User Manual for Coffee Shop Management System

Introduction

Welcome to the **Coffee Shop Management System**. This system has been developed to help coffee shops and retail businesses leverage **data visualization techniques** to improve operational efficiency, optimize inventory management, and enhance the customer experience. The system provides interactive dashboards and real-time insights into various aspects of the business, such as **sales trends**, **store performance**, **product analysis**, and **customer behavior**.

System Requirements

Before you start using the system, make sure your setup meets the following requirements:

- **Web Browser**: Google Chrome, Mozilla Firefox, or Microsoft Edge.

- **Internet Connection**: Required for interacting with the system's web interface.

- **Software Requirements**:

    - **Python 3.6+**

    - **Pandas** for data manipulation

    - **Plotly Express** for creating interactive visualizations

    - **Streamlit** for building the user interface

    - **Other Dependencies**: Streamlit, Plotly, Pandas, etc.

Getting Started

1. **Launch the Application**:

    - To begin using the system, run the **Streamlit** application script in your Python environment.

    - Open the terminal or command prompt and run the following command: "streamlit run app.py"

o   This will start a local server and open the application in your default web browser.

System Interface

Once you have the application running, the system provides an **interactive dashboard**. Here's an overview of the key features and navigation:

1. **Login Page**:

   o   You will first be prompted to log in to the system with a username and password.

   o   If you don't have an account, you can sign up through the login page.

2. **Main Dashboard**:
   After logging in, you will be redirected to the main dashboard where you can interact with the system's data visualizations and insights.

Navigation Menu

The navigation menu is located on the left sidebar and allows you to move between different analysis pages:

1. **Sales Trend Over Time**:

   o   **Purpose**: This page shows trends in total sales over time.

   o   **Interactive Features**:

      ▪   **Date Range Filter**: Filter data by a specific date range.

      ▪   **Visualizations**:

         ▪   Line chart showing **Total Sales**, **Cumulative Sales**, and **7-Day Moving Average** over time.

   o   **Explanation**: Use this page to understand seasonal trends and sales growth patterns.

2. **Sales by Store Location**:

- **Purpose**: This page compares the total sales across different store locations.

- **Interactive Features**:

    - **Store Selection**: Choose multiple stores for comparison.

    - **Visualization**: Bar chart showing sales performance for each store.

- **Explanation**: Use this page to assess store performance and optimize resource allocation.

3. **Sales by Product Category**:

    - **Purpose**: This page compares sales across various product categories (e.g., Coffee, Tea, etc.).

    - **Interactive Features**:

        - **Product Category Filter**: Select a category to view its performance.

        - **Visualization**: Bar chart comparing the sales by product category.

    - **Explanation**: Use this page to analyze which product categories are performing well.

4. **Sales by Hour of the Day**:

    - **Purpose**: This page displays a heatmap that shows sales volume by the hour of the day and day of the week.

    - **Visualization**: Heatmap showing **total sales** across different hours and days.

    - **Explanation**: Use this page to identify peak sales hours and optimize staffing.

5. **Product Performance Analysis**:

    - **Purpose**: This page provides insights into the best-selling products and helps identify underperforming items.

    - **Interactive Features**:

        - **Product Filters**: Select product categories and types to analyze.

        - **Visualization**: Bar chart showing product sales performance.

o **Explanation**: Use this page to plan inventory, promotions, and pricing for best-sellers and underperforming products.

Filtering and Customization

1. **Month Filter**:

   o Allows you to filter the data by **month** for specific analysis, helping you evaluate seasonal trends or make month-over-month comparisons.

2. **Product Filters**:

   o Customize your analysis by selecting specific **product categories**, **types**, and **details**. This is useful for deep dives into particular product performance or customer preferences.

3. **Store Filters**:

   o Similar to product filters, you can select **multiple store locations** to compare and analyze sales performance at various outlets.

Interpreting the Data

1. **Sales Trend Over Time**:

   o **Total Sales Line**: Represents the total revenue over time.

   o **Cumulative Sales Line**: Displays the running total of sales over time.

   o **7-Day Moving Average**: Smooths out daily fluctuations to show long-term trends.

2. **Sales by Store Location**:

   o The **length of each bar** represents the **total sales** for each store. Use this data to determine which stores need more attention or resources.

3. **Sales by Product Category**:

   o The **height of each bar** corresponds to the **total sales** for each product category. Higher bars represent better-performing categories.

4. **Sales by Hour of the Day**:

    o   The **color gradient** in the heatmap shows the **intensity of sales** at each hour and day. **Bright yellow and orange** areas represent **high sales**, and **blue** areas represent **low sales**.

5. **Product Performance**:

    o   **Top-Selling Products**: Products with the highest total sales will appear at the top of the chart.

    o   **Underperforming Products**: Products with low sales will appear at the bottom.

Recommendations & Actions

Based on your selections and the data visualizations, the system will generate tailored **recommendations**:

- **Optimizing Staffing**: The system will suggest increasing staff during peak sales hours and adjusting for lower-demand periods.

- **Inventory Management**: The system will recommend reordering or discontinuing products based on performance trends.

- **Product Promotions**: Based on sales data, the system will suggest promotional strategies for top-selling and underperforming products.

Interactive Features

The system offers the following interactive features to enhance the user experience:

- **Multiselect Filters**: Select multiple stores or product categories for side-by-side comparisons.

- **Dynamic Updates**: All charts and visualizations update in real-time based on your filters and selections.

- **Interactive Charts**: Hovering over data points will provide specific values and insights, such as the total sales for a product or store.

Help and Support

If you need assistance:

- **FAQ**: The FAQ section on the main dashboard provides answers to common questions.

- **Contact Support**: For technical support, contact me at azhannazam@gmail.com.

- **User Feedback**: Feel free to submit feedback for improving the system via the "Feedback" button in the app.