Report & code description of Final Project

[Zw280@scarletmail.rutgers.edu](mailto:Zw280@scarletmail.rutgers.edu)

1. Class
   1. Account:

abstract class created for BankAccount class & StockAccount class, CASH\_BALANCE is the only protected member variable in this class, This variable can be accessed by BankAccount class & StockAccount class, and they are connected by this CASH\_BALANCE

* 1. BankAccount:

Derived class of Account, in this class, user can use Deposit, Withdraw to change cash balance, and printTransactionHistory can print what have you done before(including transaction history of stock).

* + 1. Deposit(): deposit money
    2. Withdraw(): withdraw mony
    3. updatePortfolio():every time leave bank manage system, write current portfolio value to TotalValue.txt
    4. printHistory(): print bank history, including sell/buy stock information
  1. StockAccount:

Derived class of Account, in this class, user can use buy & sell function to deal with portfolio, print your stock list and show the total portfolio value.

* + 1. buyStock(): buy stock from Results;
    2. sellStock(): sell stock from user’s portfolio
    3. printTransactionHistory(): print stock transaction history.
  1. timeCall:

Getting time and return a string of current Date or current time.

* + 1. getDate(): return date
    2. getTime(): return current hour, minutes and seconds
    3. converter(): because what I get from timeinfo is int, so I need to convert them into strings
  1. fileReadWrite:

This class is created for file read & write, initial(): initial file TransactionHistory.txt format, read cash balance from cashBalance.txt(if there is no data, set cash balance to $10000).

* + 1. writeToPortfolio(): write current stock lsit to Portfolio.txt.
    2. writeTofile(): write current cash balance to cashBalance.txt.
    3. readFromHistory(): read bankHistory.txt & StockHistory.txt and print it out.
    4. writeToTotalValue(): every time exit bankmanage system or stockmanage system, write current portfolio value to TotalValue.txt.
    5. GetData():get name or price of a stock from a given string.(coordinate with SearchName)
    6. SearchName(): find a stock using its name in Result\_1or Result\_2;
    7. selectFile(): Randomly choose Result\_1 or Result\_2, and return the file name.
    8. readCashBalance(): return cash balance in string.
    9. DrawGraph():read total portfolio value and time from totalValue.txt, and draw it out
  1. LinkedList

This class is used to store the current portfolio information of the user.

* 1. Sorter

This is the part to use design pattern to let user choose sort in ascend order or decent order.

1. Design pattern
   1. Bridge

In Account, BankAccount, StockAccount, I use Bridge to make both of them can update portfolio and set cash balance.

* 1. Strategy

In Sort, I use two derived class: ascendSortStrategy, decentSortStrategy, and use another class: Sorter to choose sort in ascend order or decent order.

1. Files:
   1. bankAccountHistory.txt: store the transaction history of bank account
   2. bankCashBalance.txt: store the current cash balance value
   3. total value.txt: store the fluctuating history of total portfolio value
   4. transactionHistory.txt: store the stock transaction history