

# Data Analysis Project

**Data Analyst:** Kayla Boyce

**Client/Sponsor:** Self-Directed Project (Simulated Small Business Stakeholder)

## Purpose:

The purpose of this project is to perform an analysis of transactional coffee shop sales data with the goal of identifying key revenue drivers, peak demand periods, and identify customer purchasing patterns.

The goal is to provide insights driven by data that could support operational decisions related to employee management, inventory management, and optimization of payment methods.

## Scope / Major Project Activities:

Activity	Description
Project Planning and Question Definition	<p>Define objectives of the analysis, and identify key business questions related to:</p> <ul style="list-style-type: none"><li>- Revenue performance</li><li>- Product demand</li><li>- Time-based sales patterns</li><li>- Customer payment behaviour</li></ul> <p>Establish project scope, assumptions, and limitations prior to analysis.</p>
Data Collection	<p>Source public coffee shop sales data from Kaggle provided in CSV format and import the dataset into a MySQL database environment for analysis</p>
Data Cleaning and Preparation	<p>Clean and standardize raw data using MySQL, including:</p> <ul style="list-style-type: none"><li>- Converting monetary values originally stored as text into decimal format</li><li>- Validating date and time fields</li><li>- Ensuring consistency in categorical variables such as product names and payment types</li></ul>

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	Prepare the dataset for accurate aggregation and analysis
Exploratory Data Analysis	<p>Use SQL queries to explore sales patterns and trends, including:</p> <ul style="list-style-type: none"> <li>- Revenue and transaction volume by product</li> <li>- Sales distribution by hour of day and weekday</li> <li>- Differences in purchasing behaviour by payment method</li> </ul> <p>Identify patterns, anomalies, and areas of interest within the data</p>
Insight Generation	<p>Analyse query results to extract meaningful insights related to:</p> <ul style="list-style-type: none"> <li>- Revenue concentration among top-performing products</li> <li>- Peak demand periods</li> <li>- Customer spending behaviour</li> </ul> <p>Translate raw query outputs into clear analytical findings</p>
Implications / Recommendations	<p>Develop data-driven recommendations based on analytical insights, focusing primarily on:</p> <ul style="list-style-type: none"> <li>- Inventory planning and product prioritisation</li> <li>- Staffing and operations</li> <li>- Payment method strategy to improve average transaction value</li> </ul>
Report / Presentation	<p>Document the analysis process, findings, and recommendations in a structured format suitable for portfolio presentation, including SQL scripts and a written project summary.</p>

#### This project does not include:

- Predictive modeling or machine learning
- Real-time data processing
- Advanced dashboard development or enterprise-level BI development
- Financial forecasting or pricing strategy design
- Integration with live point-of-sale systems

#### Deliverables:

A specific list of things that your project will deliver.

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Deliverable	Description/ Details
SQL Analysis Script	A documented SQL file containing final analysis queries
Cleaned Dataset	Original dataset with cleaned numeric monetary values
Insight Summary	Written summary of key findings and business recommendations
Portfolio Documentation	README describing project scope, approach, and outcomes

### Schedule Overview / Major Milestones:

Milestone	Expected Completion Date	Description/Details
Data Import and Setup	Day 1	Database schema created and CSV imported
Data Cleaning	Day 2	Monetary values cleaned and validated
<i>Analysis Complete</i>	Day 3	Core business questions answered via SQL
Documentation Finalized	Day 4	README and portfolio materials completed

*Timeline is indicative and based on a self-directed project schedule. Additionally, all days should be assumed as business days.*

\*Estimated date for completion:

27 Dec, 2025.