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# Module 1: Importing libraries
import yfinance as yf
import pandas as pd
import matplotlib.pyplot as plt
from datetime import datetime, timedelta

# Module 2: Fetching stock data
def fetch_stock_data(ticker_symbol, start_date, end_date):
stock = yf.Ticker(ticker_symbol)
data = stock.history(start=start_date, end=end_date)
return data

# Module 3: Saving data to CSV
def save_to_csv(data, filename):
data.to_csv(filename)
print(f"Data saved to {filename}")

# Module 4: Plotting the stock prices
def plot_stock_data(data, ticker_symbol):
plt.figure(figsize=(10, 5))
plt.plot(data.index, data['Close'], label='Close Price', color='blue')
plt.title(f'{ticker_symbol} Stock Price')
plt.xlabel('Date')
plt.ylabel('Price')
plt.legend()
plt.grid(True)
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plt.tight_layout()
plt.show()

# Module 5: Main function to run all modules
def main():
ticker = 'AAPL'
end_date = datetime.today()
start_date = end_date - timedelta(days=30)
start_str = start_date.strftime('%Y-%m-%d')
end_str = end_date.strftime('%Y-%m-%d')

print("Fetching stock data...")
stock_data = fetch_stock_data(ticker, start_str, end_str)
print("\nSample fetched data:")
print(stock_data.head())

print("\nSaving data to CSV...")
save_to_csv(stock_data, f'{ticker}_stock_data.csv')

print("\nPlotting stock data...")
plot_stock_data(stock_data, ticker)

# Run the program
if __name__ == "__main__":
main()
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