# "Brewing Insights: Coffee Shop Sales Optimization"

## Business Problem

The coffee shop currently faces significant variability in its sales performance, which impacts operational efficiency and profitability. Management lacks detailed insights into how factors such as time of day, day of the week, and location differences influence sales trends. This uncertainty hinders their ability to make informed decisions regarding staff scheduling, inventory management, and promotional activities. Additionally, without a clear understanding of customer preferences and spending habits across different store locations and product categories, the coffee shop cannot effectively tailor its marketing strategies or optimize its product mix to meet consumer demands.

By addressing this business problem through comprehensive data analysis, the coffee shop aims to enhance operational decisions and improve its overall business strategy to increase customer satisfaction and drive revenue growth.

## Business Objective

The main objective of this project is to analyze retail sales data to gain actionable insights that will enhance the performance of the coffee shop. This includes identifying peak sales times, understanding product preferences, and evaluating sales performance across various store locations to implement targeted improvements.

**Dataset link:**

https://docs.google.com/spreadsheets/d/1KvDHH_ugMXZ8U68U8RZQdEBtLmxKVVhx/edit?usp=sharing&ouid=115940204288079615785&rtpof=true&sd=true

### Dataset description

A more detailed data description for each attribute in the provided coffee sales dataset, tailored to the example data you've shown:

1. **transaction_id**: A unique numerical identifier assigned to each transaction, facilitating tracking and reference in the dataset. For instance, transaction ID 114301 uniquely identifies a specific sales transaction.

2. **transaction_date**: The date on which the transaction occurred, formatted as MM/DD/YYYY. This attribute helps in performing temporal analyses and identifying sales trends over dates, such as on 6/1/2023.
3. **transaction_time**: The exact time at which the transaction was processed, noted in HH:MM:SS AM/PM format. This can be used to analyze sales activity at different times of the day, such as 11:33:29 AM.
4. **store_id**: An identifier for the store where the transaction was conducted. It helps differentiate transactions across various store locations, such as store number 3 in Astoria.
5. **store_location**: Specifies the geographical location or name of the store where the transaction took place, which can be used for regional sales analysis. For example, transactions in the "Astoria" location.
6. **product_id**: A unique identifier for the product sold during the transaction. This helps in tracking and analyzing sales data related to specific products, as seen with product ID 45.
7. **transaction_qty**: Indicates the quantity of the product purchased in a single transaction, essential for inventory and sales volume analysis. In the examples, a quantity of 1 represents a single unit sold per transaction.
8. **unit_price**: The price of a single unit of the product at the time of sale, listed in the local currency. This is crucial for revenue and profitability analysis. Each unit in your examples costs $3.
9. **product_category**: The broad category to which the product belongs, useful for segmenting sales analysis. Here, all listed products fall under the "Tea" category.
10. **product_type**: Describes the specific type of product sold. For instance, "Brewed herbal tea" specifies the product type which can influence product-specific marketing strategies.
11. **product_detail**: Provides additional details about the product, such as "Peppermint," which can help in analyzing preferences for specific flavors or variants.
12. **Size**: Specifies the size variant of the product sold, like "Large", which may affect pricing and customer choice.
13. **Total_bill**: The total amount charged for the transaction, crucial for financial summaries and analysis. In the examples provided, each transaction results in a total bill of $3.
14. **Month Name**: The name of the month when the transaction occurred, useful for monthly sales tracking and analysis. Example: "June".
15. **Day Name**: Indicates the day of the week the transaction took place, such as "Thursday" or "Friday". This is useful for analyzing weekly sales patterns.

16. **Hour**: The hour of the day when the transaction was made, displayed in 24-hour format, which helps in identifying peak sales hours. For instance, transactions at 11 AM and 12 PM.
17. **Day of Week**: The numeric representation of the day within the week, where 1 might represent Sunday and 7 represents Saturday, assisting in weekly trend analysis. For example, "4" for Thursday and "5" for Friday.
18. **Month**: The month number of the year, facilitating easier sorting and analysis by month. Example: "6" for June.

## Task-wise Breakdown of Questions

Here's how you can divide the questions into specific analysis tasks:

1. **Temporal Sales Analysis**
    - **Task:** Determine how sales vary by day of the week and hour of the day.
    - **Objective:** Identify peak sales periods to optimize staffing and inventory management.
2. **Monthly Revenue Analysis**
    - **Task:** Calculate the total sales revenue for each month.
    - **Objective:** Assess monthly performance trends to guide marketing and promotional strategies.
3. **Location-based Sales Comparison**
    - **Task:** Analyze how sales vary across different store locations.
    - **Objective:** Identify high-performing stores and understand factors contributing to regional sales differences.
4. **Customer Spending Habits**
    - **Task:** Determine the average price per order per person.

- **Objective:** Evaluate pricing strategies and customer spending behaviors to adjust menu pricing or promotions.

5. **Product Performance Analysis**

    - **Task:** Identify which products are the best-selling in terms of quantity and revenue.

    - **Objective:** Focus on high-demand products in inventory decisions and marketing efforts.

6. **Category-wise Sales Distribution**

    - **Task:** Examine how sales vary by product category and type.

    - **Objective:** Tailor product offerings based on category performance and customer preferences.

7. **Excel Function**

    - **Task : Find Total Sales for a Specific Product**

      **Objective:** Calculate the total revenue generated from the sale of "Brewed herbal tea."

    - **Task: Average Price Per Transaction by Day**

      **Objective:** Identify which product size (e.g., Small, Medium, Large) has the highest sales quantity.

    - **Task: Average Price Per Transaction by Day**

      **Objective:** Calculate the average transaction bill by each day of the week.

    - **Task:Lookup Details of a Specific Transaction**

      **Objective:** Use the transaction ID to find all details of a specific transac

    - **Task : Count Number of Transactions Per Store**

**Objective:** Count how many transactions each store has completed.

- **Task : List Transactions Above a Certain Value**

  **Objective:** Identify transactions where the total bill was greater than $5.