Trading Order Board – Solution

Requirements

A trading marketplace has a new requirement to display to its users the demand for silver bars on the market. They would like to have a Trading Order Board' that can provide them with the order summary with orders with the same price merged together and sorted lowest price first for sell orders and highest price first for buy orders.

How to build

Use maven command line to run tests and package this application

```
mvn clean install
```

Technologies

The following technologies used for the 'Live Order Board' application:

- Dependency injection – Spring 4 with JSR-330 annotations
- Concurrent Hash Map – In-memory database
- Lombok – Assist with boilerplate code in domain objects
- Junit – Unit testing
- Spring test – Integration testing
- Cucumber – Acceptance testing using Spring and Java
- Mockito – Mocking dependencies
- Hamcrest – For assertion of test results

Assumptions

- To get order summary, user must provide the type of order, i.e. SELL or BUY.
- Validation on Order quantity and price are not required at this time.
- Database validation for non-existing or duplicate orders is not required at this time.
- Java doc is only required for client facing interface

Scenarios

See the following feature file:

```
trading-order-board/src/test/resources/

     imran.trading.order.board.acceptance.trading-order-board.feature
```

Scenarios also listed on next page …

Scenario: Register a sell order consists of user id, order quantity and price per kg.

Given a sell order with:

User id	Quantity	Price	Type
user1	3.5	306	SELL

When the order is registered in the trading order board service

Then the trading order board should provide the following summary for "sell" orders:

Quantity	Price
3.5	306

Scenario: Cancel a registered order with the given order id.

Given a buy order with:

User id	Quantity	Price	Type
user2	1.2	310	BUY

When the order is registered in the trading order board service

And when I cancel this order

Then the trading order board should provide blank summary for "buy" orders

Scenario: The sell orders for the same price should be merged together (even when they are from different users). Also the sell orders on trading order board are ordered with lowest prices first.

Given multiple sell orders with:

User id	Quantity	Price	Type
user1	3.5	306	SELL
user2	1.2	310	SELL
user3	1.5	307	SELL
user4	2.0	306	SELL

When these order are registered in the trading order board service

Then the trading order board should provide the following summary for "sell" orders:

Quantity	Price
5.5	306
1.5	307
1.2	310

And sell orders are ordered with lowest price first

Scenario: The buy orders for the same price should be merged together (even when they are from different users). Also the sell orders on live order board are ordered with highest prices first.

Given multiple buy orders with:

User id	Quantity	Price	Type
user1	3.5	306	BUY
user2	1.2	310	BUY
user3	1.5	307	BUY
user4	2.0	306	BUY

When these order are registered in the trading order board service

Then the trading order board should provide the following summary for "buy" orders:

Quantity	Price
1.2	310
1.5	307
5.5	306

And buy orders are ordered with highest price first

Code Coverage

Coverage All in live-order-board

100% classes, 94% lines covered in package 'board'

Element	Class, %	Method, %	Line, %
api	0% (0/0)	0% (0/0)	0% (0/0)
dao	100% (2/2)	100% (7/7)	100% (15/15)
domain	100% (8/8)	88% (32/36)	92% (49/53)
service	100% (1/1)	100% (3/3)	100% (17/17)
util	100% (2/2)	100% (4/4)	90% (19/21)