Sales Data Analysis Report

This report outlines the data analysis performed on sales and expenditure data using Python. The project aimed to answer specific business-related questions, categorized as either basic or advanced, using the provided dataset. Additionally, a user-friendly menu was developed to facilitate easy access to different parts of the code.

Key Business Questions and Analysis

Basic Questions

These questions focus on fundamental business metrics, providing a foundational understanding of the data.

1. What are the total sales across all months?

2. What are the average sales per month?

3. Which months had the highest and lowest sales?

- *Highlights peak and trough sales months for further analysis.*

4. Which months had sales below a certain threshold?

Advanced Requirements

These questions involve more complex analysis, often requiring comparisons, trend analysis, and profitability assessments.

5. What is the percentage change in sales between consecutive months?

- **Objective**: To understand sales fluctuations over time and identify significant trends.
- **Method**: Calculate the percentage change between consecutive months.
- **Outcome**: Highlights growth or decline periods, providing insights into sales dynamics.

6. Which months had expenditures higher than sales?

- **Objective**: To identify unprofitable months where expenses exceeded sales.
- **Method**: Comparing sales and expenditure data for each month.
- **Outcome**: Reveals periods of financial loss, critical for managing business risks.

7. What is the profit for each month, and what is the overall profit summary?

- **Objective**: To calculate monthly profits and provide an overall profit summary.

- **Method**: Subtracting expenditure from sales to compute monthly profit, followed by aggregating these values.
- **Outcome**: Offers a clear picture of monthly and cumulative financial health.

User-Friendly Menu for Easy Access

To enhance usability, a menu-driven interface was developed. This allows users to easily navigate and execute different parts of the code without manually modifying it. The menu presents options to perform various analytical tasks, such as calculating total sales, finding the highest and lowest sales months, and generating a profit summary.

Menu Options Include:

1. Read the Data from the Spreadsheet
2. Collect all Sales into a Single List
3. Output Total Sales Across All Months
4. Calculate Monthly Percentage Changes
5. Calculate Average Sales
6. Identify Months with the Highest and Lowest Sales
7. Identify Months with Sales Below a Certain Level
8. Identify Months Where Expenditure Exceeded Sales
9. Calculate Monthly Profit and Generate Summary
10. Exit the Program

This menu makes the code more accessible, especially for users who may not be familiar with Python, by providing a straightforward way to perform complex analysis tasks.

Python Features and Libraries Used

The project leveraged several Python features and libraries to perform data analysis and build the interactive menu:

1. CSV Module:

- Purpose: To read and write data from and to CSV files.

- Usage: Extracting sales and expenditure data, and saving the results of the analysis.

2. Basic Python Data Structures:

- Lists: Used to store sales, expenditure, and month data.

- Functions: Modular code design for different analytical tasks.

3. Control Structures:

- Conditional Statements: To navigate through the menu options.

- Loops: For iterating over the dataset to perform calculations.