Project Pitch – Interactive Stock Price Visualizer & Analyzer

Summary:

We will design a Python-based GUI application that fetches live and historical stock data, visualizes it using interactive Plotly graphs, and allows users to compare companies, view trends, and apply simple analytics like moving averages. The app will feature a clean, user-friendly interface built with Tkinter and will provide smooth user experience and financial insight.

Libraries Used:

Purpose	Library
Stock Data:	*yfinance*
Data Handling:	*pandas, datetime*
Visualization:	*plotly*
GUI:	*tkinter*
File Export:	*os, csv, plotly.io*

Group Role Breakdown

1. Data Fetching & Cleaning Lead

Responsibilities:

- Fetch historical stock data via yfinance based on user inputs (ticker symbol, date range)
- Clean and process the data:
    - Handle missing values
    - Compute metrics like moving averages, returns, volatility
    - Structure data for multi-ticker comparisons

Relevant Libraries: yfinance, pandas, datetime

2. Visualization & Analytics Lead

Responsibilities:

- Create interactive Plotly visualizations (line plots, volume bars, moving averages overlays)
- Allow toggling analytics on/off (SMA, EMA, volatility)
- Enable dynamic scaling and zooming with Plotly tools
- Handle exporting graphs to PNG format

Relevant Libraries: plotly.graph_objects, pandas, plotly.io

3. GUI & User Interaction Lead

Responsibilities:

- Build a fully functional Tkinter GUI:
    - Input fields for ticker symbols, date range
    - Buttons to fetch, visualize, compare, export
    - Embedded or window-based plot display
- Error handling and user feedback ("Invalid ticker" messages)
- Connect GUI inputs to backend and visualization logic

Relevant Libraries: tkinter, os, csv