**Part 1: Data Cleaning & Preparation**

1. **Missing values**
   * **Which columns have missing values?**
   * **What percentage of the dataset is missing in each column?**
   * **Suggest and apply strategies to fill/fix missing values for:**
     + **Item**
     + **Quantity**
     + **Total Spent**
     + **Discount Applied**
2. **Data consistency**
   * **Are all Transaction IDs unique? If not, identify duplicates.**
   * **Are there duplicate rows in the dataset?**
   * **Verify whether Price Per Unit × Quantity = Total Spent. Flag mismatches.**
3. **Data types**
   * **Convert Transaction Date into a proper datetime object.**
   * **Ensure Price Per Unit, Quantity, and Total Spent are numeric.**
   * **Convert Discount Applied into a Boolean (True/False).**
4. **Standardization**
   * **Standardize values in Payment Method (e.g., fix casing differences).**
   * **Standardize Location (“Online” vs “In-store”).**
   * **Ensure Category values follow one naming convention.**

**📊 Part 2: Basic Exploration (Univariate Analysis)**

1. **How many total transactions are in the dataset?**
2. **How many unique customers are there?**
3. **What is the distribution of transactions by Category?**
4. **What is the distribution of Payment Method?**
5. **What is the distribution of transactions by Location (Online vs In-store)?**
6. **What is the overall average Total Spent per transaction?**
7. **What is the overall median Quantity purchased per transaction?**

**🔎 Part 3: Customer Analysis**

1. **Which customers spent the most overall?**
2. **Which customers made the highest number of transactions?**
3. **Which customers purchased from the most categories?**
4. **Do customers show a preference for Online or In-store shopping?**
5. **Which customer has the largest average spend per transaction?**

**🛒 Part 4: Category & Item Analysis**

1. **Which category generated the most total revenue?**
2. **Which category has the highest average Total Spent per transaction?**
3. **Which items are the top sellers by total quantity sold?**
4. **Are discounts applied more frequently in certain categories?**
5. **Which category has the highest number of unique customers buying from it?**

**📅 Part 5: Time-based Analysis**

1. **What is the date range of the dataset?**
2. **How do transactions trend over time (monthly / yearly)?**
3. **In which month(s) did the most transactions occur?**
4. **Which month had the highest total revenue?**
5. **Is there a difference in average transaction value between 2022, 2023, and 2024?**
6. **Do discount transactions cluster in certain months/seasons?**

**💳 Part 6: Payment & Discount Insights**

1. **Which payment method is used most often?**
2. **Which payment method generates the highest revenue?**
3. **Does average Total Spent differ between Credit Card and Digital Wallet?**
4. **What percentage of all transactions had discounts applied?**
5. **Do transactions with discounts have a higher average Quantity than those without?**
6. **Do discount transactions generate more total revenue compared to non-discount ones?**