**Task 1: Data Preparation**

1. The dataset is read from the 'retail\_data\_v1.xlsx' file using **pd.read\_excel()** and stored in the **df** DataFrame.
2. Rows with missing values are dropped using **df.dropna()**.
3. The data is sorted based on customer ID and Date using **df.sort\_values()**.
4. A new column named 'TotalAmount' is created by multiplying 'Quantity' and 'UnitPrice'.

**Task 2: Customer Segmentation**

1. The total purchase amount for each customer is calculated using **df.groupby().sum()**.
2. The percentiles (high\_limit and low\_limit) are calculated using **np.percentile()**.
3. Customers are segmented based on their total purchase amount using a loop and conditional statements.
4. A new DataFrame named **segmentation\_df** is created to store the customer segmentation information.

**Task 3: Time Series Analysis**

1. A new column named 'Month' is created to represent the month of each purchase using **df['Date'].dt.to\_period('M')**.
2. The total purchase amount for each month is calculated using **df.groupby().sum()** and stored in the **monthly\_purchase** Series.
3. The trend DataFrame is created, including the 'Month', 'TotalAmount', and 'GrowthRate' columns.
4. The growth rate is calculated as the percentage change in the total purchase amount from the previous month.
5. A summary report of the trend is generated using **trend.describe()**.

The code also saves the prepared data, customer segmentation, trend analysis, and summary report to separate Excel files using the **to\_excel()** method.

Finally, the customer segmentation, trend analysis, and summary report are displayed using **print()**.