Project 1: Coffee Sales Data Analysis

Project Title	Coffee Sales (Data Analysis)
Tools	Power Bi & Excel
Technologies	Data Analyst

Abstract:

This project focuses on analyzing coffee sales data from a vending machine, with records spanning from March 2024 to the present. The primary objective is to perform a time series exploratory data analysis to identify key purchasing patterns, sales trends, and customer preferences. The analysis will involve forecasting sales for the next day, week, or month and examining specific customer purchase behaviors. By uncovering these insights, the project aims to provide actionable recommendations for optimizing inventory management, refining pricing strategies, and enhancing targeted marketing efforts, ultimately improving vending machine operations and customer satisfaction.

Tools:

- Microsoft Excel:

Excel was utilized primarily for initial data exploration, with some involvement in basic cleaning and formatting tasks. While its use was limited, Excel played a supportive role in organizing the data and preparing it for more advanced analysis with other tool.

- Microsoft Power BI:

For this project, Power BI was utilized for data cleaning and feature engineering through its "Transform Data" functionality. Three key reports were created:

1) Sales Overview Report, which provides a comprehensive view of overall sales performance
2) Time-Based Sales Report, focusing on sales trends and patterns over different time periods
3) Customer Activity Report, detailing specific customer interactions and purchase behaviors.

These reports collectively offer valuable insights into sales dynamics, customer engagement, and operational efficiency.

Main KPIs:

1) Sales Overview Report

- Total Revenue: $37,510
- Number of Coffee Types: 8
- Payment Methods:
  - Card: 91.51% of revenue
  - Cash: 8.49% of revenue
- Top Selling Coffee Types (by revenue):
  - Latte: 24.02%
  - Americano with Milk: 22.93%
 - Cappuccino: 19.55%

2) Time-Based Sales Report

- Revenue by Time Period:
  - Evening: Highest revenue (11,110.80)
  - Morning: Second highest
  - Afternoon: Third
  - Night: Lowest revenue
- Busiest Day: Tuesday (Highest revenue 6,092.48)
- Peak Hours: Around 10 AM (highest revenue spike in the "Total Revenue by Hour" chart)
- Operating Hours: 7:33 AM to 10:56 PM
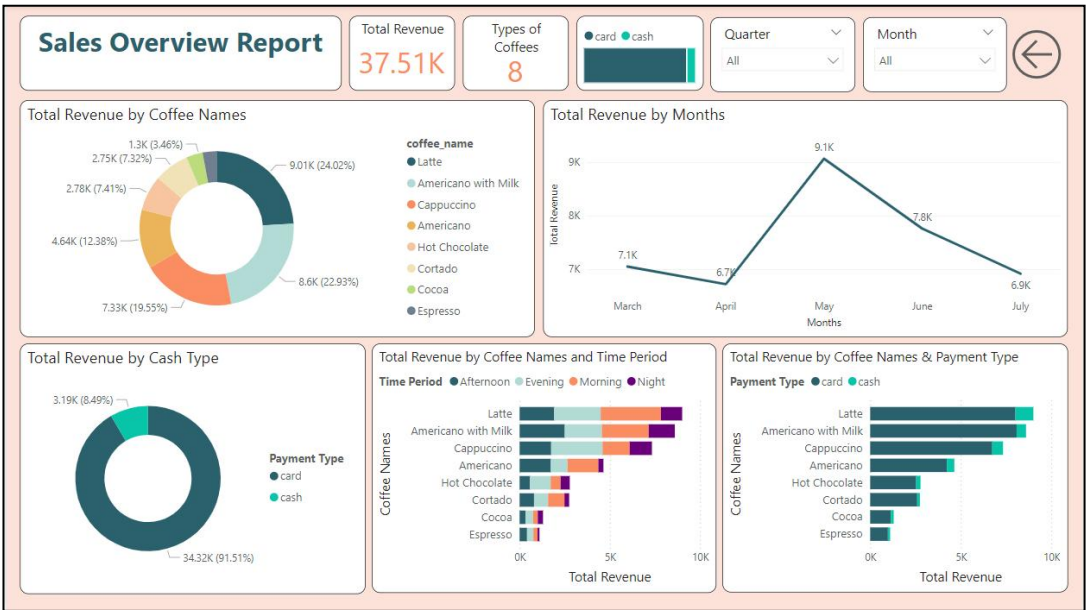
3) Customer Activity Report

- Total Number of Customers: 447
- Average Transaction Value: $37,508.88 / 447 ≈ $83.91 per customer
- Most Popular Product: Latte (highest revenue and customer count)

Dashboards

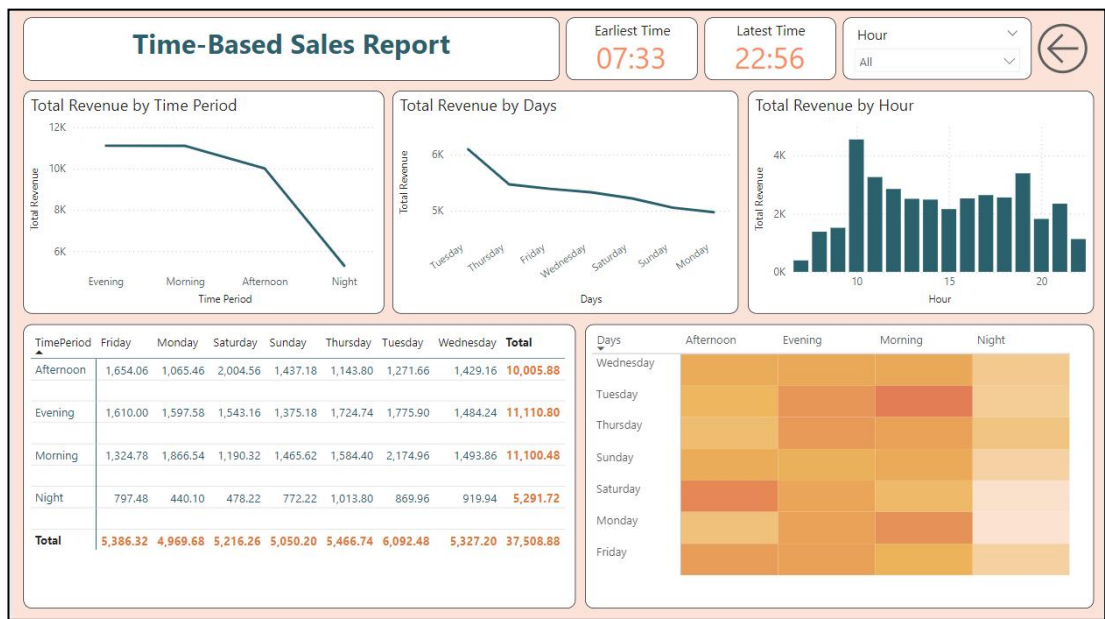### 1) Home Page:
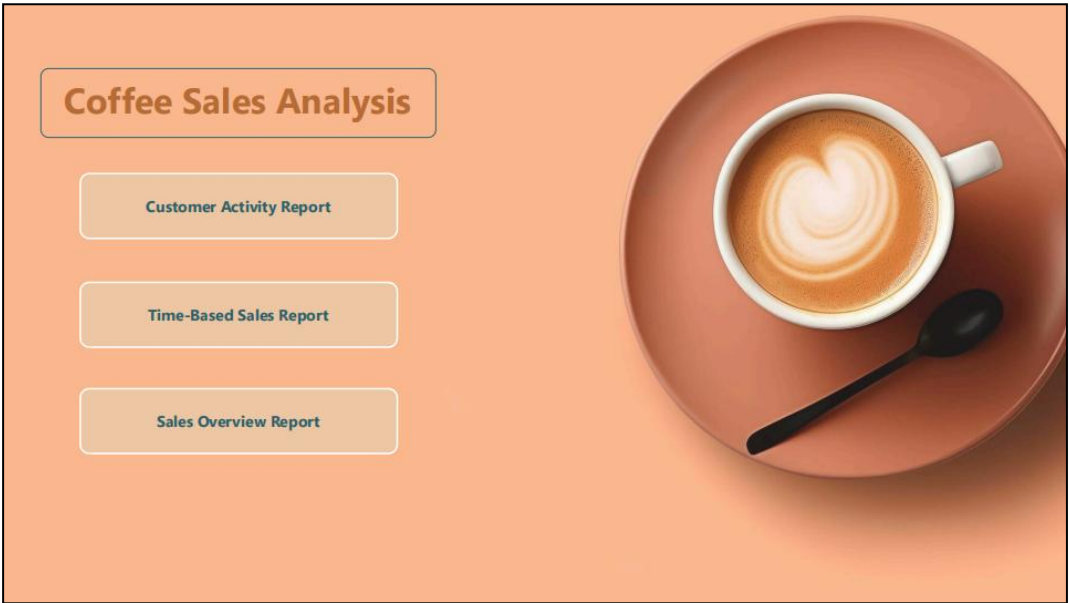
2) Sales Overview Report:

3) Time-Based Sales Report:

4) Customer Activity Report: