16:332:503 Final Project – Account Management System

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Process of program

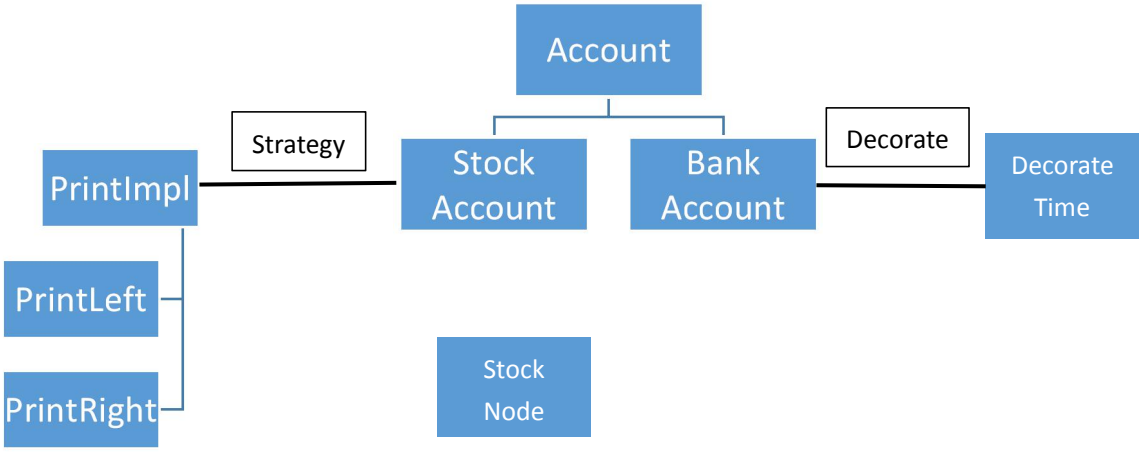
I.Decide which result of price will use and record the result.txt to the "Message".
II. Build portfolio doubly linked list and build balance account (Read the portfolio information from txt file).
III. Start run the manu of program
IV. Store portfolio(doubly linked list) to the txt file.

Generated files

I. portfolioRecord.txt: We store the doubly linked list information in this file. When we run the program, we read this file and copy it to build the doubly linked list portfolio. When we end the program,we open the file and copy the doubly linked list information to the file.
II.bank_transaction_history.txt: Whenever the balance is changed, we need to open this file and add the information of transaction to the end of this file(including bank account operate and stock account operate).
III.stock_transaction_history.txt: When we buy shares or sell shares, we need to open this file and add the information of transaction to the end of this file.
IV.Total_Portfolio_Value_Path.txt: When we buy shares or sell shares, we store the total value of portfolio which is the sum of current cash balance and money worth of the stock you own to the end of this file.This file is used to draw the graph for the portfolio value.

Structure

The structure of the program is as follow:
The **Account** is a base class, and **Stock Account** and **Bank Account** is his derived class. **PrintImpl** is a *Behavioral Patterns: Strategy* of the **Stock Account**.



Account:

Account class is the base class of stock account and bank account,which contains a **protected float cashBalance**. Functions in the Account class is used to modify the parameter cashBalance.

Stock Account:

Stock Account class is a doubly linked list with functions to operate and print the list.

I. buy shares and sell shares: When we run the buyShares function. We should consider whether the node of share is already in the list. Which decide whether we need to insert the new node into the list or just add the number parameter of the node. When we run the sellShares function, we should compare the number of shares in the list and the number of shares you want to sell. If the numbers are the same, remove and delete the node in the list. If the number of shares in the list is larger, then the parameter number need to subtract the value of number you want to sell.

In this function, we need to do:

1. Operate the doubly linked list.
2. Output the information of transaction and time to the **stock_transaction_history.txt.**
3. Output the balance information and date to the **bank_transaction_history.txt.**
4. Output the total portfolio value(which contains the sum of current cash balance and money worth of the stock you own) and time to **Total_Portfolio_Value_Path.txt.**

II. plotValue: When we run plotValue function. We should open **Total_Portfolio_Value_Path.txt.** Then read the value in the txt file and draw it.

III.printCurrent: The function printCurrent is used to display the current portfolio. In other words, we need to print all the node in the doubly linked list.

IV.printTransaction: Open the txt file **stock_transaction_history.txt.** Then print out the information in the txt file line by line. Finally close the file.

Bank Account:

I.deposit and withdraw: Whenever we need to deposit or withdraw the money, we need to change the balance value and record the transaction to **bank_transaction_history.txt.**

II.print_bank_history: Read the **bank_transaction_history.txt** and print out the information line by line.