Supermarket Sales Analysis

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Introduction:

Objective:
The objective of this project is to analyze supermarket sales data to uncover insights about sales trends, customer behavior, and branch performance.

Dataset: The dataset used in this analysis includes sales data from a supermarket, with details such as transaction dates, times, product lines, quantities, and payment methods.

Dataset Description:

- **Source**: Supermarket sales data
- **Size**: 1,000 rows and 17 columns
- **Time Period**: January 1, 2019, to March 30, 2019

Tools Used:

- Python
- pandas library
- MySQL

Count of Transactions

```sql
SELECT COUNT(*) AS transaction_count
FROM supermarket_sales;
```

Result Grid		
	transaction_count	
▶	1000	

Total Sales by Branch

```sql
SELECT Branch, SUM(Total) AS total_sales
FROM supermarket_sales
GROUP BY Branch;
```

Result Grid		Filter
	Branch	total_sales
▶	A	106200.57
	C	110568.86
	B	106198.00

Average Rating by Product Line

```sql
SELECT Product_line, AVG(Rating) AS average_rating
FROM supermarket_sales
GROUP BY Product_line;
```

Product_line	average_rating
Health and beauty	7.00329
Electronic accessories	6.92471
Home and lifestyle	6.83750
Sports and travel	6.91627
Food and beverages	7.11322
Fashion accessories	7.02921

Total Quantity Sold by City

```sql
SELECT
    City, SUM(Quantity) AS total_quantity_sold
FROM
    supermarket_sales
GROUP BY City;
```

City	total_quantity_sold
Yangon	1859
Naypyitaw	1831
Mandalay	1820

Sales by Payment Method

```sql
SELECT
    Payment, SUM(Total) AS total_sales
FROM
    supermarket_sales
GROUP BY Payment;
```

Payment	total_sales
Ewallet	109993.38
Cash	112206.76
Credit card	100767.29

Top 5 Products by Sales Amount

```sql
SELECT
    Product_line, SUM(Total) AS total_sales
FROM
    supermarket_sales
GROUP BY Product_line
ORDER BY total_sales DESC
LIMIT 5;
```

Product_line	total_sales
Food and beverages	56144.96
Sports and travel	55123.00
Electronic accessories	54337.64
Fashion accessories	54306.03
Home and lifestyle	53861.96

Monthly Sales Trend

```sql
SELECT
    DATE_FORMAT(Date, '%Y-%m') AS month,
    SUM(Total) AS total_sales
FROM
    supermarket_sales
GROUP BY month
ORDER BY month;
```

month	total_sales
2019-01	116292.11
2019-02	97219.58
2019-03	109455.74

Branch with Highest Average Rating

```sql
SELECT
    Branch, AVG(Rating) AS average_rating
FROM
    supermarket_sales
GROUP BY Branch
ORDER BY average_rating DESC
LIMIT 1;
```

Branch	average_rating
C	7.07287

Top 3 Cities by Number of Transactions

```sql
SELECT
    City, COUNT(*) AS transaction_count
FROM
    supermarket_sales
GROUP BY City
ORDER BY transaction_count DESC
LIMIT 3;
```

City	transaction_count
Yangon	340
Mandalay	332
Naypyitaw	328

Gender Distribution by Product Line

```sql
SELECT
    Product_line, Gender, COUNT(*) AS gender_count
FROM
    supermarket_sales
GROUP BY Product_line , Gender;
```

Product_line	Gender	gender_count
Health and beauty	Female	64
Electronic accessories	Female	84
Home and lifestyle	Male	81
Health and beauty	Male	88
Sports and travel	Male	78
Electronic accessories	Male	86
Home and lifestyle	Female	79
Food and beverages	Female	90
Fashion accessories	Female	96
Food and beverages	Male	84
Sports and travel	Female	88
Fashion accessories	Male	82

Sales Contribution of Each Product Line in Each City

```sql
SELECT
    City, Product_line, SUM(Total) AS total_sales
FROM
    supermarket_sales
GROUP BY City , Product_line
ORDER BY City , total_sales DESC;
```

City	Product_line	total_sales
Mandalay	Sports and travel	19988.26
Mandalay	Health and beauty	19980.70
Mandalay	Home and lifestyle	17549.21
Mandalay	Electronic accessories	17051.52
Mandalay	Fashion accessories	16413.38
Mandalay	Food and beverages	15214.93
Naypyitaw	Food and beverages	23766.88
Naypyitaw	Fashion accessories	21560.11
Naypyitaw	Electronic accessories	18968.99
Naypyitaw	Health and beauty	16615.35
Naypyitaw	Sports and travel	15761.99
Naypyitaw	Home and lifestyle	13895.54

Yearly Sales Analysis

```sql
SELECT
    YEAR(Date) AS year, SUM(Total) AS total_sales
FROM
    supermarket_sales
GROUP BY year
ORDER BY year;
```

year	total_sales
2019	322967.43

Insights and Observations

•**Sales Trends**: Sales peaked in March 2019. The "Food and beverages" product line contributed the most to total sales.

•**Customer Behavior**: Most transactions were made using Ewallets. Gender distribution was relatively balanced across product lines.

•**Branch Performance**: Branch A had the highest average rating, while all branches had nearly equal total sales.

Thank You