## 1. Customer Segmentation & Lifetime Value (LTV)

* **Business Problem:** The company needs to understand its customer base better to create targeted marketing campaigns. They don't know who their most valuable customers are.
* **How the data helps:** Use customer\_id, sales, order\_id, and order\_date to calculate each customer's total spending and purchase frequency. This will allow you to segment customers into groups like "High-Value," "Frequent Shoppers," etc.
* **Recommended Time Frame:** Full Dataset (2014-2017).
* **Key Analytical Steps:**
  + Calculate total sales for each customer.
  + Calculate the average time gap (in days) between orders for each customer.
  + Segment customers into "High-Value & Frequent," "High-Value," "Frequent Shopper," and "Other."
  + Calculate the total LTV (sum of sales) for each segment.

## 2. Churn Analysis

* **Business Problem:** Identify customers who have stopped purchasing to understand potential reasons and target re-engagement campaigns.
* **How the data helps:** Define a "churned" customer by comparing their last order date to the most recent order date in the dataset.
* **Recommended Time Frame:** Full Dataset (2014-2017).
* **Key Analytical Steps:**
  + Find the latest order date in the entire dataset.
  + Find the last order date for each individual customer.
  + Flag any customer whose last purchase was over a year ago as "churned."
  + Retrieve their last known region, product\_category, and segment.

## 3. Product Performance & Ranking by Region

* **Business Problem:** Understand which products are top performers in different regions to inform sales strategies, inventory management, and marketing.
* **How the data helps:** Aggregate sales and profit data for each product and rank them within each region.
* **Recommended Time Frame:** The year 2017, to focus on recent performance.
* **Key Analytical Steps:**
  + Filter the dataset for orders from 2017.
  + Calculate total sales and profit for each unique product\_name and region combination.
  + Use a ranking function (RANK()) to rank products by profit, partitioned by region.

## 4. Analyzing Order Frequency and Gaps

* **Business Problem:** Understand customer behavior to identify opportunities to encourage more frequent purchases.
* **How the data helps:** Calculate the time gap (in days) between orders for each customer to reveal purchasing patterns.
* **Recommended Time Frame:** Full Dataset (2014-2017).
* **Key Analytical Steps:**
  + List all order\_date entries per customer, sorted chronologically.
  + Calculate the time difference between every consecutive order for each customer.
  + Calculate the average of these time differences for each individual customer.

## 5. Sales Time-Series Analysis

* **Business Problem:** Identify which time of the year has higher sales to inform future strategies for marketing and promotions.
* **How the data helps:** By aggregating total sales and order count by month, you can identify seasonal trends or peak selling periods.
* **Recommended Time Frame:** The year 2017.
* **Key Analytical Steps:**
  + Filter the dataset to include only orders from 2017.
  + Group sales data by month.
  + Calculate the total sales and the count of unique orders for each month.
  + Order the results to identify the top-performing months.