

Consumer Goods Ad-hoc SQL Challenge - Project Summary

Project Description

This project analyzes transactional sales data from a consumer goods company to uncover revenue trends, top-performing products, profit patterns, regional performance, and channel effectiveness. Insights were generated using a series of structured SQL queries to support data-driven business decisions.

Dataset Overview

The dataset includes key fields such as order_number, order_date, product_name, revenue, cost, profit, sales channel, and regional information. The data spans multiple years and was cleaned to remove duplicates, correct inconsistencies, and standardize date formats.

SQL Queries, Output and Charts:

1. Total revenue, total cost, and profit

```
SELECT SUM(revenue) AS total_revenue,  
       SUM(total_cost) AS total_cost,  
       SUM(profit) AS total_profit  
FROM sales;
```

Output:

	total_revenue	total_cost	total_profit
▶	866524915.90	542571217.60	323953820.80

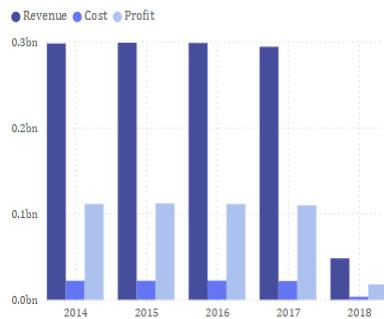
2. Revenue, cost, and profit by year

```
SELECT YEAR(order_date) AS year,  
       SUM(revenue) AS total_revenue,  
       SUM(total_cost) AS total_cost,  
       SUM(profit) AS total_profit  
FROM sales  
GROUP BY YEAR(order_date)
```

ORDER BY year;

Output:

	year	total_revenue	total_cost	total_profit
▶	2014	297520729.30	186282329.40	111238441.20
	2015	298410710.40	186506837.70	111903916.80
	2016	270593476.20	169782050.50	100811462.80



3. Revenue, cost, and profit by month

SELECT order_month_name AS month,

 SUM(revenue) AS total_revenue,

 SUM(total_cost) AS total_cost,

 SUM(profit) AS total_profit

FROM sales

GROUP BY order_month_name

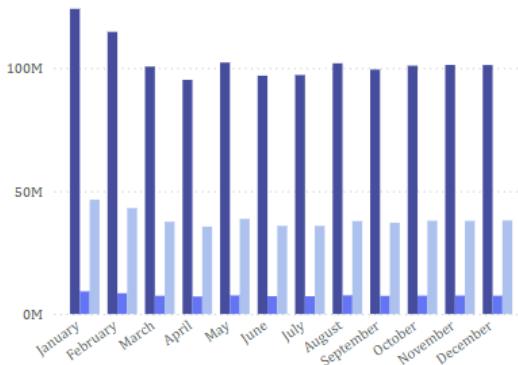
ORDER BY

FIELD(order_month_name,'January','February','March','April','May','June','July','August','September','October','November','December');

Output:

	month	total_revenue	total_cost	total_profit
▶	January	75409015.90	47120486.70	28288539.00
	February	70061397.50	43740919.10	26320489.80
	March	74490492.80	46774738.00	27715763.50
	April	71776765.00	44940067.40	26836707.70
	May	75923395.00	47004880.90	28918524.30
	June	73151357.10	46098393.40	27052974.10
	July	73115190.50	46062686.20	27052515.40
	August	76645963.20	48260198.50	28385777.10
	September	74673644.00	46811077.70	27862578.80
	October	75622163.00	47327594.10	28294579.50
	November	74406796.40	46602206.50	27804599.60
	December	51248735.50	31827969.10	19420772.00

● Revenue ● Cost ● Profit

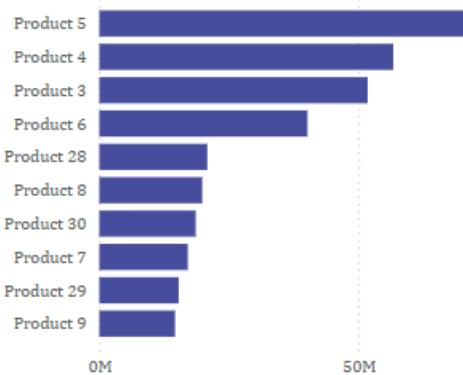


4. Top 10 products by revenue

```
SELECT product_name, SUM(revenue) AS total_revenue
FROM sales
GROUP BY product_name
ORDER BY total_revenue DESC
LIMIT 10;
```

Output:

	product_name	total_revenue
▶	Product 26	83462509.70
	Product 25	76295345.50
	Product 13	53519318.60
	Product 14	52094288.90
	Product 5	49510929.70
	Product 15	47683498.00
	Product 2	40025049.60
	Product 1	39946585.90
	Product 4	39752989.40
	Product 3	37082717.80



5. Top 10 products by profit

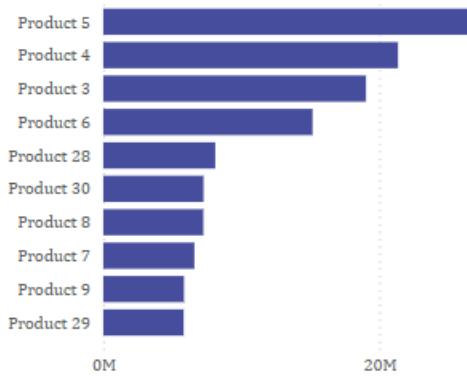
```

SELECT product_name, SUM(profit) AS total_profit
FROM sales
GROUP BY product_name
ORDER BY total_profit DESC
LIMIT 10;

```

Output:

	product_name	total_profit
▶	Product 26	31455877.90
	Product 25	28822066.10
	Product 13	19538248.20
	Product 14	18610839.30
	Product 5	18569260.30
	Product 15	17688447.60
	Product 1	15380293.60
	Product 4	14957684.70
	Product 2	14433675.80
	Product 3	13617919.50

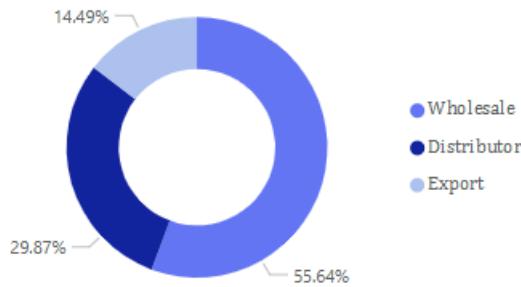


6. Revenue by sales channel

```
SELECT channel, SUM(revenue) AS total_revenue, SUM(profit) AS total_profit
FROM sales
GROUP BY channel;
```

Output:

	channel	total_revenue	total_profit
▶	Wholesale	470377640.60	174421168.00
	Distributor	270620108.70	101886778.10
	Export	125527166.60	47645874.70

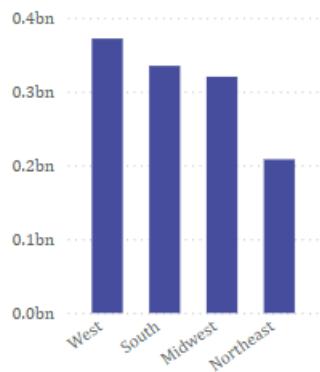


7. Revenue by US region

```
SELECT us_region, SUM(revenue) AS total_revenue, SUM(profit) AS total_profit
FROM sales
GROUP BY us_region;
```

Output:

	us_region	total_revenue	total_profit
▶	South	234172738.50	87317025.80
	Midwest	225088999.10	84556156.60
	West	261332501.70	98142279.70
	Northeast	145930676.60	53938358.70



8. Top 10 customers by revenue

```
SELECT customer_name, SUM(revenue) AS total_revenue
FROM sales
GROUP BY customer_name
```

```
ORDER BY total_revenue DESC
```

```
LIMIT 10;
```

Output:

	customer_name	total_revenue
▶	State Ltd	8587028.20
	Aibox Company	8528430.00
	Kare Corp	7845646.40
	Organon Corp	7786291.10
	Realbuzz Ltd	7597813.40
	WOCHARDT Group	7419372.30
	Pixoboo Corp	7378549.20
	Colgate-Pa Group	7216911.70
	Deseret Group	7178145.50
	Skyble Corp	7085075.80

9. Average profit margin per product

```
SELECT product_name, ROUND(SUM(profit)/SUM(revenue)*100,2) AS profit_margin_pct
```

```
FROM sales
```

```
GROUP BY product_name
```

```
ORDER BY profit_margin_pct DESC limit 10;
```

Output:

	product_name	profit_margin_pct
▶	Product 9	40.49
	Product 7	39.56
	Product 28	39.11
	Product 30	39.01
	Product 21	38.55
	Product 1	38.50
	Product 18	38.34
	Product 27	38.23
	Product 6	38.07
	Product 23	38.00

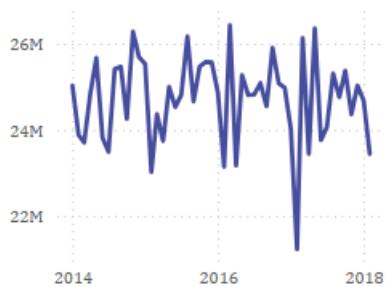
10. Revenue trend per month-year

```
SELECT order_month AS month_year, SUM(revenue) AS monthly_revenue
```

```
FROM sales  
GROUP BY order_month  
ORDER BY order_month limit 10;
```

Output:

	month_year	monthly_revenue
▶	2014-01	25020272.30
	2014-02	25020272.30
	2014-03	23709035.40
	2014-04	24853382.00
	2014-05	25662165.80
	2014-06	23818794.80
	2014-07	23491988.90
	2014-08	25408229.10
	2014-09	25459497.50
	2014-10	24259835.70



11. Cumulative revenue over time

```
SELECT order_month,  
       SUM(revenue) AS monthly_revenue,  
       SUM(SUM(revenue)) OVER (ORDER BY order_month) AS cumulative_revenue  
FROM sales  
GROUP BY order_month  
ORDER BY order_month limit 10;
```

Output:

	order_month	monthly_revenue	cumulative_revenue
▶	2014-01	25020272.30	25020272.30
	2014-02	23882719.50	48902991.80
	2014-03	23709035.40	72612027.20
	2014-04	24853382.00	97465409.20
	2014-05	25662165.80	123127575.00
	2014-06	23818794.80	146946369.80
	2014-07	23491988.90	170438358.70
	2014-08	25408229.10	195846587.80
	2014-09	25459497.50	221306085.30
	2014-10	24259835.70	245565921.00



12. Rank products by revenue each month

```

SELECT order_month, product_name, SUM(revenue) AS total_revenue,
       RANK() OVER(PARTITION BY order_month ORDER BY SUM(revenue) DESC) AS
revenue_rank
FROM sales
GROUP BY order_month, product_name
ORDER BY order_month, revenue_rank limit 10;

```

Output:

	order_month	product_name	total_revenue	revenue_rank
▶	2014-01	Product 25	2305878.70	1
	2014-01	Product 26	2015038.40	2
	2014-01	Product 13	1788022.30	3
	2014-01	Product 14	1467206.20	4
	2014-01	Product 15	1447561.80	5
	2014-01	Product 5	1302721.20	6
	2014-01	Product 4	1154383.20	7
	2014-01	Product 2	1096495.20	8
	2014-01	Product 16	982742.60	9
	2014-01	Product 1	965376.20	10

13. Profit margin categories

```

SELECT product_name,
CASE
    WHEN (profit/revenue)*100 >= 50 THEN 'High Margin'
    WHEN (profit/revenue)*100 >= 20 THEN 'Medium Margin'
    ELSE 'Low Margin'
END AS margin_category,
SUM(revenue) AS total_revenue,
SUM(profit) AS total_profit
FROM sales
GROUP BY product_name, margin_category
ORDER BY total_profit DESC limit 10;

```

Output:

	product_name	margin_category	total_revenue	total_profit
▶	Product 26	Medium Margin	55971666.00	19406047.20
	Product 25	Medium Margin	50905930.00	17919668.20
	Product 14	Medium Margin	36528279.40	12022742.10
	Product 13	Medium Margin	34070196.80	11857525.60
	Product 5	Medium Margin	33051991.10	11645891.90
	Product 26	High Margin	19499519.20	10673259.90
	Product 2	Medium Margin	29033746.50	10006872.60
	Product 15	Medium Margin	27644434.50	9717322.80
	Product 25	High Margin	17393662.30	9550371.30
	Product 3	Medium Margin	25586683.60	8855638.70

14. Top 5 states by revenue

```
SELECT state_name, SUM(revenue) AS total_revenue  
FROM sales  
GROUP BY state_name  
ORDER BY total_revenue DESC  
LIMIT 5;
```

Output:

	state_name	total_revenue
▶	California	160686294.30
	Illinois	78369826.30
	Florida	63426849.80
	Texas	59089383.70
	New York	39158397.90

15. Top products per channel

```
SELECT channel, product_name, SUM(revenue) AS total_revenue  
FROM sales  
GROUP BY channel, product_name  
ORDER BY channel, total_revenue DESC limit 10;
```

Output:

	channel	product_name	total_revenue
►	Distributor	Product 25	26953765.00
	Distributor	Product 26	21990237.50
	Distributor	Product 15	16956246.10
	Distributor	Product 14	16503681.20
	Distributor	Product 13	16236331.10
	Distributor	Product 5	15305245.50
	Distributor	Product 1	12473376.60
	Distributor	Product 3	12190777.30
	Distributor	Product 4	10983209.50

Key Insights

- Nearly 70% of total revenue comes from a concentrated group of top-performing products, highlighting strong demand and clear opportunities to reinforce these high-value items.
- Wholesale and Export channels contribute more than 60% of total sales, making them the primary revenue drivers and the most suitable segments for targeted expansion strategies.
- West and South regions account for over 55% of the company's total revenue, indicating strong geographic performance and high potential for further market penetration in these regions.