

Supermarket Sales Performance Analysis

Project Description

The Supermarket Sales Performance Analysis report is designed to help stakeholders understand sales trends, customer preferences, and profitability across different branches, cities, and product lines. This report also sheds light on customer satisfaction levels to guide improvements in product offerings and service quality.

Importance of the Project

By analyzing sales and customer behavior data, the report enables the business to make data-driven decisions, such as inventory management, product pricing, and customer retention strategies. It provides a holistic view of branch performance, product demand, and customer preferences, empowering better resource allocation, targeted marketing, and profit optimization.

Potential Stakeholders

- **Store Managers:** To track performance at branch levels and monitor sales trends.
 - **Product Managers:** For insights into high-demand product lines and popular items.
 - **Finance Teams:** To assess profitability and revenue across branches and products.
 - **Marketing Teams:** To create targeted campaigns based on customer purchase behavior.
 - **Customer Experience Teams:** To understand customer satisfaction and improve service.
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Project Initialization

- **Project Title:** Supermarket Sales Performance Analysis
 - **Objective:** To analyze supermarket sales performance, focusing on revenue, customer segmentation, and profitability, while evaluating customer satisfaction ratings across different branches and product lines.
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Key Insights

- Identify top-performing branches and product lines.
 - Assess purchasing trends by customer type, gender, and payment method.
 - Track profitability and gross income across branches and product categories.
 - Evaluate customer satisfaction based on transaction ratings.
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Features Descriptions

- **Invoice ID:** Unique identifier for each transaction.
- **Branch:** The supermarket branch where the transaction occurred.
- **City:** City in which the branch is located.
- **Customer Type:** Classification of the customer (e.g., Member or Non-member).
- **Gender:** Gender of the customer.
- **Product Line:** Category of the product (e.g., Health & Beauty, Sports).
- **Unit Price:** Price per unit of the product.
- **Quantity:** Number of units purchased.
- **Tax 5%:** Tax amount on the transaction.
- **Total:** Total transaction amount (including tax).
- **Date:** Date of the transaction.
- **Time:** Time of the transaction.
- **Payment:** Payment method used (e.g., Cash, Credit Card).
- **COGS:** Cost of Goods Sold.
- **Gross Margin Percentage:** Predefined margin percentage.
- **Gross Income:** Income earned from the transaction.
- **Rating:** Customer satisfaction rating for the transaction.

Data Preparation

Dataset: Import the supermarket sales dataset as a CSV file into Power BI. (Storage Mode: Import)

Data Cleaning:

- Remove duplicate records, if any.
- Convert Date and Time columns to appropriate date and time formats.
- Ensure numeric fields like Quantity, Unit Price, and Gross Income are correctly set as numeric data types.

Calculated Columns: (Optional as we created the calendar)

- **Month and Day:** Extracted from the Date column to support time-based analysis.
- **Hour:** Extracted from the Time column to assess peak sales times.

Data Transformation

In Power Query Editor:

1. **Load and Clean Data:** Load the dataset and clean the data by renaming columns and adjusting data types as needed.

2. **Calculated Columns:**

- **Total Sales:** Compute using the SUM of Total for branch-level and product-level analysis.

- **Gross Income Percentage:** Calculate as $\text{Gross Income} / \text{Total Sales}$ to analyze profitability.
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Data Model

- The dataset is a single, flat table, so no additional relationships are required. Creating a Calendar Table and linking it to the Date column is recommended for date-based filtering.
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Report Design

Visuals:

Sales Overview:

- Card Visual: Display KPIs such as Total Sales, Total Gross Income, and Average Rating.
- Bar Chart: Show Total Sales by Branch to visualize branch performance.

Customer Analysis:

- Pie Chart: Show Customer Type distribution.
- Stacked Column Chart: Sales distribution by Gender and Product Line.
- Column Chart: Popularity of each payment method

Profitability:

- Matrix Visual: Display Gross Income by Branch and Product Line.
- Clustered Bar Chart: Compare Gross Income and Quantity Sold across Product Lines.

Customer Satisfaction:

- Bar Chart: Display Average Rating by Branch and Product Line.
 - Scatter Plot: Show Gross Income vs. Rating to assess the correlation between profitability and satisfaction.
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Adding Interactivity

- **Slicers:** Create slicers for Branch, Product Line, Customer Type, and Date to allow dynamic filtering.
 - **Drill-through:** Enable drill-through on visuals for a more detailed view by branch or product line.
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Calculated Measures

- $\text{Total Sales} = \text{SUM}(\text{Total})$
 - $\text{Average Rating} = \text{AVERAGE}(\text{Rating})$
 - $\text{Total Gross Income} = \text{SUM}(\text{Gross Income})$
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Final Report Layout

- Page 1: Sales Overview: High-level KPIs, branch comparison, and primary sales metrics.
- Page 2: Customer Analysis: Detailed demographic analysis, showing sales distribution by customer type and payment method.
- Page 3: Profitability: Insights into gross income and product line profitability.
- Page 4: Customer Satisfaction: Customer ratings by branch and product line.

Export and Sharing (Optional)

- Publish the report to Power BI Service for stakeholder access.
 - Set up regular data refreshes if new sales data becomes available.
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