

## Excited to Share My Latest Data Analysis Project! 📊

I'm thrilled to present my recent project where I analyzed **Sales Data** to uncover actionable insights and drive business growth. Using SQL and data visualization tools, I transformed raw data into a comprehensive dashboard that highlights key performance metrics and trends.

### Key Insights:

- Identified top-performing regions and sales representatives.
- Analyzed product category profitability and customer behavior.
- Discovered seasonal trends and optimized discount strategies.

### Business problem

- **Underperforming Regions:** Identify regions with low sales and investigate potential causes (e.g., lack of marketing, poor sales rep performance).
- **Low-Profit Products:** Identify products with low profit margins and consider discontinuing them or increasing prices.
- **Inefficient Sales Reps:** Identify sales representatives with low sales per day and provide additional training or support.
- **Seasonal Trends:** Analyze monthly sales trends to identify seasonal patterns and plan inventory and marketing accordingly.
- **Customer Retention:** Identify customer types with low repeat purchases and implement loyalty programs to improve retention.
- **Discount Strategy:** Analyze the impact of discounts on sales volume and profitability. Adjust discount strategies to maximize revenue.
- **Payment Method Optimization:** Identify the most popular payment methods and consider promoting less popular methods if they offer lower transaction fees.
- **Sales Channel Effectiveness:** Determine which sales channels are most effective and allocate resources accordingly.
- **Product Category Performance:** Identify underperforming product categories and investigate potential causes (e.g., lack of demand, poor quality).
- **Regional Product Performance:** Identify products that perform well in specific regions and adjust inventory and marketing strategies accordingly.
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-- 1. Total Sales Amount by Region

```
select region,round(sum(sales_amount),0) as region_wise_sales
from sales_data group by region;
```

| region | region_wise_sales |
|--------|-------------------|
| North  | 1369613           |
| West   | 1235609           |
| South  | 1154251           |
| East   | 1259793           |

-- 2. Total Quantity Sold by Product Category

```
select product_category,sum(quantity_sold) as total_quantity_sold from sales_data
group by product_category;
```

| product_category | total_quantity_sold |
|------------------|---------------------|
| Furniture        | 6729                |
| Food             | 5608                |
| Clothing         | 6922                |
| Electronics      | 6096                |

-- 3. Average Discount by Customer Type

```
select customer_type,avg(discount)*100 as avg_discount from sales_data
group by customer_type ;
```

|   | customer_type | avg_discount       |
|---|---------------|--------------------|
| ▶ | Returning     | 15.306451612903238 |
|   | New           | 15.17261904761905  |



-- 4. Sales Performance by Sales Representative

```
select sales_rep,round(sum(sales_amount),0) as total_sales,round(avg(sales_amount),0) avg_sales
from sales_data group by sales_rep;
```

|   | sales_rep | total_sales | avg_sales |
|---|-----------|-------------|-----------|
| ▶ | Bob       | 1080991     | 5197      |
|   | David     | 1141737     | 5143      |
|   | Charlie   | 860811      | 5094      |
|   | Eve       | 970184      | 4642      |
|   | Alice     | 965542      | 5029      |



-- 5. Sales Amount by Payment Method

```
select payment_method,round(sum(sales_amount),0) as total_sales from sales_data
group by payment_method ;
```

| Result Grid     Filter Rows: <input type="text"/> |                |             |
|---|----------------|-------------|
|   | payment_method | total_sales |
| ▶   | Cash           | 1544339     |
|   | Bank Transfer  | 1717363     |
|   | Credit Card    | 1757564     |

-- 6. Sales Channel Performance

```
select sales_channel,round(sum(sales_amount),0) as total_sales from sales_data
group by sales_channel ;
```

| Result Grid     Filter Rows: <input type="text"/> |               |             |
|---|---------------|-------------|
|   | sales_channel | total_sales |
| ▶   | Online        | 2458834     |
|   | Retail        | 2560431     |

-- 7. Profit Analysis by Product

```
select product_id,sum((unit_price-unit_cost)*quantity_sold) as total_profit
from sales_data group by product_id order by product_id desc;
```

| Result Grid |            | Filter Rows:        | Export: |
|-------------|------------|---------------------|---------|
|             | product_id | total_profit        |         |
| ▶           | 1100       | 55493.54            |         |
|             | 1099       | 121558.990000000002 |         |
|             | 1098       | 19146.720000000005  |         |
|             | 1097       | 58347.870000000004  |         |
|             | 1096       | 83989.309999999997  |         |
|             | 1095       | 58589.620000000002  |         |
|             | 1094       | 45053.89            |         |
|             | 1093       | 64170.750000000015  |         |
|             | 1092       | 158857.48           |         |
|             | 1091       | 52926.389999999999  |         |
|             | 1090       | 173842.039999999992 |         |
|             | 1089       | 108306.429999999993 |         |
|             | 1088       | 37543.1             |         |
|             | 1087       | 45934.77            |         |
|             | 1086       | 109343.199999999995 |         |
|             | 1085       | 81723.06            |         |

-- 8. Monthly Sales Trend

```

SELECT DATE_FORMAT(Sale_Date, '%Y-%m') AS Month,
       round(SUM(Sales_Amount),0) AS Total_Sales
FROM sales_data
GROUP BY Month
ORDER BY Month;

```

| Result Grid |         |             | Filter Rows: |
|-------------|---------|-------------|--------------|
|             | Month   | Total_Sales |              |
| ▶           | 2023-01 | 476092      |              |
|             | 2023-02 | 368919      |              |
|             | 2023-03 | 402639      |              |
|             | 2023-04 | 438993      |              |
|             | 2023-05 | 389079      |              |
|             | 2023-06 | 418458      |              |
|             | 2023-07 | 374243      |              |
|             | 2023-08 | 443171      |              |
|             | 2023-09 | 367838      |              |
|             | 2023-10 | 460379      |              |
|             | 2023-11 | 467483      |              |
|             | 2023-12 | 392644      |              |
|             | 2024-01 | 19328       |              |

-- 9. Customer Type Analysis

```
SELECT Customer_Type,
       SUM(Sales_Amount) AS Total_Sales,
       COUNT(*) AS Number_of_Transactions
FROM sales_data
GROUP BY Customer_Type
ORDER BY Total_Sales DESC;
```

| Customer_Type | Total_Sales        | Number_of_Transactions |
|---------------|--------------------|------------------------|
| ▶ Returning   | 2513006.9300000002 | 496                    |
| New           | 2506258.2999999998 | 504                    |

-- 10. Region and Sales Rep Performance

```
select region,sales_rep,sum(sales_amount) as total_sales
from sales_data group by region,sales_rep
```

order by region,total\_sales desc;




| Result Grid |        |           |                    | Filter Rows: | Export: |
|-------------|--------|-----------|--------------------|--------------|---------|
|             | region | sales_rep | total_sales        |              |         |
| ▶           | East   | Bob       | 309876.11          |              |         |
|             | East   | David     | 284613.51          |              |         |
|             | East   | Alice     | 260789.46999999994 |              |         |
|             | East   | Eve       | 239340.90000000002 |              |         |
|             | East   | Charlie   | 165172.94          |              |         |
|             | North  | Eve       | 304172.2           |              |         |
|             | North  | Charlie   | 299789.01          |              |         |
|             | North  | David     | 282539.27          |              |         |
|             | North  | Alice     | 249647.22000000003 |              |         |
|             | North  | Bob       | 233464.80999999994 |              |         |
|             | South  | David     | 311416.99000000005 |              |         |
|             | South  | Bob       | 251200.43000000008 |              |         |
|             | South  | Alice     | 239414.53999999998 |              |         |
|             | South  | Eve       | 196078.22000000006 |              |         |
|             | South  | Charlie   | 156140.67999999996 |              |         |

-- 11. Discount Impact on Sales

select discount\* 100 as discount\_per,avg(sales\_amount)

as total\_sales ,sum(quantity\_sold) as

total\_quantity\_sold from sales\_data group by discount order by discount;



| Result Grid     Filter Rows: <input type="text"/>   Export:  Wrap Cell Cor |                     |                    |                     |
|---|---------------------|--------------------|---------------------|
|   | discount_per        | total_sales        | total_quantity_sold |
| ▶   | 0                   | 4511.495           | 365                 |
|   | 1                   | 5103.344324324324  | 1010                |
|   | 2                   | 4435.1658333333335 | 577                 |
|   | 3                   | 5604.861282051283  | 993                 |
|   | 4                   | 5234.55105263158   | 990                 |
|   | 5                   | 5741.821923076922  | 658                 |
|   | 6                   | 4432.347419354839  | 906                 |
|   | 7.0000000000000001  | 4599.938484848486  | 862                 |
|   | 8                   | 4967.657741935484  | 886                 |
|   | 9                   | 4794.341315789473  | 846                 |
|   | 10                  | 4660.425405405406  | 1032                |
|   | 11                  | 4501.74090909091   | 526                 |
|   | 12                  | 4818.418461538463  | 869                 |
|   | 13                  | 5466.3599999999999 | 739                 |
|   | 14.0000000000000002 | 5205.207741935483  | 779                 |

-- 12. Product Category Profitability

```
select product_category,round(sum((unit_price-unit_cost)* quantity_sold),0)
```

```
as total_profit from sales_data group by
```

```
product_category order by total_profit;
```

| Result Grid     Filter Rows: <input type="text"/> |                  |              |
|---|------------------|--------------|
|   | product_category | total_profit |
| ▶   | Food             | 1421108      |
|   | Electronics      | 1574320      |
|   | Clothing         | 1712958      |
|   | Furniture        | 1779461      |

-- 13. Customer Retention Analysis

```
SELECT Customer_Type,
```

```
    COUNT(DISTINCT Sale_Date) AS Number_of_Visits,
```

```
    round(SUM(Sales_Amount),0) AS Total_Sales
```

```
FROM sales_data
```

```
GROUP BY Customer_Type
```

| Result Grid |           |               | Filter Row |
|-------------|-----------|---------------|------------|
|             | Sales_Rep | Sales_Per_Day |            |
| ▶           | David     | 7226          |            |
|             | Bob       | 6756          |            |
|             | Charlie   | 6376          |            |
|             | Alice     | 6229          |            |
|             | Eve       | 6064          |            |

-- 14. Sales Rep Efficiency

```
SELECT Sales_Rep,
       round(SUM(Sales_Amount) / COUNT(DISTINCT Sale_Date),0) AS Sales_Per_Day
FROM sales_data
GROUP BY Sales_Rep
ORDER BY Sales_Per_Day DESC;
```




| Result Grid |               |                  |             | Filter Rows: | Export |
|-------------|---------------|------------------|-------------|--------------|--------|
|             | Customer_Type | Number_of_Visits | Total_Sales |              |        |
| ▶           | Returning     | 271              | 2513007     |              |        |
|             | New           | 278              | 2506258     |              |        |

-- 15. Region-wise Customer Type Analysis

```
select region,customer_type,round(sum(sales_amount),0) as total_sales,count(*) as
total_number_of_transection
from sales_data
group by region,customer_type
```



order by region,total\_sales desc;

| Result Grid     Filter Rows: <input type="text"/>   Export:    Wrap Cell |        |               |             |                             |
|---|--------|---------------|-------------|-----------------------------|
|   | region | customer_type | total_sales | total_number_of_transection |
| ▶   | East   | New           | 678988      | 138                         |
|   | East   | Returning     | 580805      | 125                         |
|   | North  | New           | 762511      | 145                         |
|   | North  | Returning     | 607101      | 122                         |
|   | South  | Returning     | 635777      | 122                         |
|   | South  | New           | 518474      | 104                         |
|   | West   | Returning     | 689324      | 127                         |
|   | West   | New           | 546285      | 117                         |

-- 16. Product Performance by Region

select region,product\_id,round(sum(sales\_amount),0) as total\_sales

,sum(quantity\_sold) as total\_quantity\_sold

from sales\_data

group by region,product\_id;

| Result Grid     Filter Rows: <input type="text"/>   Export:    Wrap Cell |        |            |             |                     |
|---|--------|------------|-------------|---------------------|
|   | region | product_id | total_sales | total_quantity_sold |
| ▶   | North  | 1052       | 23171       | 80                  |
|   | West   | 1093       | 19058       | 85                  |
|   | South  | 1015       | 21245       | 82                  |
|   | South  | 1072       | 4659        | 51                  |
|   | East   | 1061       | 21256       | 151                 |
|   | West   | 1021       | 22823       | 99                  |
|   | West   | 1083       | 7301        | 91                  |
|   | South  | 1087       | 7699        | 46                  |
|   | South  | 1075       | 5681        | 67                  |
|   | West   | 1075       | 15499       | 130                 |
|   | North  | 1088       | 15625       | 25                  |
|   | West   | 1100       | 11496       | 111                 |
|   | West   | 1024       | 16142       | 65                  |
|   | South  | 1003       | 10767       | 57                  |

-- 17. Sales Rep and Product Category Performance

```
select sales_rep,product_category,round(sum(sales_amount),0)
```

```
as total_sales,sum(quantity_sold) as total_quantity_sold
```

```
from sales_data
```

```
group by sales_rep,product_category
```

```
order by sales_rep,total_sales;
```

|   | sales_rep | product_category | total_sales | total_quantity_sold |
|---|-----------|------------------|-------------|---------------------|
| ▶ | Alice     | Food             | 226832      | 1165                |
|   | Alice     | Clothing         | 235270      | 1290                |
|   | Alice     | Furniture        | 241123      | 1122                |
|   | Alice     | Electronics      | 262316      | 1255                |
|   | Bob       | Electronics      | 248596      | 948                 |
|   | Bob       | Clothing         | 254985      | 1187                |
|   | Bob       | Furniture        | 264421      | 1567                |
|   | Bob       | Food             | 312989      | 1275                |
|   | Charlie   | Food             | 182442      | 922                 |
|   | Charlie   | Electronics      | 214363      | 1034                |
|   | Charlie   | Furniture        | 220677      | 983                 |
|   | Charlie   | Clothing         | 243330      | 1278                |
|   | David     | Electronics      | 240443      | 1511                |
|   | David     | Food             | 281659      | 1253                |
|   | David     | Furniture        | 301451      | 1663                |

-- 18. Customer Type and Payment Method Analysis

```
select customer_type,payment_method,round(sum(sales_amount),0) as total_sales
```

```
,count(*) total_number_of_transection from sales_data group by customer_type,payment_method
```

```
order by customer_type,total_sales desc;
```

|   | customer_type | payment_method | total_sales | total_number_of_transection |
|---|---------------|----------------|-------------|-----------------------------|
| ▶ | New           | Bank Transfer  | 889778      | 181                         |
|   | New           | Credit Card    | 836669      | 163                         |
|   | New           | Cash           | 779810      | 160                         |
|   | Returning     | Credit Card    | 920894      | 182                         |
|   | Returning     | Bank Transfer  | 827585      | 161                         |
|   | Returning     | Cash           | 764528      | 153                         |

-- 19. Sales Rep and Region Performance

```
select sales_rep,region,round(sum(sales_amount),0) as total_sales ,count(*) as  
total_number_of_transection
```

```
from sales_data group by sales_rep,region order by sales_rep,total_sales;
```

| Result Grid  |           |        |             |                             |
|--------------|-----------|--------|-------------|-----------------------------|
| Filter Rows: |           |        |             |                             |
| Export:      |           |        |             |                             |
| Wrap Cell C  |           |        |             |                             |
|              | sales_rep | region | total_sales | total_number_of_transection |
| ▶            | Alice     | West   | 215691      | 47                          |
| ⋮            | Alice     | South  | 239415      | 45                          |
| ▲            | Alice     | North  | 249647      | 48                          |
|              | Alice     | East   | 260789      | 52                          |
|              | Bob       | North  | 233465      | 44                          |
|              | Bob       | South  | 251200      | 50                          |
|              | Bob       | West   | 286449      | 54                          |
|              | Bob       | East   | 309876      | 60                          |
|              | Charlie   | South  | 156141      | 32                          |
|              | Charlie   | East   | 165173      | 37                          |
|              | Charlie   | West   | 239709      | 45                          |
|              | Charlie   | North  | 299789      | 55                          |
|              | David     | West   | 263168      | 51                          |
|              | David     | North  | 282539      | 56                          |
|              | David     | East   | 284614      | 59                          |

-- 20. Product Category and Sales Channel Analysis

```
select product_category,sales_channel,round(sum(sales_amount),0) as total_sales,
```

```
sum(quantity_sold) as total_quantity_sold from sales_data
```

```
group by product_category,sales_channel order by product_category ,total_sales desc;
```

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

|   | product_category | sales_channel | total_sales | total_quantity_sold |
|---|------------------|---------------|-------------|---------------------|
| ► | Clothing         | Retail        | 706333      | 3825                |
|   | Clothing         | Online        | 607141      | 3097                |
|   | Electronics      | Online        | 664730      | 3359                |
|   | Electronics      | Retail        | 578770      | 2737                |
|   | Food             | Retail        | 662726      | 2919                |
|   | Food             | Online        | 539048      | 2689                |
|   | Furniture        | Online        | 647915      | 3457                |
|   | Furniture        | Retail        | 612602      | 3272                |