

Lab 4: Equity Portfolio Management System

Overview

Lab 4 introduces a simple Equity Portfolio Management System. When completed, your program will allow you to:

1. Select or create a client
2. Add or withdraw cash
3. Buy or sell stock
4. View a client's portfolio using either last night's closing prices or real-time prices

Project Structure

Behind the scenes, this lab is organized a little differently from earlier assignments. Although the codebase mixes procedural and object-oriented programming (OOP)—concepts you've already encountered—we dynamically build our classes. This approach allows each method you implement to be tested individually with unit tests.

- You can run all unit tests with:

```
pytest -v labs/lab4/tests
```

- Or run a single test file, for example:

```
pytest -v labs/lab4/tests/test_add_cash.py
```

Data Files

Inside the lab4/data folder you'll find:

- clients.json – Stores all client portfolio data.
- dow30.json – Contains the 30 Dow Jones Industrial Average stock symbols, which form the universe of tradable securities for this lab.

Core Classes

The system is built around three main classes:

1. Stock – Represents a single stock position.
 - Attributes: sym, name, shares, and cost (the total cost of the position).
 - Includes a `__str__` method for display formatting.
2. Portfolio – Represents an individual client's portfolio.
 - Attributes: client, positions (a list of Stock objects), and cash.
3. Portfolios – Manages all clients' portfolios collectively.
 - Attribute: clients — a dictionary mapping client names to their respective Portfolio data.

- You can view this structure in clients.json, where each client name is a key containing its own nested dictionary.

Your Tasks

Implement the following files, all located in the portfolio folder. Each file includes TODO instructions describing what to complete:

1. stock.py
2. str_method.py
3. add_cash.py
4. buy_stock.py
5. sell_stock.py
6. view_last_close.py

Important Guidelines

1. Do not rename any files.
2. Do not create or add additional files.
3. Focus on completing the specified TODOs in each file.
4. Make sure your terminal is pwsh and in c:\PythonClass\student-repo