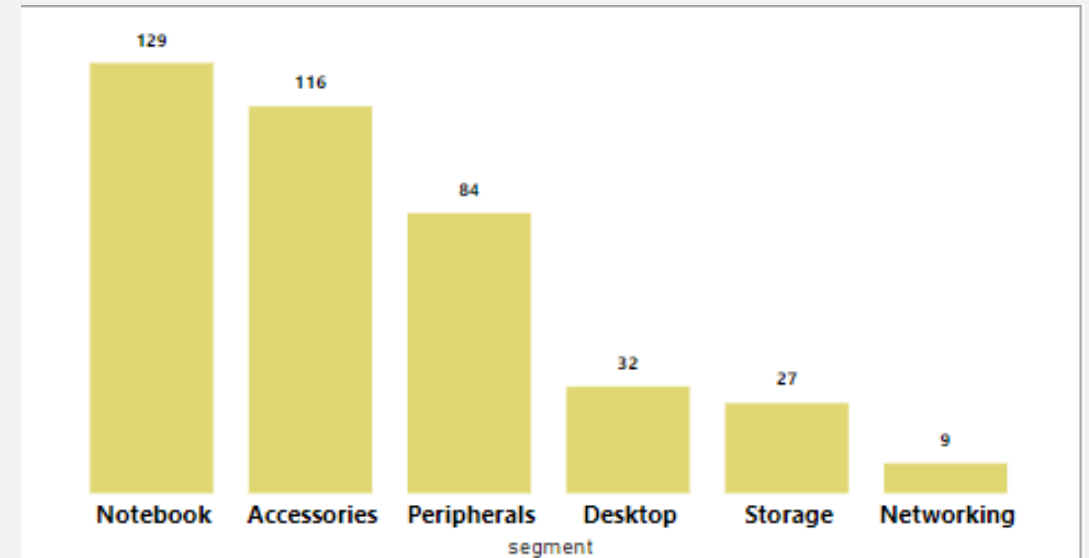| unique_products_2020	unique_products_2021	percentage_chg
245	334	36.33%

Request-3

Provide a report with all the unique product counts for each segment and sort them in descending order of product counts.

```
SELECT segment, COUNT(DISTINCT product_code) AS product_count
FROM dim_product
GROUP BY segment
ORDER BY product_count DESC;
```

The Networking segment of the company sees the lowest product count whereas the Notebook segment sees the highest, it can be assumed that the company has recently developed the sales and marketing force In the networking segment due to high or increased demand.

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

Request-4

Which segment had the most increase in unique products in 2021 vs 2020?

```
WITH Fy_sales AS
(SELECT d.segment, COUNT(DISTINCT CASE WHEN fiscal_year = '2020' THEN fs.product_code END)
AS unique_products_2020,
COUNT(DISTINCT CASE WHEN fiscal_year = '2021' THEN fs.product_code END)
AS unique_products_2021
FROM dim_product AS d INNER JOIN fact_sales_monthly AS fs
ON d.product_code=fs.product_code
GROUP BY d.segment)

SELECT segment,unique_products_2020 AS product_count_2020,unique_products_2021
AS product_count_2021,
(unique_products_2021-unique_products_2020)
AS  difference
FROM Fy_sales;
```

The Accessories segment experienced the most significant surge in unique products between 2020 and 2021, whereas the Desktop segment exhibited the highest percentage increase

| segment	Sum of product_count_2020	Sum of product_count_2021	difference
Notebook	92	108	16
Accessories	69	103	34
Peripherals	59	75	16
Storage	12	17	5
Desktop	7	22	15
Networking	6	9	3
Total	**245**	**334**	**89**

Request-5

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

```sql
SELECT m.product_code, p.product, m.manufacturing_cost
FROM fact_manufacturing_cost AS m
INNER JOIN dim_product AS p ON m.product_code = p.product_code
WHERE m.manufacturing_cost IN
(SELECT MAX(manufacturing_cost) FROM fact_manufacturing_cost
UNION
SELECT MIN(manufacturing_cost) FROM fact_manufacturing_cost)
ORDER BY m.manufacturing_cost DESC;
```

The manufacturing cost is highest for AQ Home Allin1 Gen 2, while AQ Master wired x1 Ms incurs the lowest manufacturing cost.

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

AQ HOME Allin1 Gen 2 ● AQ Master wired x1 Ms

0.892 (0.37%)

240.5364 (99.63%)
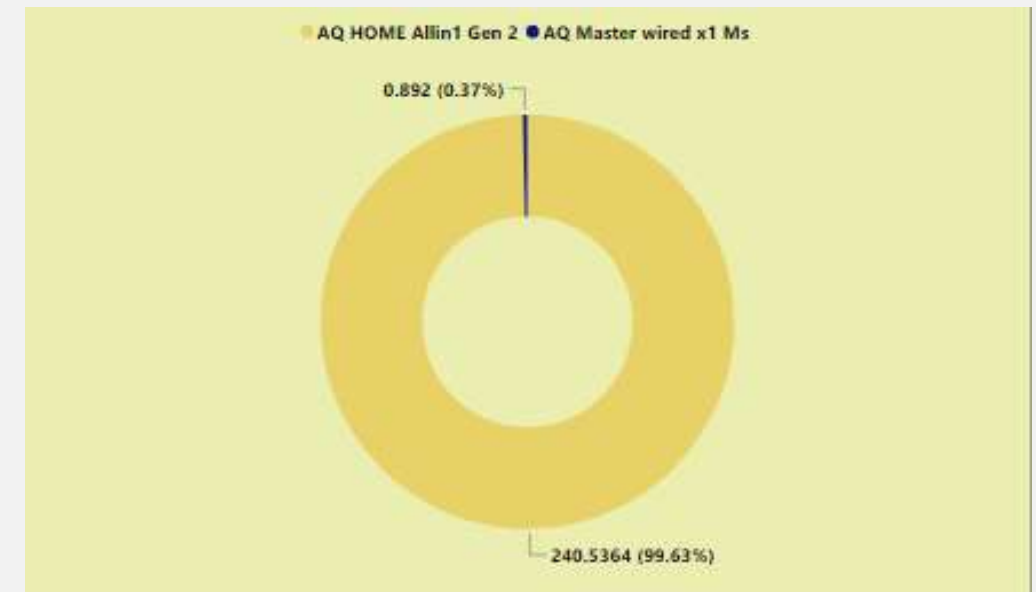
Request-6

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.

```sql
WITH avg_discount_pct AS(SELECT c.customer_code,c.customer,
AVG(pi.pre_invoice_discount_pct) AS average_discount_pct,
CONCAT(ROUND(AVG(pi.pre_invoice_discount_pct) * 100, 2), ' ', '%')
AS average_discount_with_percentage_sign
FROM dim_customer AS c
INNER JOIN fact_pre_invoice_deductions AS pi
ON c.customer_code = pi.customer_code
WHERE pi.fiscal_year = 2021 AND c.market = 'India'
GROUP BY c.customer_code, customer)

SELECT customer_code,customer,average_discount_with_percentage_sign
FROM avg_discount_pct
ORDER BY average_discount_pct DESC
LIMIT 5;
```

The average pre-invoice discount percentage for the top 5 customers collectively stands at 30.21%, with minimal variation observed among them

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

19.41%   20.41%

20.02%

20.11%

20.04%

Customer
- Flipkart
- Viveks
- Ezone
- Croma
- Amazon
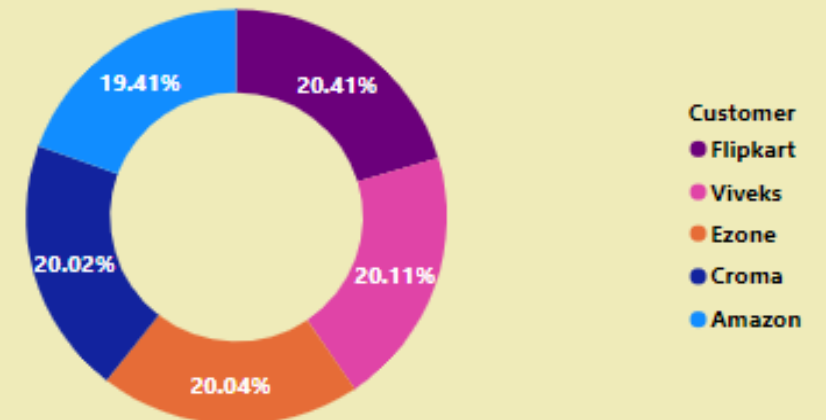
Request-7

Get the complete report of the Gross sales amount for the customer "Atliq Exclusive" for each month.

```sql
SELECT MONTHNAME(fs.date) AS Month,YEAR(fs.date) AS Year,
CONCAT(ROUND(SUM(fs.sold_quantity * fg.gross_price)/1000000, 2), '$')
AS Gross_sales_amount
FROM fact_sales_monthly AS fs
INNER JOIN fact_gross_price AS fg ON fs.product_code = fg.product_code
AND fg.fiscal_year=fs.fiscal_year
INNER JOIN dim_customer AS c ON c.customer_code = fs.customer_code
WHERE c.customer = 'Atliq Exclusive'
GROUP BY Month, Year
ORDER BY Gross_sales_amount DESC;
```

Month	Year	Gross_sales_amount
June	2021	9.82$
November	2019	7.52$
April	2021	7.31$
August	2021	7.18$
October	2019	5.14$
December	2019	4.83$
January	2020	4.74$
September	2019	4.50$
February	2020	4.00$
November	2020	20.46$
August	2020	2.79$
July	2020	2.55$

In November 2020, the company achieved its peak monthly sales, reaching $20.46 million, while March 2020 marked the lowest monthly gross sales at $0.38 million. The fiscal year 2020 concluded with a total sales figure of $39.33 million, and fiscal year 2021 witnessed a substantial increase, reaching a total sales amount of $142.19 million.
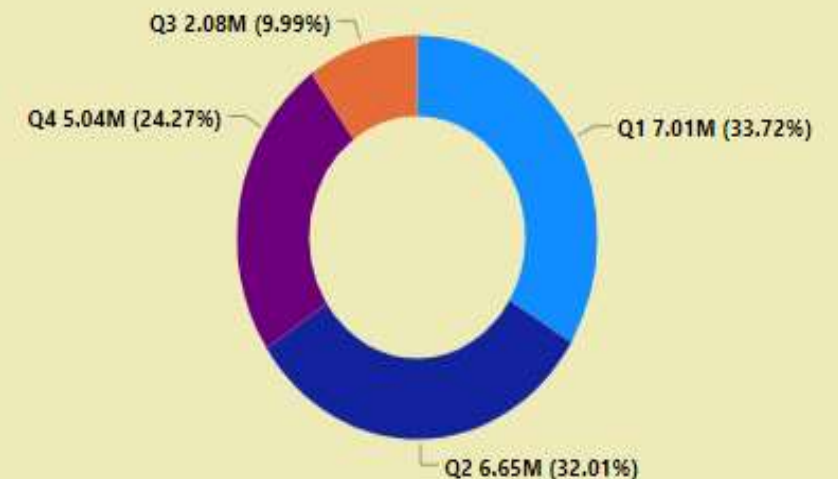
Request-8

In which quarter of 2020, got the maximum total_sold_quantity?

```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_quantity_sold FROM fact_sales_monthly
WHERE fiscal_year = '2020'
GROUP BY Quarter
ORDER BY  total_quantity_sold DESC;
```

The sales figures for the respective quarters ranked highest to lowest are Q1, Q2, Q4, and Q3.

Quarter	total_quantity_sold
Q1	7005619
Q2	6649642
Q4	5042541
Q3	2075087

Q3 2.08M (9.99%)
Q4 5.04M (24.27%)
Q1 7.01M (33.72%)
Q2 6.65M (32.01%)

Request-9

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

```
WITH gross_sales_by_channel AS (SELECT
c.channel AS Channel,
SUM(fs.sold_quantity * fg.gross_price) AS Gross_sales_amount
FROM fact_sales_monthly AS fs
INNER JOIN fact_gross_price AS fg ON fs.product_code = fg.product_code
INNER JOIN dim_customer AS c ON c.customer_code = fs.customer_code
WHERE fs.fiscal_year = 2021
GROUP BY Channel)

SELECT Channel,
CONCAT(ROUND(Gross_sales_amount / 1000000, 2), ' ', 'M')
AS gross_sales_mln,
CONCAT(ROUND(Gross_sales_amount /
(SELECT SUM(Gross_sales_amount) FROM gross_sales_by_channel) * 100, 2), ' %')
AS percentage
FROM gross_sales_by_channel
ORDER BY percentage DESC;
```

In 2021, the company's sales revenue was primarily driven by retailers, accounting for the highest percentage of gross sales at 73.22%. Direct sales constituted 15.47% of the total, and distributors played a comparatively smaller role, contributing 11.31%. This underscores the significant contribution of retailers to the overall sales performance, with direct and distributor sales playing secondary roles in the company's revenue structure.
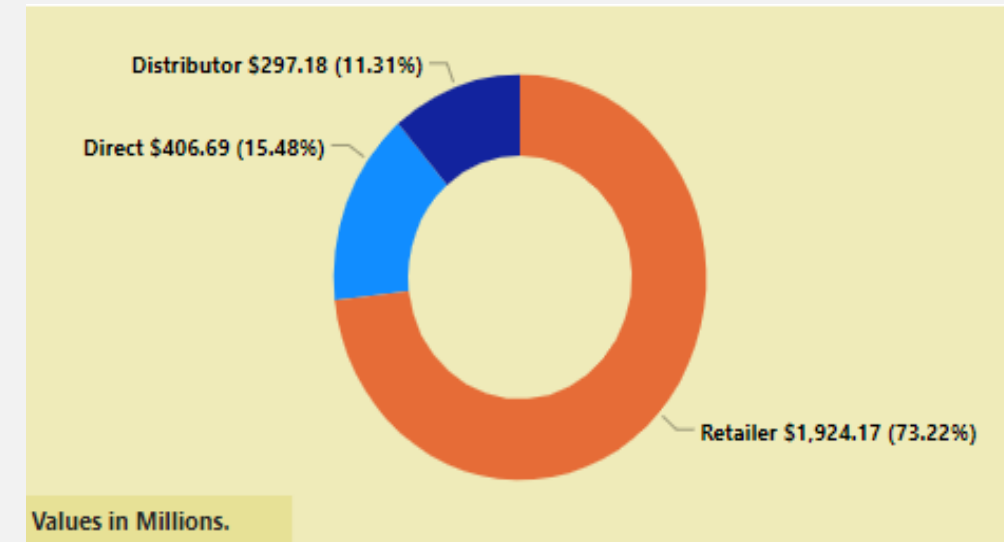
	Channel	gross_sales_mln	percentage
▶	Retailer	1924.17 M	73.22 %
	Direct	406.69 M	15.47 %
	Distributor	297.18 M	11.31 %

Distributor $297.18 (11.31%)

Direct $406.69 (15.48%)

Retailer $1,924.17 (73.22%)

Values in Millions.

Request-10

Get the Top 3 products in each division that have a high total_sold_quantity in the fiscal_year 2021.

```sql
WITH division_and_pcode
AS(SELECT P.division AS division, fs.product_code,p.product AS product,
SUM(fs.sold_quantity) AS Total_Qty_sold
FROM dim_product AS p
INNER JOIN fact_sales_monthly AS fs ON p.product_code = fs.product_code
WHERE fs.fiscal_year = 2021
GROUP BY division, fs.product_code,p.product),

Ranked_products AS
(SELECT *,DENSE_RANK()OVER(PARTITION BY division ORDER BY Total_Qty_sold DESC) AS RnK
FROM division_and_pcode)

SELECT *
FROM Ranked_products
WHERE RnK <=3
```

division	product_code	product	Total_Qty_sold	RnK
N & S	A6720160103	AQ Pen Drive 2 IN 1	701373	1
N & S	A681816O202	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	PC 19110306	AQ Velocity	17280	2
PC	A4218110208	AQ Digit	17275	3

The three best-selling products in the fiscal year 2021 were
- AQ Pen Drive under Network and Storage (N & S),
-AQ Gamer Ms in the Peripherals & Accessories (P & A),
-AQ Digit in Personal Computer (PC).

Conclusions

Know your Business

- AtliQ Exclusive works in 8 different countries in Asia, helping with marketing and sales.

- The number of different products increased a lot, by 36.33%, from 2020 to 2021. This means the business is growing and offering more variety.

- Looking at types of products can show what's strong and weak, helping decide what to focus on.

- Accessories had the biggest increase in different products. This shows that expanding this category is important.

- Figuring out which products cost the most and least to make helps with deciding how to produce and price them.

- The top 5 customers who get big discounts before invoicing can give insights into how to talk and work with customers.

- Checking monthly sales can help decide the best times for making important business decisions.

- Most products were sold in the first quarter of 2020. This shows there might be certain times when more people buy, which can help with planning and stocking products.

- Most sales came from retailers in 2021, showing they are a big part of the company's income.

- The best products in each category in 2021 can help decide where to focus efforts in marketing and production.

Recommendations

- **Enhance Market Penetration:** Leverage insights from the analysis to expand operations strategically in the APAC region, focusing on high-potential markets.

- **Product Diversification:** Capitalize on the observed growth in unique products by continuing to diversify the product portfolio, especially in high-performing segments like Accessories.

- **Strategic Marketing:** Utilize segment-wise product counts and unique product increase insights (Q4) to tailor marketing strategies for each segment.

- **Cost Optimization:** Review products with the highest manufacturing costs for cost optimization opportunities, ensuring competitiveness in the market.

- **Customer Relationship Management:** Maintain strong relationships with top customers identified in the analysis, potentially exploring loyalty programs or exclusive offerings.

- **Sales Forecasting:** Use monthly gross sales data and identify seasonal trends for more accurate sales forecasting, aiding in inventory management.

- **Strategic Sales Focus:** Based on the channel contribution, strategically prioritize sales efforts with retailers and direct channels for maximum impact.

- **Product Performance Analysis:** Regularly analyze the performance of top products in each division to adapt to changing market demands and consumer preferences.

Thank You

Happy to help.