

README

Description of Final Project

A trading platform that allows multiple traders to trade stocks based on their own strategies and print their account summaries.

Please import **maven** project to run it. Also data in data folder in producer is all consumed after producer runs. If you need to run it for the second time, please copy the data from backup to data. Thank you.

Design Patterns include: [Iterator](#)(Inventory Iterator), [Singleton](#)(Reporting Engine, [Template](#)(Trader), [Strategy](#)(Buy and Sell Strategy) and [Observer](#)(TraderRequestControlRequest and TraderRequestControlRequestListener)

EIP patterns include: [Message Queue](#), [Message Broker](#)(Utils), [Dynamic Router](#)(StockDataConsumer), [Message Filter](#)(Data Producer), [Endpoint](#), and [Message Translator](#)(Data Producer)

Please run in the order of Producer, Driver, Runner in Consumer. Type ACCOUNT_SUMMARY in the console will return account_summary.

1. Commons:

- Constants
- PriceData: price data object. Example: setClose() and getVolume().
- StockDataSubscriptionRequest: trader's requests sent to the consumer. Example: set getTopic and setTickers
- StockInventory: essential data needed to calculate a trader's inventory
- Utils: establish connection to JMS broker

2. Trading

- Iterator: FIFO iterator and LIFO iterator. Iterating over the trader's inventory
- Trading: Driver
- Controller:
 - ReportingEngine: A singleton that prints account summary for each trader
 - TraderController: A subject in the observer pattern that will update its observers, which are TraderControlRequestListener, with the trader control request
 - TraderControlRequest: get and set trader control request such as print account summary
 - TraderControlRequestListener: observers to TraderController
 - TraderControls: enumerator that contains trader control command
- Trading Strategy
 - BuyOn2DayDipStrategy: price keeps decreasing for two days. The second day is down more than 5%
 - BuyOn3dayDipStrategy: price keeps decreasing for three days and down for more than 10%
 - BuyStrategy: strategy pattern

- SellOn5DayDipStrategy: price keeps decreasing for five days
 - SellStrategy: strategy pattern
 - Traders:
 - Jason: only buy when the stocks he is interested in are not in his inventory. After he buys in, he will keep selling based on the sell strategy until all of his holdings are sold out
 - Jocelyn: only long never short based on the buy strategy. When the total inventory is down for more than 10%, Jocelyn becomes more conservative and will use BuyOn3DayDipStrategy. Otherwise, she is aggressive and uses BuyOn2DayDipStrategy.
 - Trader: template method
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3. **Producer:** Used jackson-mapper-asl to convert raw csv data to Java object. Send all data to the queue. Split all data in the file by line. Create a 'all data' message queue on ActiveMQ
 4. **Consumer:** Used jackson-mapper-ask to convert raw csv data to Java object. Consumes the data on all data queue. Use dynamic router to send them to different data subscription topics.