Final Project Description

Zekun Zhang

zz364@scarletmail.rutgers.edu

Generally, my final project is an account management system. This system has two main operating part - Stock account and Bank account. They are both derived from the parent class - Account and they are connected to each other by Account Balance, which is stored in an independent file named Balance.txt.

In the stock account part, I utilized a Double Linked List as the data structure to contain stock information - Stock Symbol, Number of Shares and Price per Share. There are functions for displaying the price of the very stock, displaying the whole stocks the user got, buying shares, selling shares, plotting the MATLAB portfolio curves and printing the transaction histories. In these functions, I used Strategy Design Pattern in the sorting part in displaying the whole stocks the user got. Since 'Strategy' is to achieve one goal in different ways and there are several sorting methods. In this case, I chose Selection sorting and Bubble sorting as sorting methods and the users can choose their own methods for sorting the value of stocks.

The 'Strategy' design pattern has an interface which includes its basic functions. There's a friend class as a selector, which converts the input to different objective pointers. And then invoke one strategy that has a different function from the basic one.

On the other hand, the bank account system has functions of displaying balance and transaction histories and depositing and withdrawing money. Since there are transaction histories invoking in each part of the whole system, I utilized 'Template' Design Pattern for transaction histories invoking, which entered the function in the same interface, but got really different realization. There are a virtual function in the base class and two different virtual functions in the child classes. And it can only use one interface to invoke them.

Moreover, there are files to contain both transaction histories of two systems, which prevents the history being changed from other operations. And I also used one text file to contain the whole stock information and each time the system starts, it would read values from the file to the double linked list data structure. Besides, every time the system shuts down, it would store information from the data structure to the file.