Coffee Shop Sales Analysis

Power BI Project Documentation

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Executive Summary

This project simulates a real business case for a coffee shop chain consisting of three locations. The goal was to analyze six months of sales data (January 2023 – June 2023) and provide insights to support managerial decisions regarding staffing, inventory, and store performance. The report is structured into five interactive dashboards: Landing Page, Overview, Sell Time, Products, and Localization.

Key insights include:

- Peak sales hour: **10 AM**
- Best sales day last week: **Wednesday**
- Best sales day all time: **Friday**
- Most popular size: **Regular (34.33%)**
- Total sales: **$689,812.33**
- Average receipt value: **$4.69**

HOW TO USE REPORT

- Slicers are available on each page, allowing you to filter data by product category, date, or store location.
- Use the buttons on the left-hand vertical sidebar to navigate between pages.
- Use interactive charts and tables to drill down into the data.
- Hover over visual elements to view tooltips with additional information.

REPORT OBJECTIVE

The “Coffee House – Sales & Performance Report” was created to analyze the café’s sales and operational performance based on data from a CSV file. The dataset was cleaned, transformed, and loaded using Power Query. The company aims to better understand sales dynamics, evaluate product performance, and analyze customer behavior across different locations. The report is designed to answer questions such as:

- Which products and categories generate the highest revenue?
- How do sales trends vary by day, location, or season?
- Are there any underperforming products or stores?
- What customer behavior patterns can inform marketing initiatives or resource planning?

Data & Preparation

The dataset consisted of ~150,000 synthetic records in CSV format, covering transactions from January to June 2023. Columns included: Date, Time, Location, Transaction quantity, Unit price, Product category, Product type, Product detail, Size, Month name, Hour, Month number, and Day number. Additional helper tables were created for Day of Week and Month to ensure proper chronological ordering in visualizations.

Transformations in Power Query included:

- Value replacement
- Data type changes
- Standardization of entries
- Adding a unique ID column

Data was generally clean and required only minimal transformations in Power Query, such as type conversions and standardization.

Data Model & KPIs

The model was kept simple, with one main fact table and two supporting tables (Day of Week, Month). No advanced star schema was used in this version. Key KPIs included:

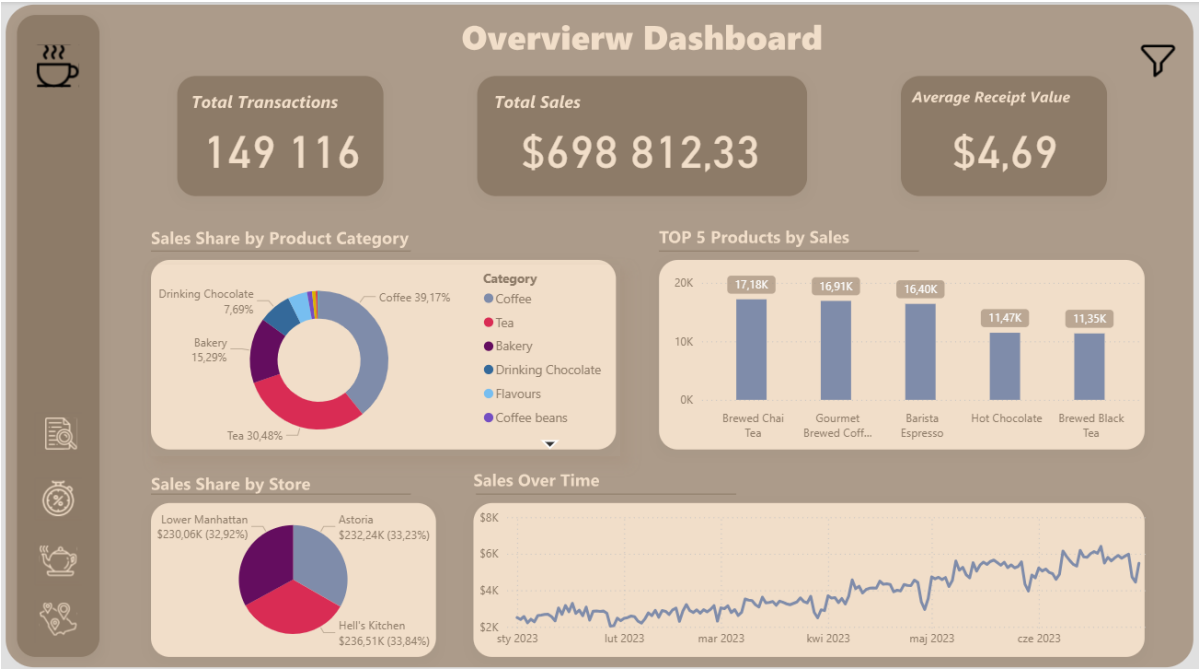
- Total transactions
- Total sales
- Average receipt value
- Peak sales hour
- Top sales day (last week / all time)
- Top sales month
- Best-selling product and size
- Top performing store

Dashboard Overview

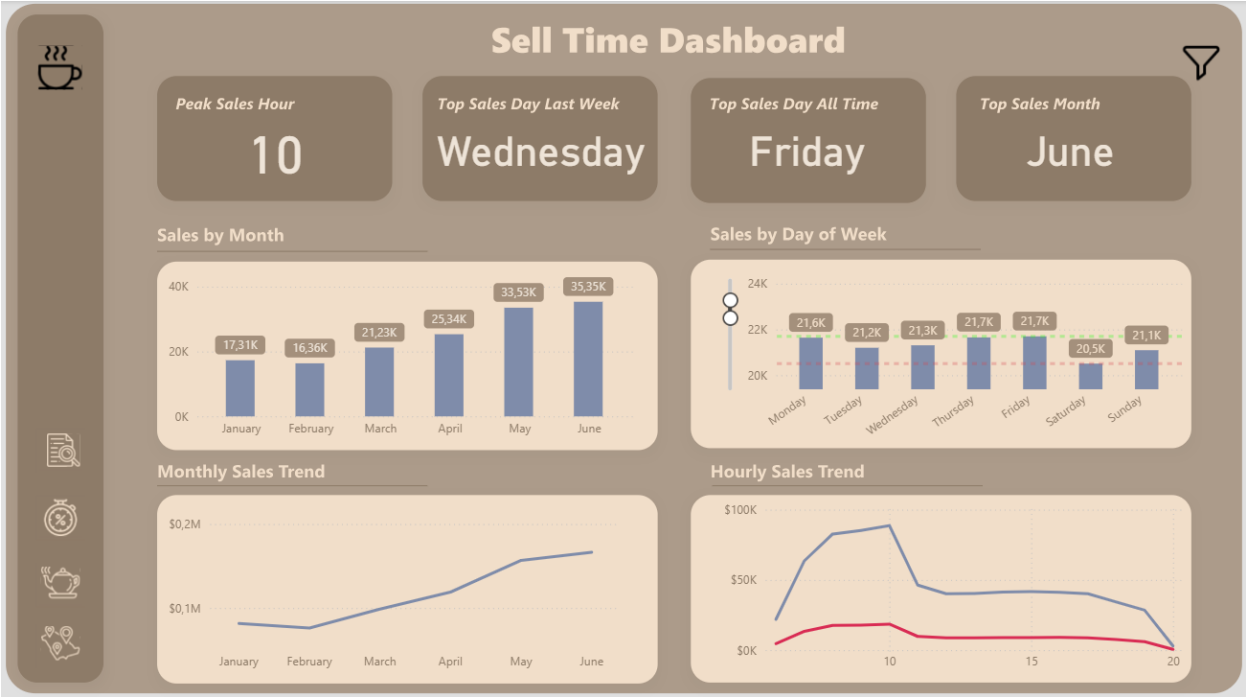
The report consists of five interactive dashboards:

1. Landing Page: Navigation and entry point to all dashboards

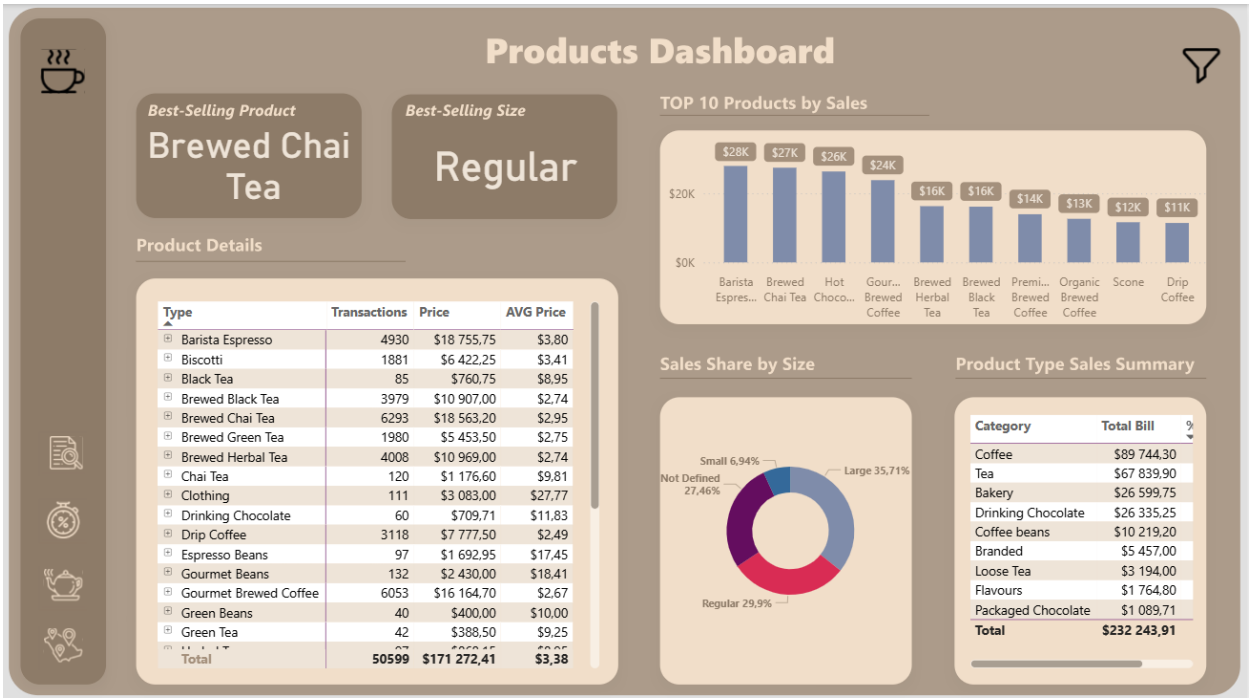
2. Overview Dashboard: KPIs, sales share by category, top 5 products, sales share by store, sales over time



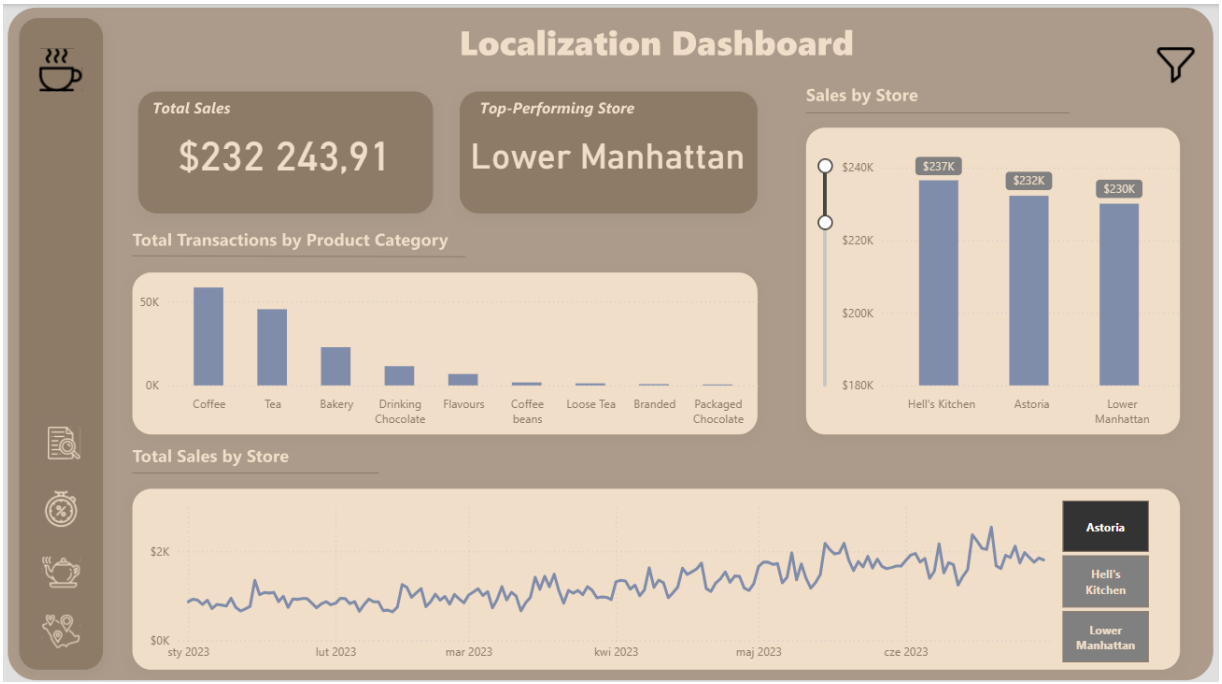
3. Sell Time Dashboard: Peak sales hour, top sales days, monthly trend, daily/hourly breakdown



4. Products Dashboard: Best-selling product and size, sales share by size, product details matrix, top 10 products



5. Localization Dashboard: Total sales by store, top performing store, transactions by category per store



The dashboards use bookmarks, slicers (location, category, size, time), and a brown/beige theme for readability.

Insights & Recommendations

- • Morning hours (10 AM) are the busiest – staffing should be optimized for this time slot.
- • Wednesday is consistently the strongest day – consider mid-week promotions or loyalty campaigns.
- • Regular size dominates (34.33%) – inventory should reflect this preference.
- • Brewed Chai Tea emerged as the best-selling product.
- • Among the three stores, performance varied – managers should analyze location-specific drivers.

Limitations & Next Steps

Limitations:

- • No cost or margin data included
- • Short data period (6 months)

Planned improvements:

- • Adding margin/cost analysis
- • Introducing sales forecasts

Appendix: DAX Measures

Below are key DAX measures used in the project:

```
Count of ID max per Hour = MAXX(KEEPFILTERS(VALUES('Project'[Hour])),
CALCULATE(COUNTA('Project'[ID])))

Peak Hour = CALCULATE(MAX(Project[Hour]), TOPN(1, ADDCOLUMNS(VALUES(Project[Hour]),
"Total Sales Per Hour", CALCULATE(SUM(Project[Total_Bill]))), [Total Sales Per Hour], DESC))

Top Day of Last Week = CALCULATE(MAX(Project[Day Name]), TOPN(1,
ADDCOLUMNS(VALUES(Project[Day Name]), "Top Day of Sales",
CALCULATE(COUNTROWS(Project), FILTER(Project, Project[transaction_date] >= TODAY() - 7 &&
Project[transaction_date] <= TODAY()))), [Top Day of Sales], DESC))

Top Day of Week = CALCULATE(MAX(Project[Day Name]), TOPN(1,
ADDCOLUMNS(VALUES(Project[Day Name]), "Top Day of Sales",
CALCULATE(COUNTROWS('Project'))), [Top Day of Sales], DESC))

Top Month = CALCULATE(MAX(Project[Month Name]), TOPN(1,
ADDCOLUMNS(VALUES(Project[Month Name]), "TransactionCount",
CALCULATE(COUNTROWS(Project))), [TransactionCount], DESC))

Top Performing Store = CALCULATE(MAX(Project[store_location]), TOPN(1,
ADDCOLUMNS(VALUES(Project[store_location]), "Top Location", SUM(Project[Total_Bill])), [Top
Location], DESC))

Top Selling Product = CALCULATE(MAX(Project[product_type]), TOPN(1,
ADDCOLUMNS(VALUES(Project[product_type]), "Product Sales Count",
CALCULATE(COUNTROWS(Project))), [Product Sales Count], DESC))

Top Selling Size = CALCULATE(MAX(Project[Size]), TOPN(1,
ADDCOLUMNS(VALUES(Project[Size]), "Size Sales Count", CALCULATE(COUNTROWS(Project))),
[Size Sales Count], DESC))
```