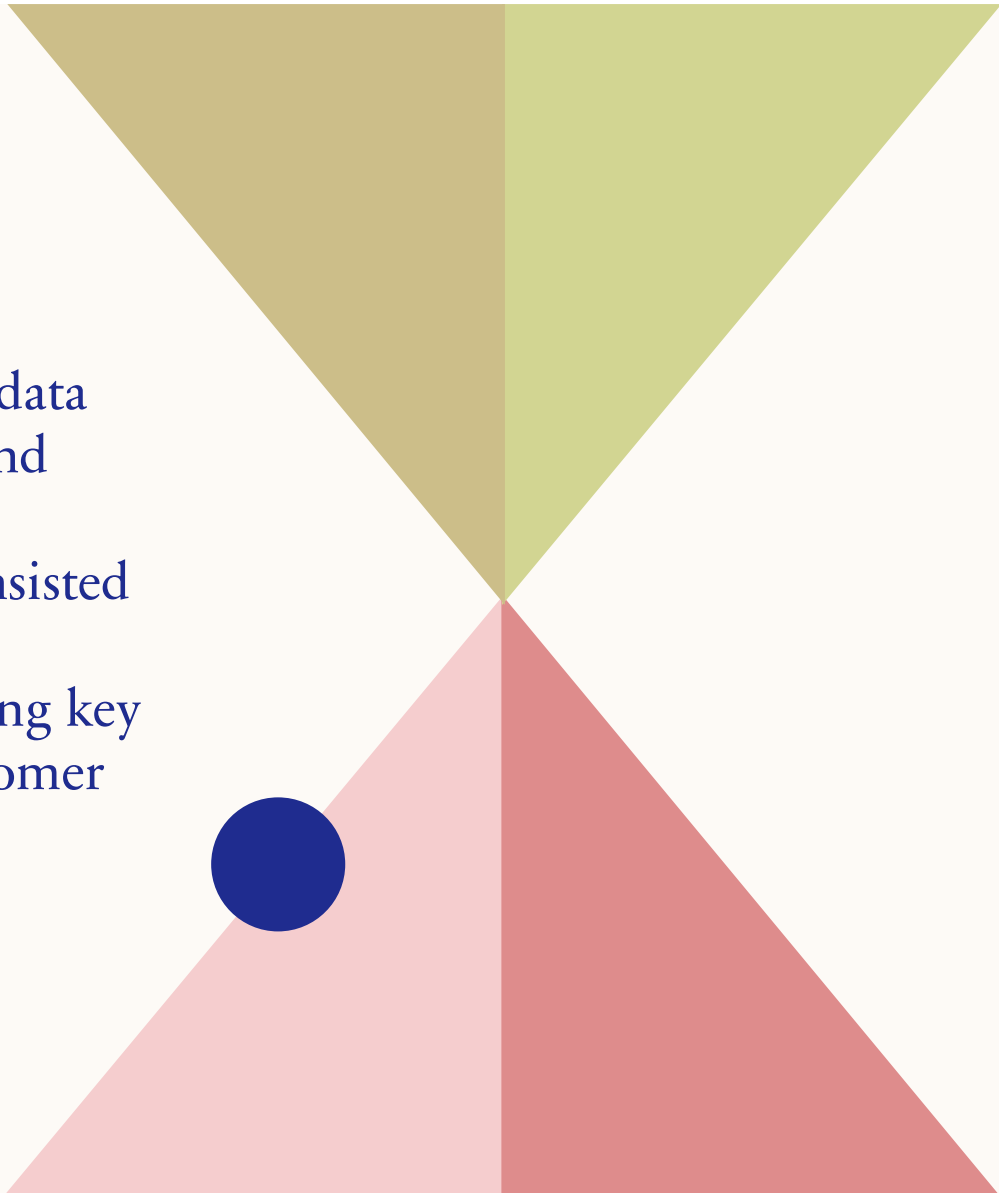
🚀 SUPERSTORE SALES ANALYSIS: SQL & POWER BI PROJECT

PROJECT OVERVIEW

In this project, I analyzed Superstore sales data using **SQL** for in-depth data exploration and insights, followed by **Power BI** to create a comprehensive dashboard. The dataset consisted of sales orders, returns, and customer information, which helped in understanding key metrics like sales performance, profit, customer value, and return rates.



1.What is the total sales and total profit for all orders?
2.How many unique orders have been placed?
3.What are the total sales for each region?
4.Which are the top 5 products based on total sales?
5.What is the average discount applied across all orders?
6.What are the total sales for each category and its sub-categories?
7.Who are the top 10 customers based on total sales?
8.What is the total profit generated by each ship mode?
9.What are the total sales for each month?
10.How many orders have been returned, and what is the return rate?
11.Calculate the total sales, total profit, and number of orders for each customer.
12.What is the profit margin for each product?
13.Analyze sales and returns by region.
14.What is the month-over-month sales growth?
15.Identify the top 3 products within each category based on sales.
16.What is the average shipping cost per order, and how does it vary by ship mode?
17.Do orders with high discounts (e.g., >20%) have a lower profit margin?
18.Analyze sales and profit by customer segments.
19.Analyze sales performance by the person responsible for each region.
20.What is the return rate for each product category?
21.What are the sales trends across different quarters of each year?
22.What is the average number of days taken to ship orders, and how does it vary by ship mode?

```sql
--1.What is the total sales and total profit for all orders?

SELECT
     ROUND(SUM(Sales),2) as Total_sales,
     ROUND(SUM(Profit),2) as Total_profit
FROM ['Order-Details$']
```

100 %

Results | Messages

	Total_sales	Total_profit
1	12642501.91	1467457.29

```sql
--2.How many unique orders have been placed?

SELECT
    COUNT(DISTINCT[Order ID]) AS Total_Orders
FROM ['Order-Details$']
```

100 %

Results | Messages

	Total_Orders
1	25728

```sql
--3.What is the total sales for each region?

SELECT
      [Region],
      SUM(Sales) AS Total_sales
FROM ['Order-Details$']
GROUP BY Region
```

100 %

Results | Messages

	Region	Total_sales
1	Central US	501239.8908
2	Southern Europe	608593.968
3	Eastern Africa	127856.019
4	Central Africa	143630.01
5	Western Europe	1731929.6685
6	Southeastern Asia	884423.169
7	Oceania	1100184.612
8	Central America	1223100.6288
9	Western Africa	173878.812
10	Southern Asia	866572.677
11	Southern US	391721.905
12	Caribbean	324280.8612
13	Eastern US	678781.24
14	South America	617223.678
15	Canada	66928.17
16	Eastern Europe	310033.44
17	Northern Europe	636779.157

```sql
--4.Which are the top 5 products based on total sales?

SELECT TOP 5
    [Product Name],
    SUM(Sales) AS Total_Sales
FROM
    ['Order-Details$']
GROUP BY
    [Product Name]
ORDER BY
    Total_Sales DESC
```

100 %

Results | Messages

	Product Name	Total_Sales
1	Apple Smart Phone, Full Size	86935.7786
2	Cisco Smart Phone, Full Size	76441.5306
3	Motorola Smart Phone, Full Size	73156.303
4	Nokia Smart Phone, Full Size	71904.5555
5	Canon imageCLASS 2200 Advanced Copier	61599.824

```sql
--5.What is the average discount applied across all orders?

SELECT
    ROUND(AVG(Discount),2) AS Total_Discount
FROM
    ['Order-Details$']
```

100 %

Results | Messages

	Total_Discount
1	0.14

```sql
--6.What are the total sales for each category and its sub-categories?
SELECT
    Category,
    [Sub-Category],
    ROUND(SUM(Sales),2) AS Total_Sales
FROM
    ['C
GROUP BY
    Category,[Sub-Category]
ORDER BY
    Category,Total_Sales DESC;
```

built-in function ROUND(expression, precision int, function int) RETURNS

100 %

Results | Messages

	Category	Sub-Category	Total_Sales
1	Furniture	Chairs	1501681.76
2	Furniture	Bookcases	1466572.24
3	Furniture	Tables	757041.92
4	Furniture	Furnishings	385155.97
5	Office Supplies	Storage	1126812.97
6	Office Supplies	Appliances	1010535.53
7	Office Supplies	Binders	461869.39
8	Office Supplies	Art	371613.15
9	Office Supplies	Supplies	242811.13
10	Office Supplies	Paper	241787.53
11	Office Supplies	Envelopes	169217.49
12	Office Supplies	Fasteners	89495.05
13	Office Supplies	Labels	73350.28
14	Technology	Phones	1706824.14

```sql
--7.Who are the top 10 customers based on total sales?
SELECT TOP 10
    [Customer Name],
    ROUND(SUM(Sales),1) AS Total_sales
FROM
    ['Order-Details$']
GROUP BY
    [Customer Name]
ORDER BY
        Total_sales DESC
```

100 %

Results | Messages

	Customer Name	Total_sales
1	Tom Ashbrook	40488.10
2	Tamara Chand	37457.30
3	Greg Tran	35551.00
4	Christopher Conant	35187.10
5	Sean Miller	35170.90
6	Bart Watters	32310.40
7	Natalie Fritzler	31781.30
8	Fred Hopkins	30400.70
9	Jane Waco	30288.50
10	Hunter Lopez	30243.60

```sql
--8.What is the total profit generated by each ship mode?
SELECT
    [Ship Mode],
    ROUND(SUM(Profit),2) AS Total_Profit
FROM
    ['Order-Details$']
GROUP BY
        [Ship Mode]
ORDER BY
    Total_Profit
```

100 %

Results | Messages

	Ship Mode	Total_Profit
1	Same Day	76173.07
2	First Class	208104.68
3	Second Class	292583.53
4	Standard Class	890596.02

```sql
--9. What are the total sales for each month?
SELECT
    YEAR([Order Date]) AS [Year],
    MONTH([Order Date]) AS [Month],
    ROUND(SUM(Sales),2) AS [Total_Sales]
FROM
    ['Order-Details$']
GROUP BY
    YEAR([Order Date]),
    MONTH([Order Date])
ORDER BY
    YEAR([Order Date]),
    MONTH([Order Date]);
```

100 %

Results | Messages

	Year	Month	Total_Sales
1	2012	1	98898.49
2	2012	2	103717.92
3	2012	3	135746.40
4	2012	4	114332.96
5	2012	5	158228.33
6	2012	6	207571.54
7	2012	7	118434.88
8	2012	8	208063.28
9	2012	9	284587.75
10	2012	10	216114.57
11	2012	11	293947.35

```sql
--10.How many orders have been returned, and what is the return rate?

SELECT
    COUNT(DISTINCT r.[Order ID]) AS Returned_Orders,
    COUNT(DISTINCT O.[Order ID]) AS Total_Orders,
    ROUND((COUNT(DISTINCT r.[Order ID]) * 100.0 / COUNT(DISTINCT O.[Order ID])), 2) AS Returned_Rate_Percentage
FROM
    ['Order-Details$'] O
LEFT JOIN
    [Return$] r ON O.[Order ID] = r.[Order ID];
```

100 %

Results | Messages

	Returned_Orders	Total_Orders	Returned_Rate_Percentage
1	1079	25728	4.190000000000

```sql
--11.Calculate the total sales, total profit, and number of orders for each customer to determine their lifetime value.

SELECT
    [Customer ID],
    [Customer Name],
    SUM(Sales) AS Total_sales,
    SUM(Profit) AS Total_Profit,
    COUNT(DISTINCT [Order ID]) AS Number_of_orders
FROM
    ['Order-Details$']
GROUP BY
    [Customer ID],[Customer Name]
ORDER BY
    Total_sales DESC
```

100 %

Results | Messages

	Customer ID	Customer Name	Total_sales	Total_Profit	Number_of_orders
1	SM-203201408	Sean Miller	23669.196	-1787.0435	2
2	TC-209801402	Tamara Chand	18437.138	8745.0635	2
3	RB-193601404	Raymond Buch	14345.276	6807.0879	2
4	TA-213851406	Tom Ashbrook	13723.498	4599.2073	2
5	AB-101051402	Adrian Barton	12181.594	5362.6135	5
6	DP-131057	Dave Poirier	11864.139	2220.369	5
7	FH-1436582	Fred Hopkins	10880.18	945.60	4
8	BM-111401402	Becky Martin	10539.896	-1878.7892	1
9	HL-150401406	Hunter Lopez	10522.55	5045.8564	2
10	CA-1277558	Cynthia Arntzen	10463.01	3981.72	3

```sql
--12.What is the profit margin for each product?

SELECT
    [Product Name],
    SUM(Profit)/SUM(Sales) AS Profit_Margin
FROM
    ['Order-Details$']
GROUP BY
    [Product Name]
ORDER BY
    Profit_Margin DESC
```

100 %

Results | Messages

	Product Name	Profit_Margin
1	Adams Telephone Message Book w/Frequently-Called Nu...	0.50
2	Tops Green Bar Computer Printout Paper	0.50
3	Avery 475	0.50
4	Canon imageCLASS MF7460 Monochrome Digital Laser ...	0.50
5	Southworth Structures Collection	0.50
6	Xerox 1890	0.50
7	Avery 478	0.49
8	Xerox 193	0.49
9	Avery 5	0.49
10	Xerox 1984	0.49
11	Color-Coded Legal Exhibit Labels	0.49
12	Xerox 1983	0.49
13	Xerox 1918	0.49

```sql
--13.Analyze sales and returns by region.
WITH Returns_Per_Region AS (
    SELECT
        r.Region,
        ROUND(COUNT(DISTINCT r.[Order ID]),1) AS Returned_Orders
    FROM
        Return$ r
    GROUP BY
      r.Region
)
SELECT
   o.Region,
   SUM(o.Sales) AS Total_Sales
```

110 %

Results | Messages

	Region	Total_Sales	Total_Orders	Returned_Orders	Return_Rate_Percentage
1	Canada	66928.17	205	0	0.000000000000
2	Central Asia	19311.459	112	4	3.570000000000
3	Central Africa	143630.01	333	10	3.000000000000
4	Eastern Africa	127856.019	377	11	2.920000000000
5	Southern Africa	105191.76	241	11	4.560000000000
6	Eastern Europe	310033.44	785	24	3.060000000000
7	North Africa	233216.61	626	26	4.150000000000
8	Western Africa	173878.812	711	29	4.080000000000
9	Caribbean	324280.8612	856	31	3.620000000000
10	Central US	501239.8908	1175	42	3.570000000000
11	Northern Europe	636779.157	1137	43	3.780000000000

```sql
--14.Calculate the month-over-month sales growth.
WITH Monthly_Sales AS (
    SELECT
        CONVERT(DATE, DATEADD(month, DATEDIFF(month, 0, [Order Date]), 0)) AS [Month],
        SUM(Sales) AS Total_Sales
    FROM
        [dbo].['Order-Details$']
    GROUP BY
        DATEADD(month, DATEDIFF(month, 0, [Order Date]), 0)
)
SELECT
    C.[Month],
    C.Total_Sales,
```

110 %

Results | Messages

	Month	Total_Sales	Growth_Percentage
1	2012-01-01	98898.4888	NULL
2	2012-02-01	103717.9233	4.87
3	2012-03-01	135746.402	30.88
4	2012-04-01	114332.9632	-15.77
5	2012-05-01	158228.3288	38.39
6	2012-06-01	207571.5434	31.18
7	2012-07-01	118434.8847	-42.94
8	2012-08-01	208063.2837	75.67
9	2012-09-01	284587.7485	36.77
10	2012-10-01	216114.5676	-24.06
11	2012-11-01	293947.3521	36.01

```sql
--15. Identify the top 3 products within each category based on sales.
SELECT
    [Category],
    [Sub-Category],
    [Product Name],
    Total_sales
FROM (
    SELECT
        [Category],
        [Sub-Category],
        [Product Name],
        ROUND(SUM(Sales),2) AS Total_sales,
        ROW_NUMBER() OVER(PARTITION BY Category ORDER BY SUM(Sales) DESC) AS n_no
```

110 %

Results | Messages

	Category	Sub-Category	Product Name	Total_sales
1	Furniture	Chairs	Hon Executive Leather Armchair, Adjustable	58193.48
2	Furniture	Chairs	Office Star Executive Leather Armchair, Adjustable	50661.68
3	Furniture	Chairs	Harbour Creations Executive Leather Armchair, Ad...	50121.52
4	Office Supplies	Storage	Eldon File Cart, Single Width	34387.73
5	Office Supplies	Appliances	Hoover Stove, White	32842.60
6	Office Supplies	Appliances	Hoover Stove, Red	31663.78
7	Technology	Phones	Apple Smart Phone, Full Size	86935.78
8	Technology	Phones	Cisco Smart Phone, Full Size	76441.53
9	Technology	Phones	Motorola Smart Phone, Full Size	73156.30

```sql
--16.What is the average shipping cost per order, and how does it vary by ship mode?

SELECT
    [Ship Mode],
    ROUND(AVG([Shipping Cost]),2) AS avg_Shipping_cost
FROM
    ['Order-Details$']
GROUP BY
    [Ship Mode]
ORDER BY
    avg_Shipping_cost DESC
```

110 %

Results | Messages

	Ship Mode	avg_Shipping_cost
1	Same Day	43
2	First Class	41.12
3	Second Class	30.56
4	Standard Class	20.09

```sql
--17.Do orders with high discounts (e.g., >20%) have a lower profit margin?
SELECT
    Discount_category,
    AVG([PROFIT] / [Sales]) AS Avg_Profit_Margin
FROM
    (SELECT
        CASE
            WHEN Discount > 0.2 THEN 'HIGH DISCOUNT'
            ELSE 'LOW/NO DISCOUNT'
        END AS Discount_category,
        [PROFIT],
        [Sales]
    FROM
        ['Order-Details$']) AS Subquery
GROUP BY
    Discount_category;
```

110 %

Results | Messages

	Discount_category	Avg_Profit_Margin
1	HIGH DISCOUNT	-0.6104
2	LOW/NO DISCOUNT	0.2338

```sql
--18.Analyze sales and profit by customer segments.
SELECT
    Segment,
    SUM(Sales) AS Total_sales,
    SUM(Profit) AS Total_profit,
    AVG ([Profit]/[Sales]) AS avg_profit_margin
FROM
    ['Order-Details$']
GROUP BY
    Segment
ORDER BY
    Total_sales DESC
```

110 %

Results | Messages

	Segment	Total_sales	Total_profit	avg_profit_margin
1	Consumer	6507949.4182	749239.7824	0.0464
2	Corporate	3824697.522	441208.3292	0.0458
3	Home Office	2309854.9706	277009.1806	0.0528

```sql
--19.Combine the people sheet to analyze sales performance by person responsible for each region.
SELECT
    p.Person,
    o.Region,
    SUM(o.[Sales]) AS Total_sales,
    SUM(o.[Profit]) AS Total_profit,
    COUNT(DISTINCT o.[Order ID]) AS Total_orders
FROM
    ['Order-Details$'] o
JOIN
    [dbo].[People$] p ON o.[Region] = p.[Region]
GROUP BY
    p.[Person], o.[Region]
ORDER BY
```

110 %

Results | Messages

	Person	Region	Total_sales	Total_profit	Total_orders
1	Andile Ihejirika	Central Africa	143630.01	35383.71	333
2	Cansu Peynirci	Central Asia	19311.459	-7282.011	112
3	Chandrakant Chaudhri	Southern Asia	866572.677	159336.427	1346
4	Derrick Snyders	Western US	725457.8245	108418.4489	1611
5	Dolores Davis	Eastern US	678781.24	91522.78	1401
6	Flannery Newton	Southern US	391721.905	46749.4303	822
7	Gavino Bove	Southern Europe	608593.968	70109.418	1098
8	Gilbert Wolff	Western Europe	1731929.6685	218433.5085	2993
9	Hadia Bousaid	Eastern Asia	855059.391	167101.851	1162
10	Kaoru Xun	Western Asia	317106.96	-53921.67	1200

```sql
--20.What is the return rate for each product category?
SELECT
    od.Category,
    COUNT(r.[Order ID]) AS Returned_Orders,
    COUNT(od.[Order ID]) AS Total_Orders,
    CAST(ROUND((COUNT(r.[Order ID]) * 100.0) / COUNT(od.[Order ID]), 2) AS DECIMAL(5, 2)) AS Return_Rate_Percentage
FROM
    ['Order-Details$'] od
LEFT JOIN
    Return$ r ON od.[Order ID] = r.[Order ID]
GROUP BY
    od.Category
ORDER BY
    Return_Rate_Percentage DESC;
```

110 %

Results | Messages

	Category	Returned_Orders	Total_Orders	Return_Rate_Percentage
1	Technology	445	10141	4.39
2	Furniture	427	9860	4.33
3	Office Supplies	1348	31289	4.31

```sql
--21.What are the sales trends across different quarters of each year?
SELECT
    YEAR([Order Date]) AS year,
    DATEPART(QUARTER, [Order Date]) AS Quarter,
    ROUND(SUM(Sales),2) AS Total_sales,
    ROUND(SUM(Profit),2) AS Total_profit
FROM
    ['Order-Details$']
GROUP BY
    YEAR([Order Date]), DATEPART(QUARTER, [Order Date])
ORDER BY
    YEAR([Order Date]), DATEPART(QUARTER, [Order Date])
```

110 %

Results | Messages

	year	Quarter	Total_sales	Total_profit
1	2012	1	338362.81	35734.49
2	2012	2	480132.84	48795.79
3	2012	3	611085.92	65538.13
4	2012	4	829869.33	98872.40
5	2013	1	399367.71	43394.65
6	2013	2	625592.86	81650.82
7	2013	3	737768.89	86935.45
8	2013	4	914709.23	95434.36
9	2014	1	565019.59	74006.83
10	2014	2	834839.49	93436.15

```sql
--22.What is the average number of days taken to ship orders, and how does it vary by ship mode?

SELECT
    [Ship Mode],
    AVG(DATEDIFF(day, [Order Date], [Ship Date])) AS Avg_Days_To_Ship
FROM
    ['Order-Details$']
GROUP BY
    [Ship Mode];
```

110 %

Results | Messages

	Ship Mode	Avg_Days_To_Ship
1	First Class	2
2	Same Day	0
3	Standard Class	4
4	Second Class	3