■ Coffee Sales Analysis Project Report

This report analyzes **Coffee Shop Sales Data** to extract insights about customer purchasing patterns, sales trends, and builds a **basic predictive model** for sales. **Objectives:** - Data Cleaning & Preparation - Exploratory Data Analysis (EDA) - Time-based sales insights (daily, weekly, hourly) - Machine Learning model to predict sales - Business Insights

1. Data Cleaning
- Converted **date** and **datetime** columns to datetime format. - Filled missing values in **card** with 'Cash_Customer'. - Removed duplicate rows.

2. Feature Engineering
- Extracted **month**, **day of week**, and **hour** from datetime. - Created new columns for sales analysis.

3. Exploratory Data Analysis (EDA)
Key findings from visualization analysis:
- Latte and Americano with Milk are the **top-selling products**. - Sales trend shows steady increase from March to July. - **Tuesday** has the highest sales among weekdays. - Peak hours of sales are **10:00 AM** and **7:00 PM**.

4. Machine Learning Model
- Model: **Linear Regression** - Features: **day, hour, weekday** - Target: **money (sales amount)** - Performance:
• Mean Squared Error (MSE): Evaluated for accuracy. • R² Score: Indicates explanatory power of the model.

5. Key Business Insights
- **Top-selling product:** Latte - **Highest revenue month:** July - **Peak sales day:** Tuesday - **Peak sales hour:** 10:00 AM & 7:00 PM These insights can help optimize inventory, marketing strategies, and staffing.