Case Study: Coffee Shop Sales Dashboard (Power BI)

Project Overview

This project showcases a Power BI dashboard developed to analyze and visualize the sales performance of a fictional coffee shop chain during April 2023. The goal was to deliver a comprehensive, interactive report for stakeholders to monitor key metrics such as sales revenue, order volume, and product performance.

Objectives

- Track and visualize total sales, total orders, and quantity sold.
- Identify top-performing products and store locations.
- Understand customer behavior by weekday, product type, and hourly trends.
- Compare performance with previous months to detect growth or decline.

Problem Statement

KPI's Requirements

1. **Total Sales Analysis:**

- ✓ Calculate the total sales for each respective month.
- ✓ Determine the month-on-month increase or decrease in sales.
- ✓ Calculate the difference in sales between the selected month and the previous month.

2. Total Orders Analysis:

- ✓ Calculate the total number of orders for each respective month.
- ✓ Determine the month-on-month increase or decrease in the number of orders.
- ✓ Calculate the difference in the number of orders between the selected month and the previous month.

3. Total Quantity Sold Analysis:

- ✓ Calculate the total quantity sold for each respective month.
- ✓ Determine the month-on-month increase or decrease in the total quantity sold.
- ✓ Calculate the difference in the total quantity sold between the selected month and the previous month.

Charts Requirements

1. Calendar Heat Map:

- ✓ Implement a calendar heat map that dynamically adjusts based on the selected month from a slicer.
- ✓ Each day on the calendar will be color-coded to represent sales volume, with darker shades indicating higher sales.
- ✓ Implement tooltips to display detailed metrics (Sales, Orders, Quantity) when hovering over a specific day.

2. Sales Analysis by Weekdays and Weekends:

- ✓ Segment sales data into weekdays and weekends to analyze performance variations.
- ✓ Provide insights into whether sales patterns differ significantly between weekdays and weekends.

3. Sales Analysis by Store Location:

- ✓ Visualize sales data by different store locations.
- ✓ Include month-over-month (MoM) difference metrics based on the selected month in the slicer.
- ✓ Highlight MoM sales increase or decrease for each store location to identify trends.

4. Daily Sales Analysis with Average Line:

- ✓ Display daily sales for the selected month with a line chart.
- ✓ Incorporate an average line on the chart to represent the average daily sales.
- ✓ Highlight bars exceeding or falling below the average sales to identify exceptional sales days.

5. Sales Analysis by Product Category:

- ✓ Analyze sales performance across different product categories.
- ✓ Provide insights into which product categories contribute the most to overall sales.

6. Top 10 Products by Sales:

- ✓ Identify and display the top 10 products based on sales volume.
- ✓ Allow users to quickly visualize the best-performing products in terms of sales.

7. Sales Analysis by Days and Hours:

- ✓ Utilize a heat map to visualize sales patterns by days and hours.
- ✓ Implement tooltips to display detailed metrics (Sales, Orders, Quantity) when hovering over a specific day-hour.

Key Features of the Dashboard

- **KPI Cards:** Highlight total sales ($119K), total orders (25,335), and quantity sold (36,469) with comparison to the last month.
- **Date Filter:** Dynamic selection by month and date range for focused analysis.
- **Sales Trend Chart**: Daily sales bar chart showing the trend over April.
- **Product Category & Type Breakdown:** Visual comparisons of sales by product type (e.g., coffee, tea, hot chocolate) and category (e.g., brewed, espresso).
- **Store Performance:** Breakdown of sales by location (Hell's Kitchen, Astoria, Lower Manhattan).
- **Heatmap Analysis:** Hourly sales across all days of the week to understand peak times and customer patterns.
- **Weekday vs Weekend Comparison:** Visual donut chart showing sales distribution.

Insights Derived

- Weekend sales accounted for ~33% of total revenue, with weekdays contributing ~67%.
- Coffee was the highest-selling category with $64.8K, followed by tea and pastries.
- **Top location**: Hell's Kitchen led with $38.9K in sales.
- Sales peaked on weekdays around mid-mornings (9 AM-11 AM) based on heatmap data.

Tools & Technologies Used

- Power BI Desktop
- DAX for calculated measures and KPIs, Tooltip
- Power Query for data cleaning and transformation

The Impact

This dashboard doesn't just look good — it answers real business questions:
- Which products and regions are driving revenue?
- How do sales vary by day, gender, and country?
- Where should the business focus marketing and inventory efforts?

Every visual is interactive, making it easy for stakeholders to drill into insights without touching the underlying data.

Learning Outcome

This project enhanced my practical skills in creating interactive dashboards with effective

storytelling, data modeling, and advanced visual techniques in Power BI. It also deepened my understanding of customer behavior analytics within retail environments.

GitHub Repository
View the full project:
https://github.com/direct2subhajit/Power_BI_Projects/tree/main/Coffee_Shop_Sales