**Fetching and Processing Stock Data for Tata Group Companies**

**Overview :**

This documentation explains how to fetch historical stock data for Tata Group companies listed on the Bombay Stock Exchange (BSE) using the yfinance library. The data includes stock prices and trading volume from January 1, 2021, to December 31, 2022. The code samples the data to reduce the size of the resulting CSV file and saves it for further analysis.

**Prerequisites**

Before running the code, ensure you have the Python packages Yfinance,pandas.

pip install yfinance pandas

**List of Tata Group Companies:**

The list below contains BSE symbols for Tata Group companies. These symbols will be used to fetch stock data.

symbols = [

'TCS.BO', 'TATAMOTORS.BO', 'TATASTEEL.BO', 'TATAPOWER.BO',

'TATACHEM.BO', 'TATAELXSI.BO', 'TITAN.BO', 'TATACONSUMER.BO',

'TATACOMM.BO', 'TATAAD.BO', 'TATAINVEST.BO', 'TATASPONGE.BO',

'TATAMETALI.BO', 'TATACOFFEE.BO', 'TATASTEELLONG.BO', 'TATTELESER.BO',

'TATAREALTY.BO', 'TATAHOUSING.BO', 'TATAENGG.BO', 'TATAADVANCED.BO'

]

Python code fetches historical stock data for the Tata Group companies, processes it, and saves it to a CSV file.

1. Import Required Libraries

import yfinance as yf

import pandas as pd

2. Define Symbols and Date Range

# List of Tata Group companies' symbols on BSE

symbols = [

'TCS.BO', 'TATAMOTORS.BO', 'TATASTEEL.BO', 'TATAPOWER.BO',

'TATACHEM.BO', 'TATAELXSI.BO', 'TITAN.BO', 'TATACONSUMER.BO',

'TATACOMM.BO', 'TATAAD.BO', 'TATAINVEST.BO', 'TATASPONGE.BO',

'TATAMETALI.BO', 'TATACOFFEE.BO', 'TATASTEELLONG.BO', 'TATTELESER.BO',

'TATAREALTY.BO', 'TATAHOUSING.BO', 'TATAENGG.BO', 'TATAADVANCED.BO'

]

# Date range

start\_date = '2021-01-01'

end\_date = '2022-12-31'

**3. Fetch and Process Data**

Fetch data using yfinance, sample it to reduce size, and store it in a dictionary.

# Dictionary to store the data for each company

company\_data = {}

#Fetch data for each company

for symbol in symbols:

print(f"Fetching data for {symbol}...")

data = yf.download(symbol, start=start\_date, end=end\_date)

if not data.empty:

data['Company'] = symbol

# Sample the data to reduce the size (e.g., take every 10th row)

data\_sampled = data.iloc[::10]

company\_data[symbol] = data\_sampled[['Open', 'High', 'Low', 'Close', 'Volume']]

print(f"Data for {symbol}:\n", data\_sampled.head(), "\n")

**4. Combine Data and Save to CSV**

Combine the data into a single DataFrame and save it as a CSV file.

python

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# Combine data into a single DataFrame with MultiIndex

combined\_data = pd.concat(company\_data, keys=company\_data.keys(), names=['Company', 'Date'])

# Reset index to have 'Date' as a column

combined\_data.reset\_index(level=0, inplace=True)

# Rename 'Volume' to 'No. of Shares'

combined\_data.rename(columns={'Volume': 'No. of Shares'}, inplace=True)

# Save the combined data to a CSV file

combined\_data.to\_csv('tata\_group\_company\_data.csv', index=False)

print("Data has been saved to 'tata\_group\_company\_data.csv'")

**Output**

The output is a CSV file named tata\_group\_company\_data.csv which contains historical stock data for Tata Group companies, including:

* Date
* Open price
* High price
* Low price
* Close price
* Number of shares traded (renamed from 'Volume')

**Error Handling**: The code assumes that the data fetch is successful. You might want to add error handling for cases where data is not available or the fetch fails.