

**EX:No.1**

**DATE: 25/01/25**

**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 stock data from the CSV file.
2. Parse the date column and set it as the index.
3. Handle missing values by filling them with forward fill.
4. Convert columns like Open, Close, Volume to numeric values.
5. Compute moving averages (7-day and 30-day) for trend analysis.
6. Drop any rows with NaN values created during moving average computation.
7. Visualize the closing price along with the moving averages using a line plot.

**CODE:**

```
# Import necessary libraries
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns

# Load the dataset
data = pd.read_csv('/content/ma_lga_12345.csv')

# Step 1: Convert 'saledate' to datetime format
data['saledate'] = pd.to_datetime(data['saledate'], format='%d/%m/%Y')

# Step 2: Sort data by 'saledate'
data = data.sort_values(by='saledate')

# Step 3: Check for missing values and handle them
if data.isnull().sum().any():
```

```
data = data.fillna(method='ffill').fillna(method='bfill')

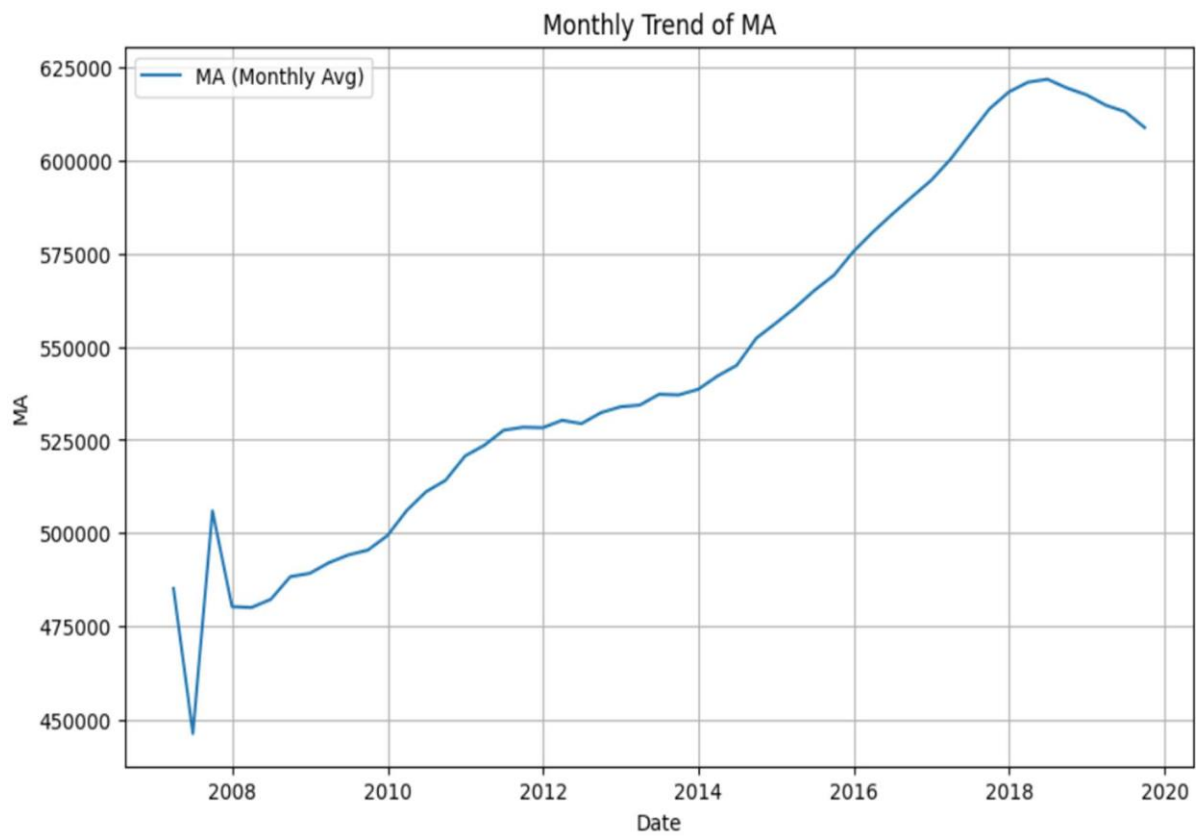
# Step 4: Resample the data to monthly averages
numeric_data = data.select_dtypes(include=['number'])
monthly_data = numeric_data.resample('M').mean()

# Step 5: Visualize the data

plt.figure(figsize=(10, 6))
sns.lineplot(data=monthly_data, x=monthly_data.index, y='MA', label='MA
(Monthly Avg)')
plt.title('Monthly Trend of MA')
plt.xlabel('Date')
plt.ylabel('MA')
plt.legend()
plt.grid(True)
plt.show()

# Summary of cleaned data
print("Cleaned Data Summary:")
print(monthly_data.head())
```

## OUTPUT:



## RESULT:

Thus the program has been completed and verified successfully.