The problem

Our business wants to move in the bitcoin market and we've been asked to implement the first cut of a simple RFQ (request-for-quote) engine. At any point in time our sales team can send a RFQ which would have 2 parameters:
- Amount of bitcoins a client wants to buy or sell – any multiple of 100
- Payment currency – e.g. USD, GBP, EUR

The job of our engine is to respond with a bid (the price we buy at) and ask (the price we sell at) by finding an exact client offer to match on each side. To do so, our service has access to the company's live order board which given a single pay currency (e.g. USD) will return a list of clients' pending orders relative to the current market price (i.e. no buy order will exceed the market price at the time of the request and no sell order will be under it):

Direction	Price	Payment Currency	Amount of Bitcoins
Buy	232.71	USD	200
Sell	232.74	USD	100
Sell	232.73	USD	200
Buy	232.71	USD	500
Buy	232.70	USD	100
Sell	232.75	USD	200
Buy	232.69	USD	500
Sell	232.76	USD	300
Buy	232.70	USD	200

The response from our service should be a single bid/ask pair. If the request cannot be fulfilled on both sides by our internal RFQ service, the sales team would manually quote a price to the client using a separate service.

- Bid = highest buy order – X
- Ask = lowest sell order + X

The difference between the client order and our quote (i.e. the X amount) is how we make money. The first cut of our service should have X = 0.02 irrespective of the currency.

Worked examples

RFQ for 200 bitcoins paying in USD should return:
- Bid (= we buy) – 232.69
- Ask (= we sell) - 232.75

RFQ for 500 bitcoins cannot be fulfilled because there's no matching Sell order.

The solution

Please provide an implementation of the RFQ engine in Java which will allow the business to enter the bitcoin market. No UI or persistence is required but your solution should be able to demonstrate the RFQ business rules given some sample inputs of your choice. If you find the requirements unclear, you're free to make any assumptions along the way but please state them explicitly in a readme file within your solution. It should contain everything you would normally check in to your source code management system, and the code should be of production quality. Please zip and email the entire solution to your agent who will pass it on to us. Good luck!