step-by-step process for analyzing and visualizing the prescription patterns of the "Target Drug":

Step 1: Load and Prepare the Data

1. Load the dataset containing information about the "Target Drug," including patient IDs, prescription dates, and any other relevant columns.

2. Preprocess the data if needed, ensuring that the date column is in a suitable format and any necessary cleaning is performed.

Step 2: Identify Prescription Patterns

1. Calculate the time intervals between consecutive prescriptions for each patient. This can be done by grouping the data by patient ID and sorting prescription dates.

2. Compute the average time interval between prescriptions for each patient to get an idea of the typical pattern.

Step 3: Extract Dominant Patterns Using Clustering

1. Use unsupervised clustering techniques such as K-means to identify dominant prescription patterns. Input features can include patient IDs and the calculated average time intervals.

Step 4: Visualize Prescription Patterns

1. Plot the identified prescription patterns on a line chart, where the X-axis represents time (months) and the Y-axis represents the number of prescriptions.

2. Each cluster will have its line on the same chart, showing the prescription pattern for patients in that cluster.

Step 5: Interpretation and Insights

1. Analyze the visualized patterns to identify trends and insights. For example, you may find clusters representing patients who receive prescriptions every month, every two months, etc.

4. Summarize the key takeaways and recommendations based on the analysis.