EX:No.1 DATE: 25/01/2	**Implement Programs For Time Series Data Cleaning, Loading, And Handling Time Series Data And Pre-Processing Techniques**

AIM:

To clean, preprocess, and visualize stock data, focusing on trend analysis and handling missing values.

ALGORITHM:

1. Load the Dataset
2. Convert data Column to Datetime Format
3. Calculate Average AQI Per Country
4. Display the Top 10 Most Polluted Countries
5. Analyze AQI Trends for a Specific Country
6. Plot the AQI Trend for the Selected Country
7. End the Program

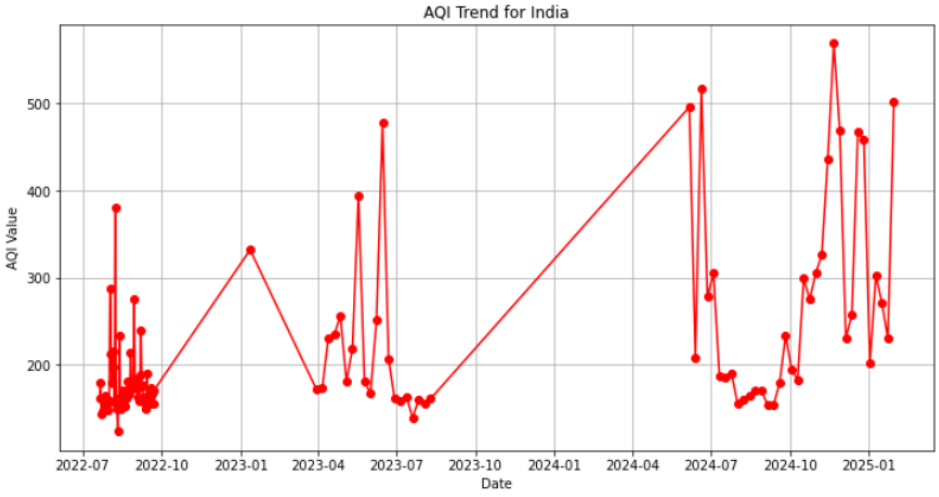
CODE:

```
import pandas as pd
import matplotlib.pyplot as plt
# Load the dataset
file_path = "data_date.csv"  # Update with the correct file path
df = pd.read_csv(file_path)
# Convert 'Date' column to datetime format
df['Date'] = pd.to_datetime(df['Date'])
# Aggregate AQI values by country
aqi_avg = df.groupby("Country")['AQI Value'].mean().sort_values(ascending=False)
# Display top 10 most polluted countries
print("Top 10 most polluted countries:")
print(aqi_avg.head(10))
# Plot AQI trend for a specific country (e.g., India)
country = "India"
df_country = df[df['Country'] == country].groupby("Date")['AQI Value'].mean()
```

```
plt.figure(figsize=(12, 6))
plt.plot(df_country, marker='o', linestyle='-', color='r')
plt.title(f"AQI Trend for {country}")
plt.xlabel("Date")
plt.ylabel("AQI Value")
plt.grid()
plt.show()
```

OUTPUT:

```
Top 10 most polluted countries:
Country
India                          213.519380
China                          173.658915
Qatar                          157.408602
Iraq                           155.544715
Iran                           152.984375
Bangladesh                     147.604651
Ethiopia                       133.891473
Uganda                         129.589147
Bahrain                        128.655172
United States of America       124.782946
Name: AQI Value, dtype: float64
```



RESULT:

Thus the program has been completed and verified successfully.