

Adding asset to portfolio, do I have budget? If I do, it is not possible to both specify quantity and purchase price. Not a realistic assumption to buy a stock for a price which I choose.

a.s.r. Vermogensbeheer Assignment Portfolio Tracker

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Project Description

Create a command-line interface (CLI) application to track a simple investment portfolio. The application should at least allow users to:

1. Add assets to the portfolio, specifying the asset ticker (e.g.. AAPL, MSFT), the sector, asset class, quantity, and purchase price.
2. Show the current and historical price of each asset ticker and be able to create a graph for each ticker (or a combination of tickers).
3. View the current portfolio, displaying each asset's name, sector, asset class, quantity, purchase price, transaction value and current value.
4. See calculations for the total portfolio value and the (relative) weights of each asset including the option to see the same per asset class and sector.
5. Be able to perform a simulation over the upcoming fifteen years for the portfolio, demonstrating the impact of risk and uncertainty. Assume 100.000 simulated paths.

Use your own creativity to extend the functionality. You are allowed to use a LLM such as ChatGPT to generate ideas.

Technical Requirements

Text

The following topics are the bare minimum we expect within the assignment, feel free to add additional tools to your project.

1. **Model-View-Controller (MVC) Architecture:**

The application must adhere to the Model-View-Controller software design pattern:

- a) **Model:** stores and manipulates asset information and contains any calculations that are done on this data such as the calculation of weights and other measures.
 - b) **View:** handles the creation of tables, graphs and optionally the CLI interface itself.
 - c) **Controller:** manages the flow of data between the Model and View, handling user commands.
2. **Version Control (Git):** The project must be managed using Git, with clear commit messages.
 3. **Dependency Management:** The project must have its dependencies specified either through a requirements.txt or through Poetry.
 4. **Programming Language:** The preferred programming language is Python but if you are more proficient in a different language such as C++, C# or R this is also a possibility.

Deliverables

Share with us a public repository on a platform such as GitHub, GitLab or Bitbucket and provide an explanation how to use your project. If this is not feasible, a ZIP-file also suffices. It is also important that we are able to run the application with your instructions.