EX:No.1 221501017

21/01/25

PROGRAM TO IMPLEMENT TIME SERIES DATA FOR IMPORT LIBRARY, LOAD DATA, PREPROCESSING AND VISUALISING

AIM:

To write Program to implement time series data for import library, load data, Preprocessing and visualising.

PROCESS:

#Importing libraries

import pandas as pd

Load the stock data

file_path = r'AAPL_short_volume.csv' data = pd.read_csv(file_path) close_prices_AAPL = data['Close']

Reverse the order of the data

close_prices_AAPL_reverse = close_prices_AAPL.iloc[::-1]

Reset index to maintain the correct time series order in the plot

close_prices_AAPL_reverse.reset_index(drop=True, inplace=True)

1. Handling Missing Values:

Check for missing values in each column

print(data.isnull().sum())

Drop rows with missing values (if not too many)

data.dropna(inplace=True)

Fill missing values in 'Close' with the mean - Moved before outlier handling

data['Close'].fillna(data['Close'].mean(), inplace=True) # Fill NaNs in 'Close' column

2. Handling Outliers:

(a) Visualization: Create box plots or scatter plots to visually identify outliers.

(b) Using IQR (Interquartile Range):

Calculate IQR for relevant numerical columns, e.g., 'Close'

Q1 = data['Close'].quantile(0.25)

Q3 = data['Close'].quantile(0.75)

IQR = Q3 - Q1

 $lower_bound = Q1 - 1.5 * IQR$

 $upper_bound = Q3 + 1.5 * IQR$

Filter data to remove outliers

data = data[(data['Close'] >= lower_bound) & (data['Close'] <= upper_bound)]

Data preprocessing

import numpy as np

data = close_prices_AAPL_reverse.values.reshape(-1, 1) # Reshape the data

data_normalized = data / np.max(data) # Normalize the data

Split the data into training and testing sets

train_size = int(len(data_normalized) * 0.8)

train_data = data_normalized[:train_size]

test_data = data_normalized[train_size:]

Plot the line chart

import matplotlib.pyplot as plt

plt.figure(figsize=(10, 6))

plt.plot(close_prices_AAPL_reverse)

plt.xlabel('Time')

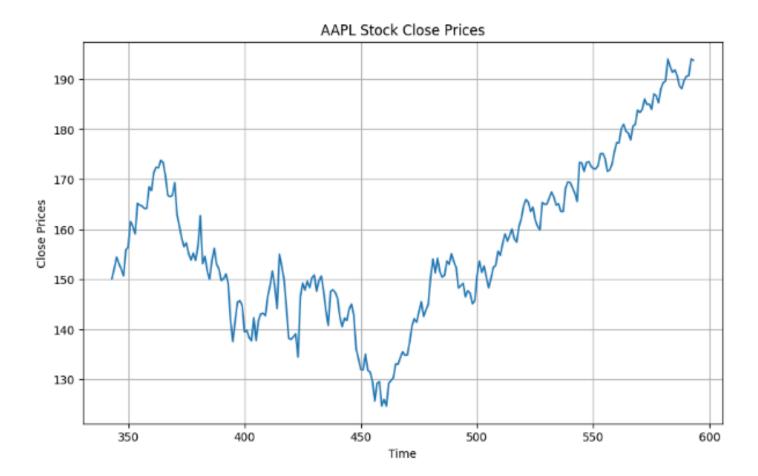
plt.ylabel('Close Prices')

plt.title('AAPL Stock Close Prices')

plt.grid(True)

plt.show()

OUTPUT:



RESULT:

The program To write Program to implement time	series data for import	t library, load data	, Preprocessing
and visualising is created and executed successfully	y .		