

DCS211 Final Project
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Investment Analyzer - User Instructions

Project Overview

- Investment Analyzer is a Python-based financial analysis tool with two main utilities:
 - 1) Stock Analysis Tool - Analyzes individual stocks with current metrics and historical performance
 - 2) Portfolio Growth Projector - Projects future portfolio growth based on historical CAGR with inflation adjustments

Required Libraries

- yfinance - Retrieves stock market data
- pandas - Data manipulation and CSV/Excel handling
- matplotlib - Generates charts
- requests - HTTP requests
- openpyxl - Excel file support
- beautifulsoup4 - Parses XML/RSS news feeds
- lxml - XML parser for BeautifulSoup

Installation:

- “[pip install yfinance pandas matplotlib requests openpyxl beautifulsoup4 lxml](#)”

How to Run:

- “[python/python3 investment_analyzer.py](#)”
 - Upon running our utility, you’ll be presented with 4 options: Stock Analysis Tool, Portfolio Growth Projector, help menu, and exit the utility

Stock Analysis Tool (Option 1)

- 1) Enter a stock ticker (e.g., AAPL)
 - View current price, daily change, volume, market cap, P/E ratio
 - View 1-year and 5-year historical returns
 - View plot of historical performance (1 year and 5 year charts)
 - View earnings data
 - View the recent news of the selected stock

Portfolio Growth Projector (Option 2)

- For convenience, users have two different methods for using this utility, described below

Method 1: Manual Entry

- 1) Choose option 1
- 2) Enter ticker and dollar amount for each stock
- 3) Enter holding period in years
- 4) View projections and charts

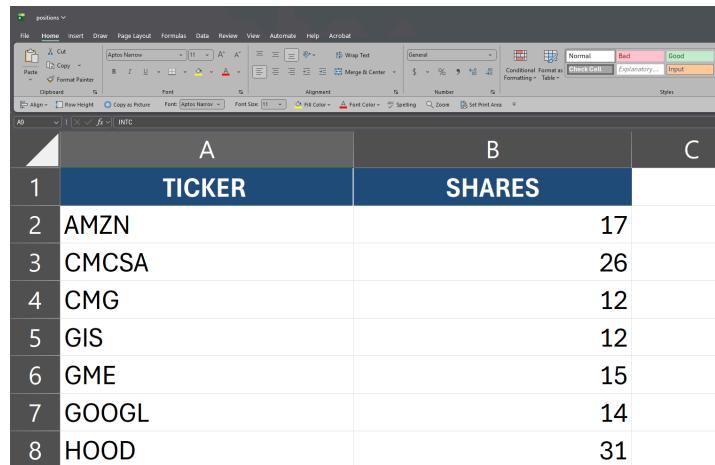
Method 2: CSV/Excel Import

- Most brokerages allow you to easily export your positions to a CSV/Excel file.

Once you've exported your stock position from your brokerage account, you'll need to make two edits to the file in Excel.

- 1) Change the top cell of the column that contains your holdings ticker symbols to “TICKER” (*capitalization does not matter*)
- 2) Change the top cell of the column that contains your shares held of each position to “SHARES” (*capitalization does not matter*)

Example of this formatting (all other data has been deleted for simplicity; however, this isn't necessary to run your file):



	A	B	C
1	TICKER	SHARES	
2	AMZN	17	
3	CMCSA	26	
4	CMG	12	
5	GIS	12	
6	GME	15	
7	GOOGL	14	
8	HOOD	31	

- 3) Once you run the utility and select the option to import a csv/excel file, you can either:
 - Enter file path

- Or, enter the filename if you've already placed the file in the same folder as our utility.
- 4) Once our utility has processed your file. Enter your holding period in years

Understanding Results

Portfolio Summary shows:

- 1) Total Initial Investment
- 2) Total Projected Value (nominal and inflation-adjusted)
- 3) Portfolio CAGR - overall portfolio growth rate
- 4) Average Stock CAGR - average of individual stocks

Two charts display:

- 1) Total portfolio growth over time
- 2) Individual stock projections (with distinct colors)

Notes:

- CAGR capped at 15% for realistic projections
- Uses 2.5% inflation rate for real returns
- Smart historical data selection based on company age:
 - The tool analyzes how long a company has been publicly traded and selects the most relevant historical period for CAGR calculation. We use all available data for young companies (<5 years), recent 5-year data for mid-age companies (5-10 years) to exclude early high growth periods, and recent 5-year data for mature companies (>10 years) to ensure realistic projections based on current business conditions rather than initial surges.