**Project Documentation: Coffee Shop Sales Analysis Using Excel**

This project is focused on analyzing coffee shop sales using Excel tools such as Pivot Tables, Power Query Editor, Power Pivot, Data Models, Slicers, and Measures. The objective is to clean, transform, and load data to create interactive dashboards for analysis.

**1. Introduction**

The objective of this project is to analyze sales data from a coffee shop using advanced Excel functionalities. The goal is to derive actionable insights such as sales trends, performance by product, and customer preferences. The project will use data cleaning, transformation, and modelling techniques to prepare the data for effective analysis using Pivot Tables and Dashboards.

**2. Tools and Techniques Used**

* Power Query Editor
* Power Pivot
* Pivot Tables
* Slicers
* Measures

**3. Step-by-Step Approach**

**Step 1: Data Cleaning using Power Query Editor**

1. **Import Data:**
   * Open Excel and go to the **Data** tab.
   * Click on **Get Data** and choose your data source (e.g., CSV, Excel).
   * Load your data into the Power Query Editor.
2. **Adding a New Column for Size:**

In the **Product Details** column, the values might include abbreviations like "RG", "LG", "SM". It needs to convert to their full forms ("Regular", "Large", "Small") as new column Size.

**3: Cleaning the Product Details Column**

1. Select the **Product Details** column.
2. Go to the **Transform** tab and select **Replace Values**.
3. Replace "RG", "LG", and "SM" with blanks.
   * Example: Replace "RG" with a blank and "LG" with a blank.
4. After this, remove any extra spaces by selecting **Transform** > **Trim** to remove leading and trailing spaces.

#### **4: Adding a New Column for Total Bill**

1. To calculate the **Total Bill**, add a new column by selecting **Add Column** > **Custom Column**.
2. Use the formula:

= [Quantity] \* [Price]

1. Name the new column **Total Bill**.

**5: Splitting Date and Time Columns**

1. the **Transaction Date** column includes both date and time, use **Transform** > **Split Column** > **By Delimiter** to separate the date and time.
2. Select the delimiter as space or another appropriate separator.
3. Change the **Transaction Time** column’s data type to **Time**.
4. Ensure that the **Transaction Date** column is in **Date** format.

**6: Adding New Columns for Month, Day Name, and Hour**

1. **Month**: Create a new column for **Month** by selecting **Extract**> **Month** > **Name of Month** from the **Transaction Date** column.
2. **Day Name**: Add another column for **Day Name** using **Extract**> **Day of Week** > **Name of Day**.
3. **Hour**: Add a column for **Hour** by selecting **Extract** > **Hour** from the **Transaction Time** column.

**Step 2: Loading Data into Excel and Data Models**

1. Once the data transformation is complete, go to **Home** > **Close & Load** **to** load the data into Excel.
2. Ensure that the data is loaded into both the Excel sheet and the Data Model for further analysis in Pivot Tables.

**Step 3. Data Analysis**

**1: Creating Pivot Tables and Charts**

1. Go to **Insert** > **Pivot Table** and select **Use this Workbook’s Data Model**.
2. Create a Pivot Table to analyze total sales by product category, size, month, or day. For example:
3. Creating charts (bar, line, pie) based on the Pivot Table results:.

**2: Creating Slicers and Measures**

1. **Adding Slicers**:
2. **Creating Measures**:
   * Use **Power Pivot** to create calculated measures, such as:
     + **Total Sales**: Total Sales = SUM(Sales[Total Bill])
     + **Average Sales**: Average Sales = AVERAGE(Sales[Total Bill])
     + **Total Quantity**: Total Quantity = SUM(Sales[Quantity])
   * Adding these measures to Pivot Tables for advanced calculations.

**Step 4. Dashboard Creation**

1. **Arrange Pivot Tables and Charts**:
   * Create a new worksheet and arrange the Pivot Tables, charts, and slicers into a dashboard layout.
   * Ensure that the dashboard is clean, intuitive, and easy to read.
2. **Make the Dashboard Interactive**:
   * Use the slicers to filter the data dynamically. As users interact with slicers (e.g., selecting a specific month or product), the Pivot Tables and charts should update automatically.
3. **Enhance Visual Appeal**:
   * Customize the design of the dashboard by formatting the Pivot Tables and charts.
   * Use color coding or conditional formatting to highlight key insights, such as top-selling products or months with the highest sales.

**4. Insights**

**1.Total Performance**

* **Total Sales**: The coffee shop has generated **$698,812.33** in total sales.
* **Total Footfall**: The total number of customers visiting the shop is **149,116**.
* **Average Bill Per Person**: The average bill per person is **$4.69**.
* **Average Orders Per Person**: Each person, on average, makes **1.4 orders**.

**2. Sales and Footfall by Location**

* **Astoria** has the highest footfall at **50,599** with sales of **$232,243.91**.
* **Hell’s Kitchen** follows closely with **50,735** footfall and **$236,511.17** in sales.
* **Lower Manhattan** has the least footfall at **47,782** but still has significant sales of **$230,057.25**.

**3. Order Distribution by Hours**

* The highest quantity of orders is between **9 AM to 10 AM**, peaking around **10 AM**.
* A steady decline in orders is observed after **10 AM**, with the least orders around **8 PM**.

**4. Product Sales Distribution**

* **Barista Espresso** is the top-selling product with sales of **$91,406.20**.
* Other popular products include **Brewed Black Tea** ($47,932.00), **Brewed Chai Tea** ($77,081.95), **Gourmet Brewed Coffee** ($70,034.60), and **Hot Chocolate** ($72,416.00).

**5. Category Distribution**

* **Coffee** dominates the sales, accounting for **39%** of total orders.
* Other significant categories include **Bakery** (12%), **Branded products** (28%), and **Tea** (6%).

**6. Size Distribution Based on Orders**

* **Regular size** orders constitute **31%**, closely followed by **Large size** orders at **30%**.
* **Not Defined** sizes and **Small size** orders make up **30%** and **9%** respectively.

**7. Orders on Weekdays**

* The shop sees consistent orders throughout the weekdays, peaking on **Friday** with **21,701** orders.
* **Saturday** shows a significant drop in orders to **20,510**, the lowest among the days shown.
* The order volume is fairly stable across the weekdays, with slight variations between days.

