Enhancing Data Analytics at Atliq Hardwares

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Atliq Hardwares is expanding its analytics team to drive data-informed decision-making and insights.

Introduction to Atliq Hardwares

01 Company Overview

Atliq Hardwares stands as a prominent producer of computer hardware in India, recognized for its innovative solutions and quality products. The company has successfully expanded its reach into international markets, establishing a strong global presence.

02 Insights Needed

The management team at Atliq Hardwares has identified a critical gap in their decision-making process. They require enhanced insights to enable swift, data-informed decisions that can drive the company’s strategic initiatives and operational efficiency.

03 Expansion Plans for Data Analytics Team

In response to the identified need, Atliq Hardwares plans to expand its data analytics team significantly. This growth is aimed at equipping the company with the analytical capabilities necessary to leverage data for competitive advantage.

04 Hiring Criteria

Tony Sharma, the Director of Data Analytics, is looking to recruit junior data analysts who possess a balanced skill set. Candidates must demonstrate strong technical expertise in data analysis tools and programming, alongside essential soft skills such as communication and teamwork.

05 SQL Challenge for Assessing Skills

To effectively evaluate potential hires, Tony Sharma has devised a SQL challenge. This practical assessment will not only test candidates' technical abilities in SQL but also provide insights into their problem-solving approaches and soft skills during collaborative tasks.

Task Overview

A Step-by-Step Guide to Delivering Insights

01 Review Ad Hoc Requests

Begin by examining the 'ad-hoc-requests.pdf' document, which contains 10 specific ad hoc requests that require insights from the business. Each request is critical for decision-making and must be understood in detail to provide accurate responses.

02 Run SQL Queries

Utilize SQL queries to extract relevant data needed to answer the identified ad hoc requests. This involves gathering insights from the database to ensure that the management team has access to accurate and relevant information for their strategic discussions.

03 Create Dashboard for Insights

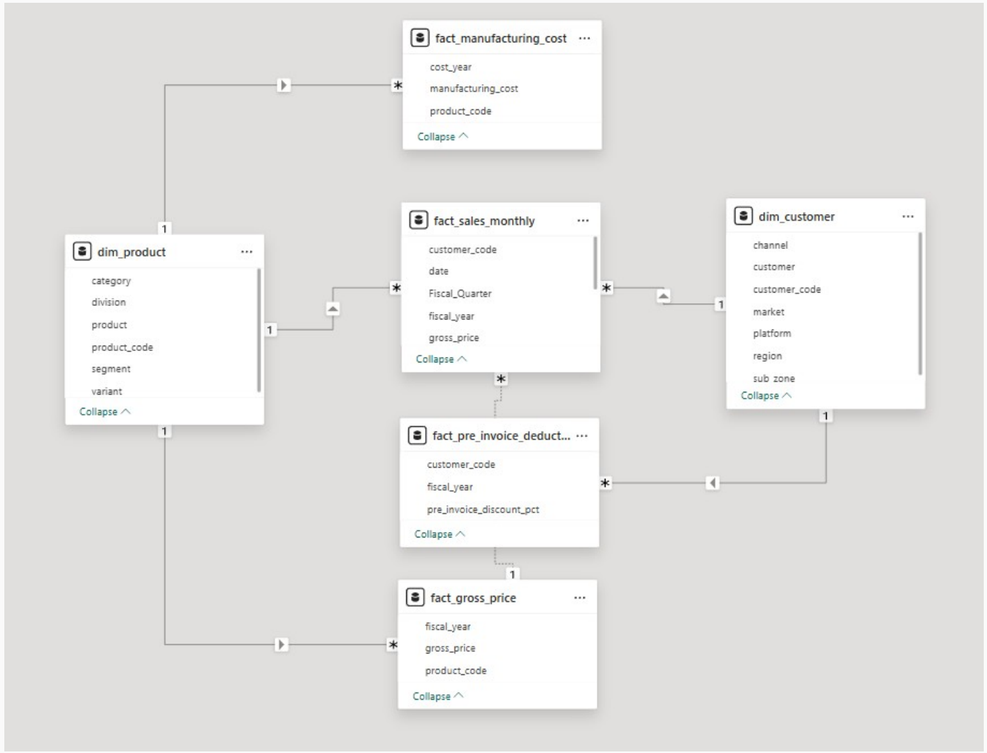
Develop a comprehensive dashboard that presents insights derived from the SQL queries. The dashboard should be visually appealing and easy to interpret, catering specifically to the needs of top-level management who require clear and concise information to guide their decisions.

04 Engage the Audience Creatively

Incorporate creative elements into the presentation, to enhance engagement and retention of information among top-level management. This will help in making the insights more relatabe and memorable.

Tools, Data, Requests

Using SQL for data processing and Power BI for visualization to efficiently fulfill requests.



Codebasics SQL Challenge

Requests:

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? The final output contains these fields,
   unique_products_2020
   unique_products_2021
   percentage_chg

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

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

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

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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

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

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

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

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

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Markets in APAC for Atliq Exclusive

Overview of Atliq Exclusive's presence in the Asia-Pacific markets

01

India

One of the largest and fastest-growing markets, with a strong customer base and established operations

02

Indonesia

A key Southeast Asian market with rising demand for computer hardware and technology solutions.

03

Japan

A highly developed tech market, providing opportunities for innovation and premium product offerings.

04

Philippines

A rapidly expanding digital economy, driving demand for high-performance computing products.

05

South Korea

A global tech powerhouse with a strong focus on cutting-edge hardware and gaming solutions.

06

Australia

A strategic location serving as a gateway to Southeast Asia, backed by a well-developed market.

SQL Queries and Power BI Presentation

Visualizing Data with Tables and ArcGIS Map

```sql
SELECT
    distinct market
FROM gdb023.dim_customer
where customer= "Atliq Exclusive" and region = "apac" ;
```

market
India
Indonesia
Japan
Philiphines
South Korea
Australia
Newzealand
Bangladesh

Unique Product Increase Percentage

Analysis of Unique Product Growth

Unique Products in 2020: 1,000

Stable base established in 2020

In 2020, the company had a solid foundation with 245 unique products, which set the stage for future growth.

Unique Products in 2021: 1,200

Significant growth in unique offerings

In 2021, the total number of unique products increased to 334, demonstrating a successful expansion of the product line.

Percentage Change: 36.33%

Robust growth rate indicates market demand

The 36.33% increase in unique products suggests a positive market response and an opportunity to further capitalize on consumer preferences.

SQL Queries and Power BI Presentation

Visualizing Data with Graphs and Tables

```sql
WITH cte1 AS (
    SELECT COUNT(DISTINCT product_code) AS unique_products_2020
    FROM fact_sales_monthly
    WHERE fiscal_year = 2020
),
cte2 AS (
    SELECT COUNT(DISTINCT product_code) AS unique_products_2021
    FROM fact_sales_monthly
    WHERE fiscal_year = 2021
)
SELECT
    cte1.unique_products_2020,
    cte2.unique_products_2021,
    ((cte2.unique_products_2021 - cte1.unique_products_2020) * 100.0 / cte1.unique_products_2020) AS percentage_chg
FROM cte1, cte2;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

unique_products_2020	unique_products_2021	percentage_chg
245	334	36.32653

Unique Product Counts by Segment

Sorted in Descending Order

Segment	Product Count
Notebook	129
Accessories	116
Peripherals	84
Desktop	80
Storage	27
Networking	9

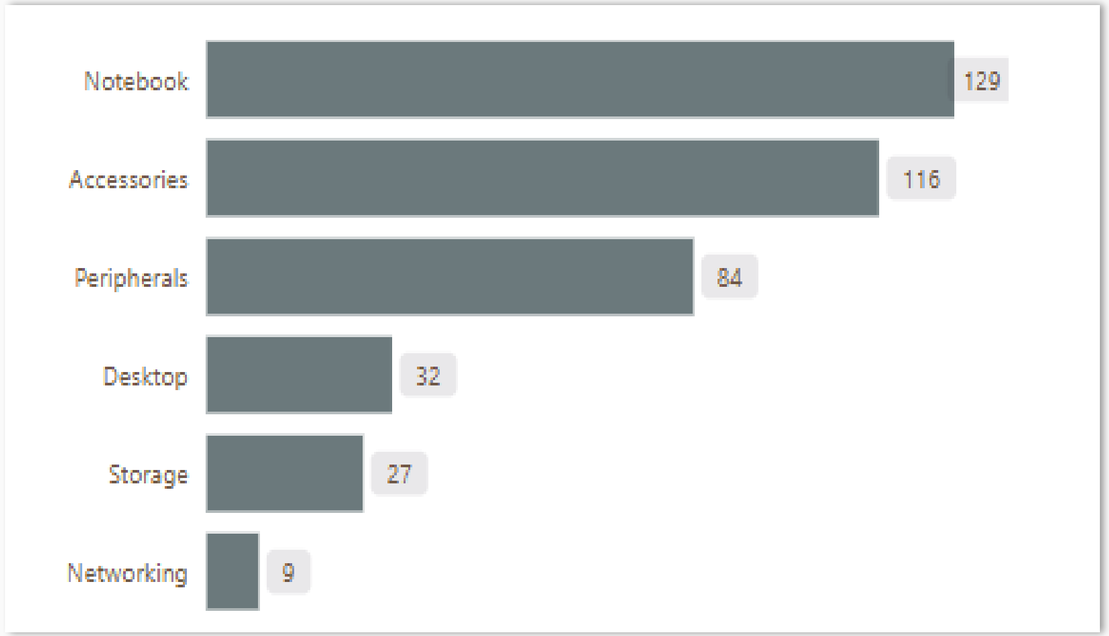
SQL Queries and Power BI Presentation

Visualizing Data with Graphs and Tables

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

Result Grid | Filter Rows: | Export: | Wrap Cell Con

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



Segment with Most Increase in Unique Products

Analysis of Product Growth Across Different Segments for 2021

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

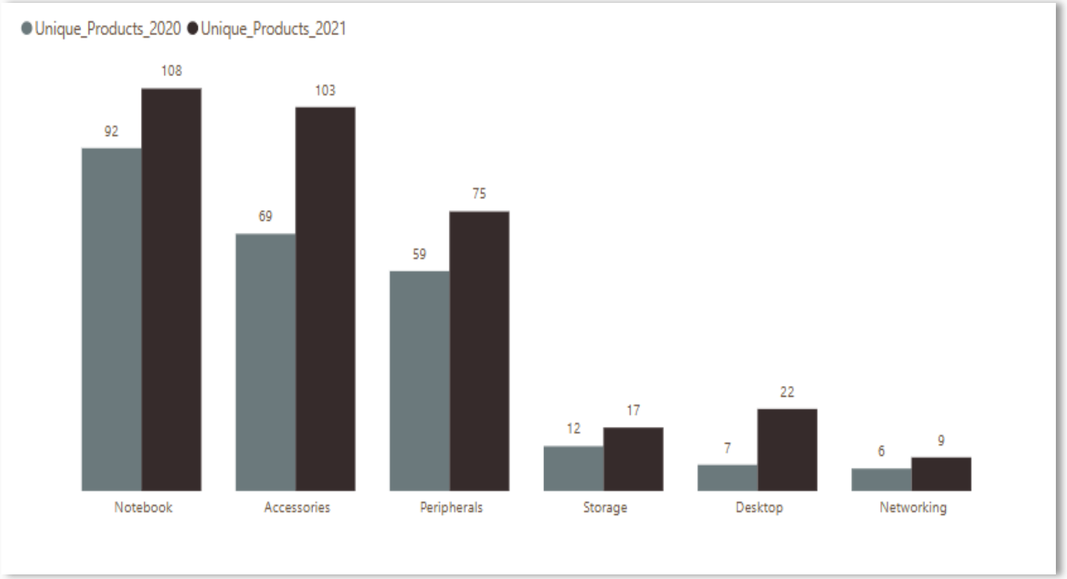
SQL Queries and Power BI Presentation

Visualizing Data with Graphs and Tables

```sql
WITH cte1 AS (
    SELECT
        p.segment,
        COUNT(DISTINCT s.product_code) AS unique_products_2020
    FROM fact_sales_monthly s
    JOIN dim_product p ON s.product_code = p.product_code
    WHERE fiscal_year = 2020
    GROUP BY p.segment
),
cte2 AS (
    SELECT
        p.segment,
        COUNT(DISTINCT s.product_code) AS unique_products_2021
    FROM fact_sales_monthly s
    JOIN dim_product p ON s.product_code = p.product_code
    WHERE fiscal_year = 2021
    GROUP BY p.segment
)
SELECT
    cte1.segment,
    cte1.unique_products_2020,
    cte2.unique_products_2021,
    (cte2.unique_products_2021 - cte1.unique_products_2020) AS difference
FROM cte1
JOIN cte2 ON cte1.segment = cte2.segment
ORDER BY difference DESC
LIMIT 5;
```

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

Result 2



Manufacturing Costs Overview

Comparison of Products Based on Manufacturing Costs

Product Code	Product	Manufacturing Cost
A2118150101	AQ Master wired x1 Ms	$0.89
A6120110206	AQ HOME Allin1 Gen 2	$240.5

SQL Queries and Power BI Presentation

Visualizing Data with Graphs and Tables

```sql
select
    p.product,
    p.product_code,
    manufacturing_cost
from fact_manufacturing_cost m
join dim_product p
    on p.product_code = m.product_code
WHERE m.manufacturing_cost = (SELECT MAX(manufacturing_cost) FROM fact_manufacturing_cost)
   OR m.manufacturing_cost = (SELECT MIN(manufacturing_cost) FROM fact_manufacturing_cost);
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

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

Top Customers by Discount for FY 2021

A detailed report showcasing the top 5 customers who benefited from discounts in the Indian market during fiscal year 2021.

Customer Code	Customer Name	Average Discount Percentage
90002009	Flipkart	30.83%
90002006	Viveks	30.38%
90002003	Ezone	30.28%
90002002	Croma	30.25%
90002016	Amazon	30.33%

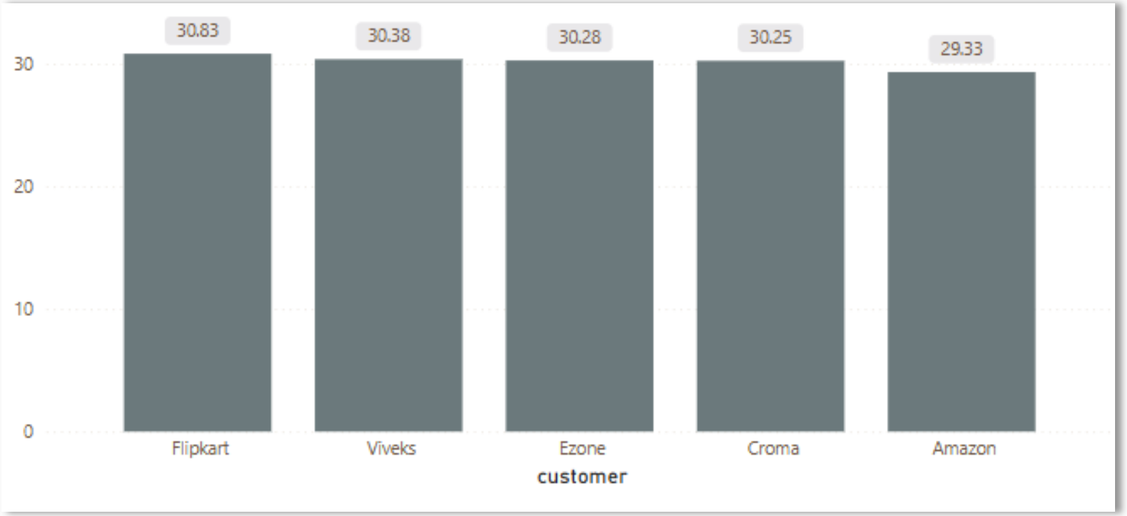
SQL Queries and Power BI Presentation

Visualizing Data with Graphs and Tables

```sql
SELECT
    c.customer_code,
    c.customer,
    round(AVG(pre_invoice_discount_pct) * 100,2) AS average_discount_percentage
FROM fact_pre_invoice_deductions pid
JOIN dim_customer c
    ON c.customer_code = pid.customer_code
WHERE pid.fiscal_year = 2021
AND market = "India"
GROUP BY c.customer, c.customer_code
ORDER BY average_discount_percentage DESC
LIMIT 5;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content: | Fetch rows:

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



Gross Sales Report for Atliq Exclusive

Monthly Sales Data

Month	Year	Gross Sales Amount
January	2020	$9584951.94
February	2020	$8083995.55
March	2020	$766976.45
April	2020	$800071.95
May	2020	$1586964.48
June	2020	$3429736.57
July	2020	$5151815.40

SQL Queries and Power BI Presentation

Visualizing Data with Graphs and Tables

```sql
SELECT
    MONTH(s.date) AS month,
    s.fiscal_year AS year,
    round(SUM(s.sold_quantity * g.gross_price),2) AS gross_sales_amount
FROM fact_sales_monthly s
JOIN fact_gross_price g
    ON s.product_code = g.product_code
JOIN dim_customer c
    ON s.customer_code = c.customer_code
WHERE c.customer = 'Atliq Exclusive'
GROUP BY MONTH(s.date), s.fiscal_year
ORDER BY s.fiscal_year, month;
```

Month	FY	Gross sales
January	2020	4740600
February	2020	3996228
March	2020	378771
April	2020	395035
May	2020	783813
June	2020	1695217
July	2020	2551159
August	2020	2786648
September	2020	4496260
October	2020	5135902
November	2020	7522893
December	2020	4830405
January	2021	12399393
February	2021	10129736
March	2021	12144061
April	2021	7312000
May	2021	12150225
June	2021	9824521
July	2021	12092346
August	2021	7178708
September	2021	12353510
October	2021	13218636
November	2021	20464999
December	2021	12944660
Total		**181525725**

Maximum Sold Quantity by Quarter

Analyzing the Total Sold Quantity by Quarter in 2020

Q1 2020 shows a notable sales figure

Q1 2020: 3.4M units

In the first quarter of 2020, a total of 3.4M units were sold, indicating a strong start to the year. This data suggests effective marketing strategies in place during this period.

Sales in Q2 2020

Q2 2020: 5.2M units

The second quarter saw a remarkable surge, with 5.2M units sold. This growth could be attributed to expanded distribution channels or the launch of a new product line.

Sales peak in Q3 2020

Q3 2020: 8.4M units

The third quarter recorded an impressive 8.4M units sold, marking the highest sales volume of the year. This spike could be attributed to seasonal demand or successful promotional campaigns.

Sales drop in Q4 2020

Q4 2020: 3.7M units

Sales dipped to 3.7M units in the fourth quarter, which may indicate market saturation or the impact of external economic factors. Analyzing customer feedback during this time could provide insights for recovery.

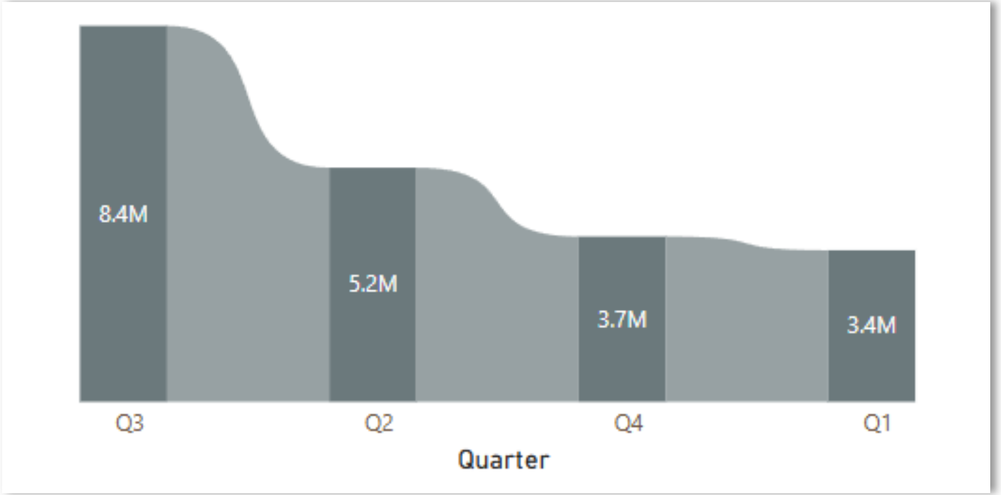
SQL Queries and Power BI Presentation

Visualizing Data with Graphs and Tables

```sql
SELECT
    CASE
        WHEN MONTH(date) IN (4, 5, 6) THEN 1
        WHEN MONTH(date) IN (7, 8, 9) THEN 2
        WHEN MONTH(date) IN (10, 11, 12) THEN 3
        ELSE 4
    END AS quarter,
    SUM(sold_quantity) AS total_sold_quantity
FROM fact_sales_monthly
WHERE fiscal_year = 2020
GROUP BY quarter
ORDER BY total_sold_quantity DESC;
```

Result Grid | Filter Rows: | Export: | Wrap Ce

quarter	total_sold_quantity
3	8425822
2	5246770
4	3704398
1	3395899



Sales Channels Contribution for Fiscal Year 2021

Analyzing the impact of various sales channels on gross sales in FY 2021

1.9billion

Retailer Channel generated the highest gross sales.

406.6million

Direct Channel followed behind.

297million

Distributor Channel’s role in total sales.

Retailer channel contributed 1.9 billion in gross sales, representing a significant portion of the overall sales figures for the fiscal year 2021. This channel's strong performance highlights its effectiveness in reaching customers and driving

With gross sales amounting to 406.6 million, direct channel accounted for a substantial contribution. Its growth suggests an increasing customer preference for this channel, calling for enhanced focus in future

Distributor channel generated 297 million in gross sales. Although it ranks third, its contribution is critical, emphasizing the diverse channels needed to optimize overall sales performance.

SQL Queries and Power BI Presentation

Visualizing Data with Graphs and Tables

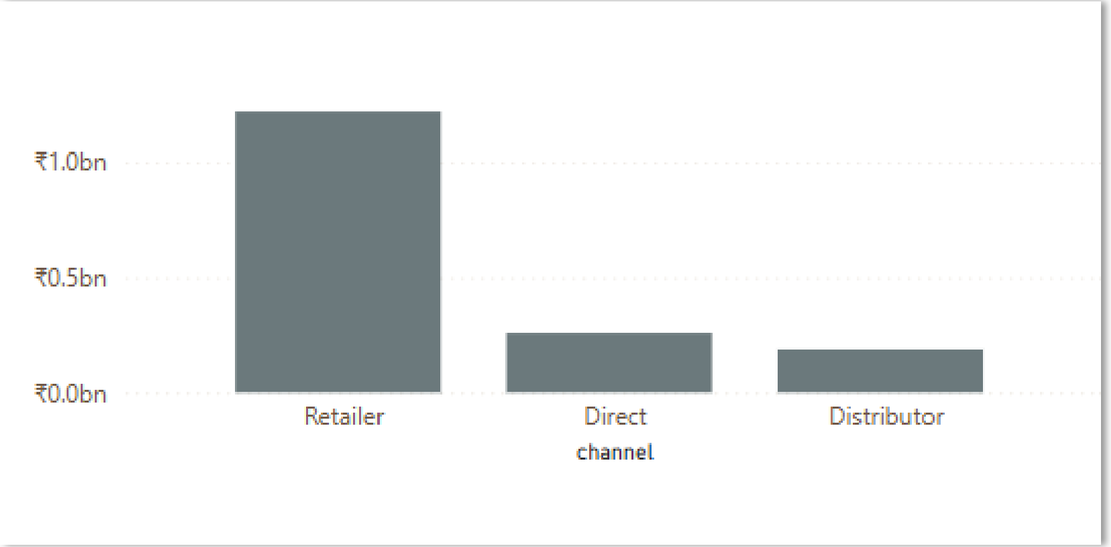
```sql
WITH total_sales AS (

    SELECT SUM(s.sold_quantity * g.gross_price) AS total_gross_sales
    FROM fact_sales_monthly s
        JOIN fact_gross_price g
            ON s.product_code = g.product_code
    WHERE s.fiscal_year = 2021
)

SELECT
    c.channel,
    ROUND(SUM(s.sold_quantity * g.gross_price) / 1000000, 2) AS gross_sales_mln,
    ROUND((SUM(s.sold_quantity * g.gross_price) / ts.total_gross_sales) * 100, 2) AS contribution_pct
FROM fact_sales_monthly s
    JOIN fact_gross_price g
        ON s.product_code = g.product_code
    JOIN dim_customer c
        ON s.customer_code = c.customer_code
    JOIN total_sales ts
WHERE s.fiscal_year = 2021
GROUP BY c.channel, ts.total_gross_sales
ORDER BY gross_sales_mln DESC;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

channel	gross_sales_mln	contribution_pct
Retailer	1924.17	73.22
Direct	406.69	15.47
Distributor	297.18	11.31



Top Products by Division

Discover the leading products across various divisions based on their sales performance for the fiscal year 2021.

Division	Product Code
N & S	AQ Pen Drive 2 IN 1
N & S	AQ Pen Drive DRC
N & S	AQ Pen Drive DRC
P & A	AQ Gamers Ms
P & A	AQ Maxima Ms
P & A	AQ Maxima Ms
PC	AQ Digit

Top Products by Division

Discover the leading products across various divisions based on their sales performance for the fiscal year 2021.

Division	Product Code
PC	AQ Velocity
PC	AQ Digit

SQL Queries and Power BI Presentation

Visualizing Data with Graphs and Tables

```sql
WITH cte1 AS (
    SELECT
        p.division,
        p.product_code,
        p.product,
        SUM(s.sold_quantity) AS total_sold_quantity
    FROM fact_sales_monthly s
    JOIN dim_product p
        ON p.product_code = s.product_code
    WHERE s.fiscal_year = 2021
    GROUP BY p.division, p.product_code, p.product
)

SELECT *
FROM (
    SELECT
        division,
        product_code,
        product,
        total_sold_quantity,
        RANK() OVER (PARTITION BY division ORDER BY total_sold_quantity DESC) AS rank_order
    FROM cte1
) ranked_products
WHERE rank_order <= 3;
```

Division	Product Code	Product	Total Sold Quantity	Product Rank
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	A4218110208	AQ Digit	17275	3
PC	A4319110306	AQ Velocity	17280	2