AI-Driven Financial Dashboard for Chocolate Shop Sales Analysis - Report (Day 3)

Submitted By :

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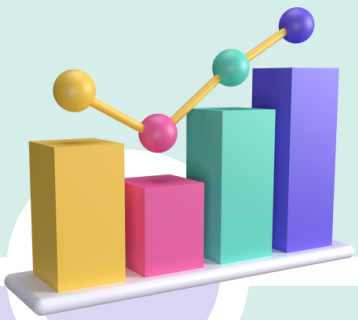

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1. Introduction & Objective

1.1 Introduction

The Day-3 "**AI-Driven Financial Dashboard**" report activity focuses on leveraging AI-assisted insights to create an interactive dashboard that integrates sales data, financial metrics, and customer behavior patterns. Dashboards play a critical role in financial decision-making by providing a consolidated view of key performance indicators (KPIs), trends, and patterns, enabling timely and informed business actions.

1.2 Objective

My aim is:

- To transform any raw sales/financial data into actionable insights using AI-generated forecasts and visual analytics.
- To monitor revenue, product performance, and store-level contributions effectively through an interactive dashboard.
- To provide a clear, data-driven tool that supports strategic financial planning and operational decision-making.

This exercise emphasizes the importance of combining high-level KPIs with detailed, interactive visualizations to identify trends, optimize sales strategies, and enhance overall business performance.

2. Dataset Overview

The dataset used for this report, **Chocolate_Shop_Sales_Dataset.csv**, contains transactional sales information from a chocolate shop over a one-year period. It captures key details about customer purchases, product types, sales quantities, pricing, discounts, payment methods, and store locations. This structured data provides a solid foundation for building AI-driven forecasts, computing financial KPIs, and designing an interactive dashboard to analyze sales trends and performance across multiple dimensions.

Dataset link: Chocolate_Shop_Sales_Dataset.csv

Below is a detailed description of the dataset columns, their data types, and analytical relevance:

Column Name	Data Type	Description
Invoice_ID	Object	Unique identifier for each sales transaction.
Date	Object / Date	The date when the transaction occurred. Useful for time-series and trend analysis.
Customer_Name	Object	Name of the customer who made the purchase.
Customer_Email	Object	Email address of the customer, helps in identifying repeat buyers.
Product_Name	Object	Name of the chocolate product sold (e.g., Dark Chocolate Bar, Chocolate Truffles).
Category	Object	Broad classification of products (e.g., Bars, Truffles, Nuts, Beverages, Gifts).
Quantity	Int64	Number of units sold in the transaction.
Unit_Price	Float64	Price per unit of the chocolate product.
Discount(%)	Int64	Discount applied to the sale as a percentage.
Payment_Method	Object	Method of payment used by the customer (e.g., Cash, Credit Card, Online Transfer, Mobile Payment).
Store_Location	Object	Location of the store where the sale occurred (e.g., Downtown, Mall Outlet, Airport Kiosk, Uptown).
Salesperson	Object	Name of the employee who completed the sale.
Total_Sales	Float64	Total revenue from the transaction after applying discount (Quantity * Unit_Price - Discount).

3. Dashboard Design & Methodology

The dashboard was designed in **POWER BI** tool to transform the chocolate shop sales dataset into actionable insights by visualizing key metrics, trends, and product performance. It integrates AI-assisted forecasts and interactive elements to support informed financial and operational decision-making.

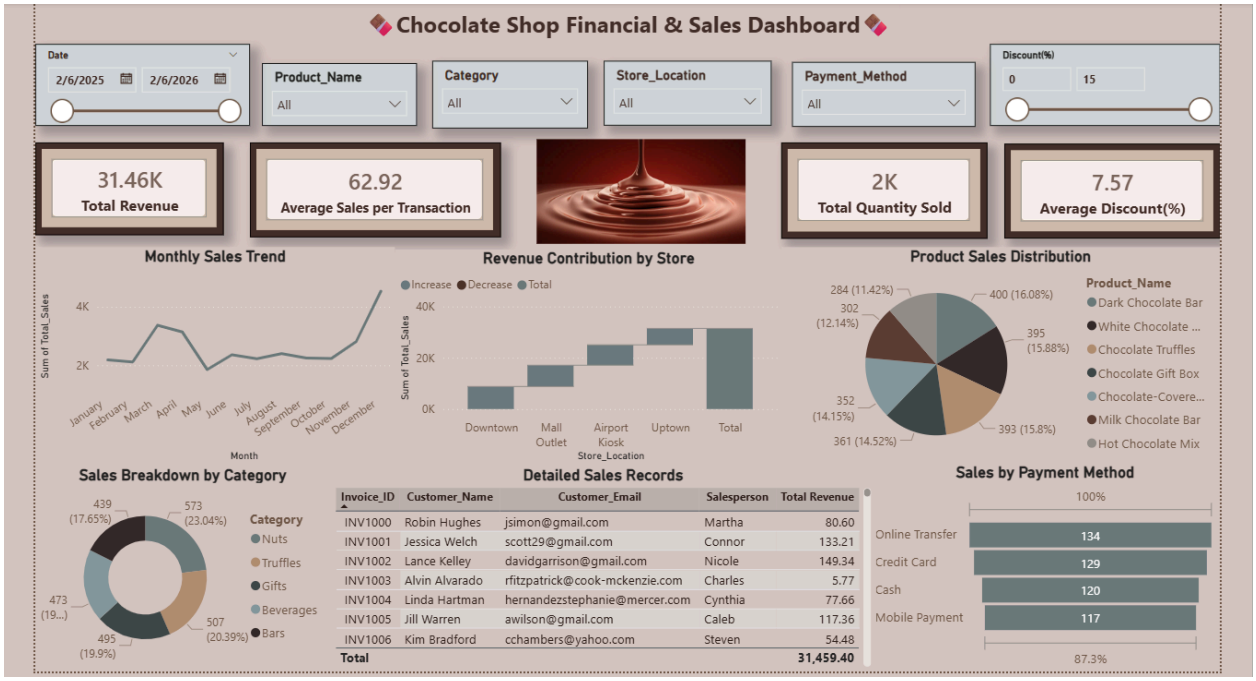
KPI Name	DAX Formula	Analytical Significance
Total Revenue (Card)	`Total Revenue = SUM('Chocolate_Shop_Sales_Dataset'[Total_Sales])`	Shows overall revenue generated by the shop; core financial metric.
Average Sales per Transaction (Card)	`Average Sales per Transaction = AVERAGE('Chocolate_Shop_Sales_Dataset'[Total_Sales])`	Indicates average revenue per customer/invoice; useful for assessing upselling opportunities.
Total Quantity Sold (Card)	`Total Quantity Sold = SUM('Chocolate_Shop_Sales_Dataset'[Quantity])`	Tracks total number of chocolate items sold; highlights product demand.
Average Discount % (Card)	`Average Discount(%) = AVERAGE('Chocolate_Shop_Sales_Dataset'[Discount(%)] )`	Helps understand how discounts impact sales and profitability.

Visualization Title	Chart Type	Columns Used	Analytical Significance
Monthly Sales Trend	Line Chart	Date, Total_Sales	Shows sales patterns over time; helps identify trends, seasonality, and growth rates.
Revenue Contribution by Store	Waterfall Chart	Store_Location, Total_Sales	Visualizes how each store contributes to total revenue; highlights top-performing locations.

Product Sales Distribution	Pie Chart	Product_Name, Quantity	Displays proportion of sales by product; identifies best-selling chocolates.
Sales Breakdown by Category	Donut Chart	Category, Quantity	Shows sales distribution across chocolate categories; helps with category-level analysis.
Detailed Sales Records	Table / Matrix	Invoice_ID, Customer_Name, Customer_Email, Salesperson, Total_Sales	Provides a transactional view; supports drill-down analysis and detailed record-keeping.
Sales by Payment Method	Funnel Chart	Payment_Method, Invoice_ID	Tracks the number of sales per payment method; helps identify customer payment preferences.

Filter / Slicer	Analytical Significance
Date	Allows analysis over time (daily, monthly, quarterly, yearly); enables trend comparisons.
Product Name	Filters dashboards by specific chocolate products; useful for product-level insights.
Category	Enables analysis by chocolate type (Bars, Truffles, Beverages, Gifts, Nuts).
Store Location	Filters visuals by store; helps identify location-wise performance.
Payment Method	Filters data by payment type; useful to analyze customer payment preferences.
Discount (%)	Allows analysis of sales under different discount levels; helps evaluate discount strategy impact.

4. Power BI Dashboard Insight & Interpretation



This dashboard provides a **comprehensive view of the performance of a chocolate shop over a one-year period**, combining high-level financial metrics with detailed insights into stores, products, and customer transactions. It allows users to quickly assess revenue, product trends, and sales patterns, while providing interactive filtering for deeper analysis.

Filters (Slicers)

The dashboard includes multiple slicers to allow interactive exploration of the data:

- **Date Range:** A slider from 2/6/2025 to 2/6/2026, enabling month-by-month or custom date analysis.
- **Product Name:** Dropdown to filter by specific chocolate items.
- **Category:** Dropdown to view performance by chocolate types (Bars, Truffles, Nuts, Beverages, Gifts).
- **Store Location:** Dropdown to focus on individual stores (Downtown, Mall Outlet, Airport Kiosk, Uptown).
- **Payment Method:** Dropdown to analyze revenue by customer payment type (Cash, Credit Card, Online Transfer, Mobile Payment).
- **Discount(%):** Range slider (0–15%) to explore how different discount levels impact sales.

Analytical Significance: These filters allow for **dynamic, drill-down analysis** of sales across different dimensions, making the dashboard highly interactive and insightful.

Key Performance Indicators (KPIs)

Four high-level metrics are prominently displayed in framed cards at the top of the dashboard:

- **Total Revenue:** 31.46K — the main financial metric tracking overall sales success.
- **Average Sales per Transaction:** 62.92 — indicates the average basket value per customer.
- **Total Quantity Sold:** 2K — measures total items sold across all products.
- **Average Discount(%):** 7.57% — shows the average discount applied across all transactions.

Analytical Significance: These KPIs provide a **quick snapshot of overall shop performance**, allowing users to immediately gauge financial health, sales efficiency, and discount strategy.

Visualizations

1. **Monthly Sales Trend (Line Chart)**
    - **Interpretation:** Tracks revenue fluctuations throughout the year.
    - **Top Insight:** Shows a steady sales performance with a significant spike in December, likely due to holiday gifting.
    - **Financial Significance:** Highlights peak revenue periods and seasonal demand trends.

2. **Revenue Contribution by Store (Waterfall Chart)**
    - **Interpretation:** Visualizes how each store cumulatively adds to total revenue.
    - **Top Insight:** Downtown and Mall Outlet contribute the highest share, with Airport Kiosk and Uptown adding incrementally.
    - **Financial Significance:** Identifies top-performing stores and areas for growth or optimization.

3. **Product Sales Distribution (Pie Chart)**
    - **Interpretation:** Displays the proportion of total units sold per product.
    - **Top Insight:** Dark Chocolate Bar leads with 400 units (16.08%). Other notable products include White Chocolate, Truffles, Gift Boxes, and Hot Chocolate Mix.
    - **Financial Significance:** Shows which products drive the majority of revenue and informs inventory and marketing strategy.

4. **Sales Breakdown by Category (Donut Chart)**

- **Interpretation:** Groups product sales into broader categories.
- **Top Insight:** Nuts lead with 573 units (23.04%), followed by Truffles (507 units) and Gifts (495 units).
- **Financial Significance:** Highlights the most profitable product categories and helps guide merchandising decisions.

5. **Sales by Payment Method (Funnel Chart / Bar Chart)**

   - **Interpretation:** Shows customer payment preferences.
   - **Top Insight:** Online Transfer is most common (134 invoices), followed by Credit Card, Cash, and Mobile Payment.
   - **Financial Significance:** Helps assess payment channel effectiveness and ease of transactions for customers.

6. **Detailed Sales Records (Table / Matrix)**

   - **Interpretation:** Lists individual transactions, including customer, salesperson, and revenue per invoice.
   - **Top Insight:** Enables identification of top-performing salespersons and high-value customers.
   - **Financial Significance:** Supports detailed transactional analysis and operational decision-making.

Summary:
The dashboard combines **high-level financial KPIs** with **granular insights** into stores, products, and customer behavior. It allows stakeholders to track overall revenue, understand seasonal trends, identify top-selling products and stores, and monitor discount impact — all while enabling interactive exploration through filters. This makes it a powerful tool for **strategic decision-making and financial planning**.

To access the Dataset (.csv file) & Power BI Dashboard (.pbix file) , click here to download: https://github.com/sumaiya-tasnim-18/Capstone-Projects/tree/main/3.%20Introduction%20to%20AI%20in%20Financial%20Modeling%20Masterclass/Day-3

5. Conclusion

Through this Day-3 activity, I learned how to integrate AI-generated visuals and trend insights into an interactive financial dashboard, transforming raw sales data into actionable business intelligence. The dashboard effectively supports informed financial decisions by highlighting trends, KPIs, and product- or store-level performance. This exercise enhanced my skills in dashboard design, data visualization, and interpreting AI-driven insights for strategic planning.

Overall, it provided a practical understanding of how interactive analytics can guide revenue optimization and operational improvements in a retail setting.

End of Report
Thank You!