Stock Asset Analyzer

“SmartFolio” Project Proposal

By Daniel Cender



# Problem

Millions of people invest in the stock market every year, while a very slim few of them are trained in any official knowledge and practice of analyzing graphs, stock ticker trends, and “corrections”. While many opt to go with an automated broker system (such as WiseBanyan or a mutual fund), many others try their hand at picking and choosing their personal portfolios.

* Heavy duty investment software platforms are complex and bulky for laymen users.
* A significant overhead understanding is necessary to comprehend the concepts at play in heavy trading software
* Much industry-grade software requires more computer processing power and memory consumption than most home/student laptops can affordably manage

## Proposed Solution

Given that industry software is often overkill for many consumer stock holders, a low-profile program should be written to run locally on a computer that provides basic analysis and data storage tasks.

“Everything Should Be Made as Simple as Possible, But Not Simpler” – Albert Einstein

#### Minimum Viable Product

**Low-Profile Threading**

Every component of SmartFolio (printing, writing to/reading files, running calculations on data, etc.) will be managed as individual, but often synchronized, program threads. This will help to accomplish SmartFolio’s goal to be a resource-conscious program.

**GUI**

SmartFolio will first require the user to **input** their investments, the current price per share or value of the investment, and the volume of their share holdings.

After the first inputting of investment info, the user will be able to **update** the investments with End-Of-Day stock values or changed investment worth.

Improper input or other errors will generate **dialog boxes** to alert the user. Other **dialog boxes** may pop up if the updated investment has dropped below half its initial value, too, in a warning-type component.

Although the program will also be writing investment reports to digital CSV and text files, the user will have the option to **print** the formatted report from within the GUI form.

**Files**

SmartFolio will write formatted database material to a text and CSV file, the text file for **printing** and the CSV file for analysis outside the program.

**Databases**

At this point in the course (focus on GUI building), we have not delved far into storing persistent data in different types of databases. Given that SmartFolio will need to easily export data to a CSV file, a SQL table-based database will likely suite this program’s needs well enough.

SmartFolio will write data inputted by the user directly to a space in a SQL table designated by the day and stock ticker/investment type.

Data will be read from the database when the userdecides to select an export as a CSV file and/or a text file report.

**Enumeration Types**

In building an investment portfolio software, there is a lot of potential for enumerations or custom types here. SmartFolio will designate the days of the trading week as an enumeration type, to be used when an inputted investment is a stock or option.

The types of investments themselves would be better suited as classes, given the differences between a stock and a bond or a precious metal, for example.

It would not be practical on a processing or programmatic level right now to use enumerations for ticker symbols. The user themselves will be required to input those for their investments.

**Graphics**

One of the prime components of SmartFolio will be a graphical display of how an investment or portfolio’s worth has changed over time, in the span of days/weeks/months.

There might be options for displaying a daily, weekly or monthly average trend line, as a simpler alternative to many complex graphical algorithms. All this will be displayed as a 2D graph, which can be **optionally printed** with the text report.

#### Future Add-On Integrations

**Web API**

A lightweight web page scraper or stock API implementation could be added to the program to create an automatic updating of stock/mineral/commodity/index prices on a timer. It would download HTML from a specific finance site, parse it into a JSON format, and clean the data for processing into a persistent or temporary DB.

**Adv. – General Stock Infographics**

The API or Parser would grab broader stock info, so as to create a dynamic GUI page with near-realtime stock information, in a clean, modern graphical display.

## Conclusion

SmartFolio solves a key issue for many individuals seeking to gain a greater understanding of the true value of their investments. This provides a valuable learning opportunity to utilize my knowledge as a student to craft a program that mimics a real-world issue for individuals.