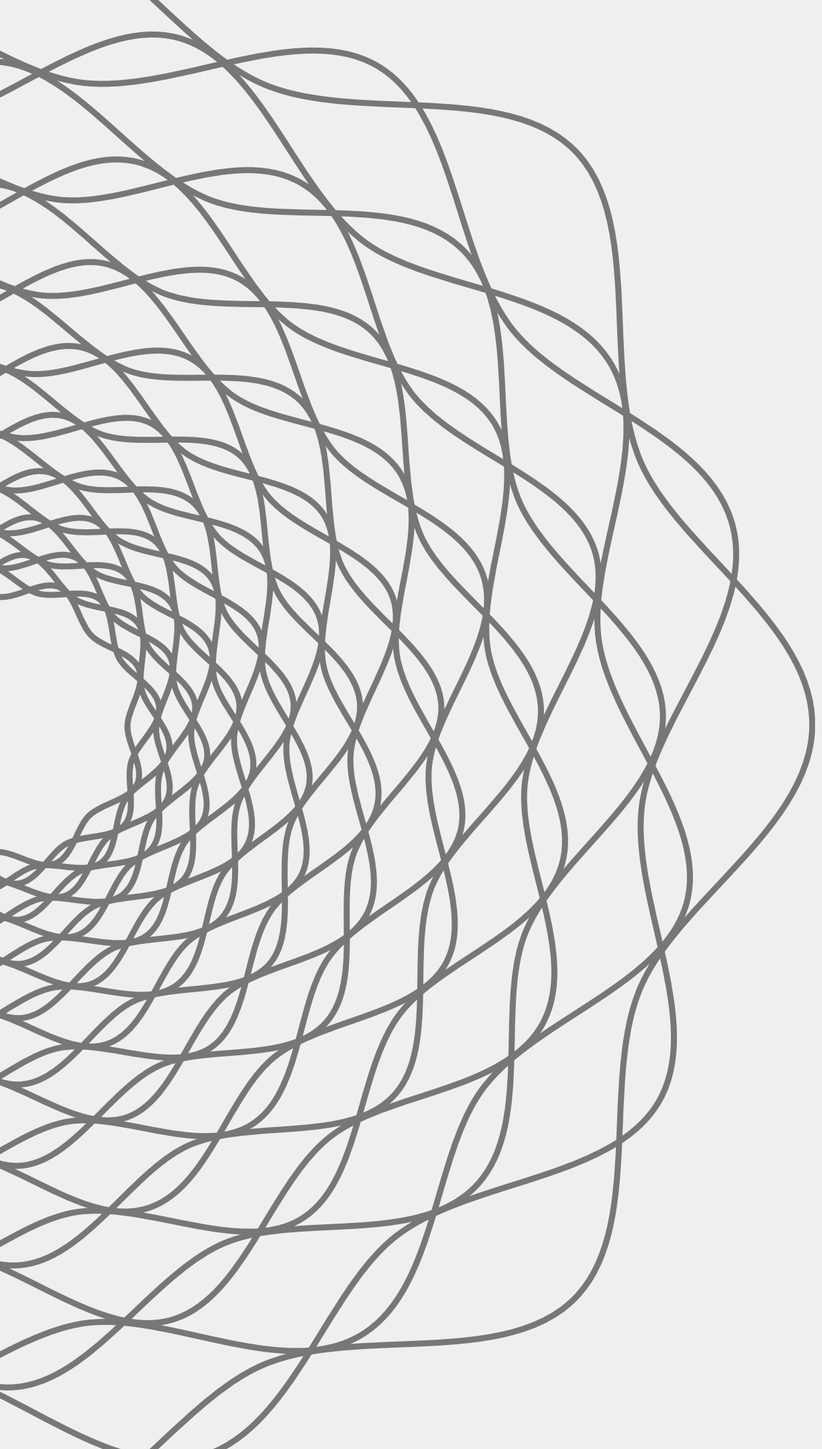

Digits N Dreams

Consumer Goods SQL Insights

Presented by: Limesh Mahial

CHALLENGES AND OBJECTIVES

CHALLENGES

The company is facing a lack of centralized data and a manual reporting process, hindering efficient data-driven decision-making.

OBJECTIVES

The goal of this project is to streamline data reporting and uncover strategic insights that can guide them towards growth and profitability.

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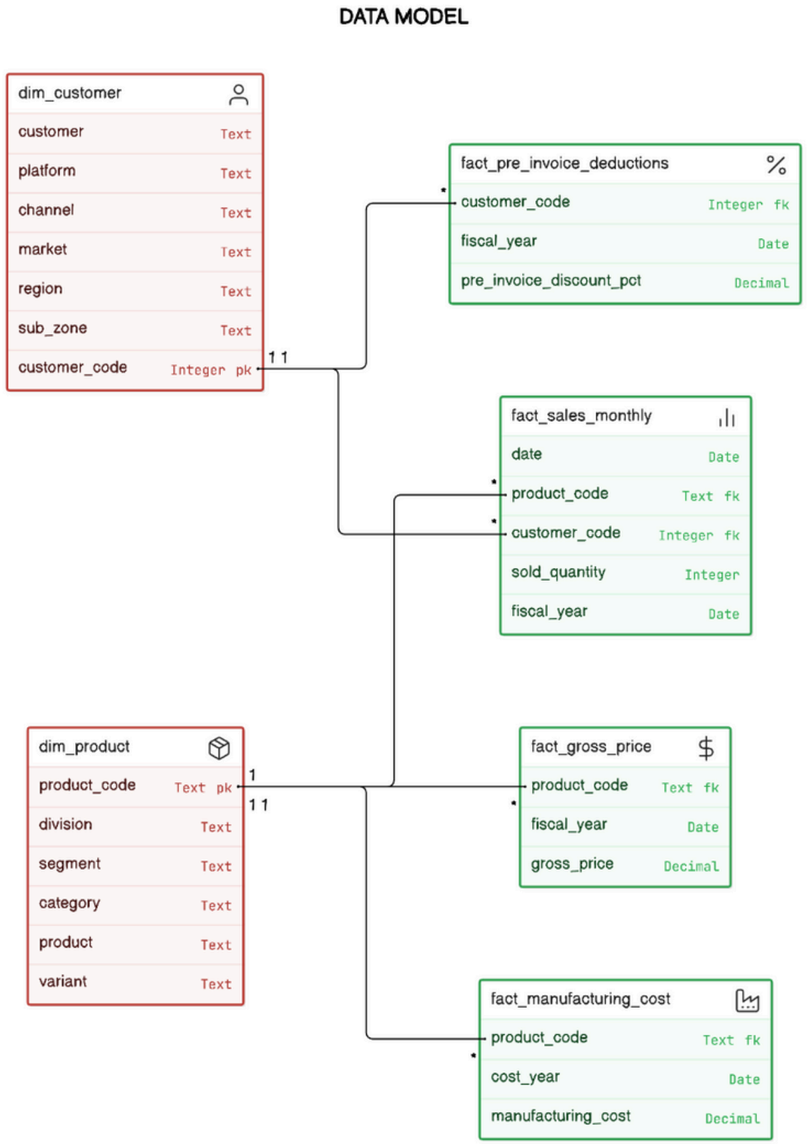

DATA SOURCES AND MODEL OVERVIEW

Key Tables

dim_customer: Customer details (demographics, sales channels)

dim_product: Product information (categories, segments, variants)

fact_sales_monthly: Monthly sales data for trend analysis

fact_gross_price and **fact_manufacturing_cost**: Financial tables to assess revenue and cost

fact_pre_invoice_deductions: Discount data for large-scale orders

Question:1

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

SQL

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

market	sales
India	1926614
South Korea	505800
Indonesia	448428
Australia	348462
Philiphines	277009
Bangladesh	150693
Newzealand	129261
Japan	63781

Question: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

```sql
WITH cte20 AS (
            SELECT
                COUNT(DISTINCT product_code) AS unique_products_2020
            FROM fact_gross_price
            WHERE fiscal_year = '2020'
            ),
cte21 AS(
        SELECT
            COUNT(DISTINCT product_code) AS unique_products_2021
        FROM fact_gross_price
        WHERE fiscal_year = '2021'
        )
SELECT
    *,
    ROUND((CAST((unique_products_2021 - unique_products_2020) AS FLOAT) /
unique_products_2020) * 100, 2) AS percentage_change
FROM cte20, cte21;
```

unique_products_2020	unique_products_2021	percentage_change
245	334	36.33

Question: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

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

SQL

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

Question: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
Peripherals	59	75	16
Notebook	92	108	16
Desktop	7	22	15
Storage	12	17	5
Networking	6	9	3

SQL

```sql
WITH cte1 AS (
    SELECT
        segment,
        COUNT(DISTINCT p.product_code) AS qty,
        fiscal_year
    FROM dim_product p
    JOIN fact_sales_monthly s
    ON p.product_code = s.product_code
    GROUP BY fiscal_year, segment
),
cte2 AS (
    SELECT
        segment,
        qnty AS product_count_2020
    FROM cte1 WHERE fiscal_year = 2020
),
cte3 AS (
    SELECT
        segment,
        qnty AS product_count_2021
    FROM cte1 WHERE fiscal_year = 2021
)
SELECT
    DISTINCT cte3.segment,
    product_count_2020,
    product_count_2021,
    (product_count_2021 - product_count_2020) AS difference
FROM cte2
JOIN cte3
ON cte2.segment = cte3.segment
ORDER BY difference DESC;
```

Question: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

```sql
WITH cte AS(
    SELECT p.product_code, p.product, m.manufacturing_cost,
           RANK() OVER(ORDER BY manufacturing_cost) AS lowest,
           RANK() OVER(ORDER BY manufacturing_cost DESC) AS highest
    FROM dim_product p
    JOIN fact_manufacturing_cost m
    ON p.product_code = m.product_code
    GROUP BY p.product, m.manufacturing_cost, p.product_code
)
SELECT
    product_code,
    product,
    manufacturing_cost
FROM cte
WHERE lowest = 1 OR highest = 1;
```

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

Question: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
    TOP 5
    c.customer_code,
    customer,
    ROUND(CAST(AVG(pre_invoice_discount_pct)*100 AS FLOAT),2) AS
avg_discount_pct
FROM dim_customer c
JOIN fact_pre_invoice_deductions pre
    ON c.customer_code = pre.customer_code
WHERE market = 'India'
    AND fiscal_year = '2021'
GROUP BY c.customer_code, customer
ORDER BY avg_discount_pct DESC;
```

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

Question: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

```sql
SELECT
    DATENAME(MONTH, s.date) AS Month,
    DATEPART(YEAR, s.date) AS Year,
    SUM(g.gross_price) 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 c.customer_code = s.customer_code
WHERE customer = 'AtliQ Exclusive'
GROUP BY DATENAME(MONTH, s.date), DATEPART(YEAR, s.date),
DATEPART(MONTH, s.date)
ORDER BY Year, DATEPART(MONTH, s.date);
```

Month	Year	Gross_Sales_Amount
September	2019	1066547.8523
October	2019	991044.9686
November	2019	1115465.2663
December	2019	670126.7780
January	2020	1092487.7819
February	2020	910017.4929
March	2020	243903.7724
April	2020	198249.3858
May	2020	468715.9720
June	2020	557983.5133
July	2020	973696.0065
August	2020	569510.0347
September	2020	1725995.9702
October	2020	1439452.3618
November	2020	1585372.5202
December	2020	923110.7819
January	2021	1731068.0948
February	2021	1402643.4837
March	2021	1518630.0374
April	2021	887564.4059
May	2021	1741384.9821
June	2021	1403534.8562
July	2021	1520631.3684
August	2021	891262.6863

Question:8

In which quarter of 2020, got the maximum total_sold_quantity? The final output contains below fields sorted by the total_sold_quantity. total_sold_quantity, Quarter, total_sold_quantity

fiscal_Quarter	total_sold_quantity
Q1	7005619
Q2	6649642
Q3	2075087
Q4	5042541

SQL

```sql
WITH cte1 AS (
    SELECT
        YEAR(s.date) AS _year,
        DATENAME(MONTH, s.date) AS _month,
        s.fiscal_year,
        SUM(s.sold_quantity) AS total_sold_quantity,
        CASE
            WHEN MONTH(s.date) BETWEEN 9 AND 11 THEN 'Q1'
            WHEN MONTH(s.date) IN (12, 1, 2) THEN 'Q2'
            WHEN MONTH(s.date) BETWEEN 3 AND 5 THEN 'Q3'
            ELSE 'Q4'
        END AS fiscal_Quarter
    FROM fact_sales_monthly s
    GROUP BY YEAR(s.date), DATENAME(MONTH, s.date), s.fiscal_year,
        CASE
            WHEN MONTH(s.date) BETWEEN 9 AND 11 THEN 'Q1'
            WHEN MONTH(s.date) IN (12, 1, 2) THEN 'Q2'
            WHEN MONTH(s.date) BETWEEN 3 AND 5 THEN 'Q3'
            ELSE 'Q4'
        END
)
SELECT
    fiscal_Quarter,
    SUM(total_sold_quantity) AS total_sold_quantity
FROM cte1
WHERE fiscal_year = '2020'
GROUP BY fiscal_Quarter
ORDER BY fiscal_Quarter;
```

Question: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

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

SQL

```sql
-- total sales for 21
WITH total_sales AS (
    SELECT
        SUM(g.gross_price * s.sold_quantity) AS total_amount_2021
    FROM fact_sales_monthly s
    JOIN fact_gross_price g
        ON g.product_code = s.product_code
    WHERE s.fiscal_year = '2021'
),
-- sales by channel for 21
channel_sales AS (
    SELECT c.channel,
        SUM(g.gross_price * s.sold_quantity) AS channel_amount
    FROM fact_sales_monthly s
    JOIN dim_customer c
        ON c.customer_code = s.customer_code
    JOIN fact_gross_price g
        ON g.product_code = s.product_code
    WHERE s.fiscal_year = '2021'
    GROUP BY c.channel
)
SELECT channel,
       ROUND(CAST(channel_amount / 1000000 AS FLOAT),2) AS
gross_sales_mln,
       ROUND(CAST((channel_amount / total_sales.total_amount_2021) *
100 AS FLOAT),2) AS percentage
FROM channel_sales, total_sales
ORDER BY percentage DESC;
```

Question:10

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 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

division	product	product_code	total_sold_quantity	rank_num
N & S	AQ Pen Drive 2 IN 1	A6720160103	701373	1
N & S	AQ Pen Drive DRC	A6818160202	688003	2
N & S	AQ Pen Drive DRC	A6819160203	676245	3
P & A	AQ Gamers Ms	A2319150302	428498	1
P & A	AQ Maxima Ms	A2520150501	419865	2
P & A	AQ Maxima Ms	A2520150504	419471	3
PC	AQ Digit	A4218110202	17434	1
PC	AQ Velocity	A4319110306	17280	2
PC	AQ Digit	A4218110208	17275	3

SQL

```sql
WITH ranked_sales AS (
    SELECT division,
           s.product_code,
           p.product,
           SUM(s.sold_quantity) AS total_sold_quantity,
           RANK() OVER(PARTITION BY division ORDER BY
SUM(s.sold_quantity) DESC) AS rank_num
    FROM fact_sales_monthly s
    JOIN dim_product p ON s.product_code = p.product_code
    WHERE s.fiscal_year = '2021'
    GROUP BY division, s.product_code, p.product
)
-- Select top 3 products per division
SELECT
    division,
    product,
    product_code,
    total_sold_quantity,
    rank_num
FROM ranked_sales
WHERE rank_num <= 3
ORDER BY division, rank_num;
```

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