

Stock Exchange

Implement an order matching system for a stock exchange. Traders place Buy and Sell orders for a stock indicating the price and quantity. Each order gets entered into the exchange's order-book and remains there until it is matched. Order matching is attempted whenever a new order is added.

The exchange follows a FirstInFirstOut Price-Time order-matching rule, which states that: "The first order in the order-book at a price level is the first order matched. All orders at the same price level are filled according to time priority." The exchange works like a market where lower selling prices and higher buying prices get priority.

A trade is executed when a buy price is greater than or equal to a sell price. The trade is recorded at the price of the sell order regardless of the price of the buy order.

Your program should take as input:

1. Order ID.
2. Time.
3. Stock.
4. Buy/Sell.
5. Price.
6. Quantity.

The output should be

1. Buy Order ID
2. Sell Price
3. Quantity
4. Sell Order ID

Input format: <order-id> <time> <stock> <buy/sell> <price> <qty>

Output format: <buy-order-id> <sell-price> <qty> <sell-order-id>

SAMPLE INPUT-OUTPUT

INPUT:

#1 09:45 BAC sell 240.12 100

#2 09:46 BAC sell 237.45 90

#3 09:47 BAC buy 238.10 110

#4 09:48 BAC buy 237.80 10

#5 09:49 BAC buy 237.80 40

#6 09:50 BAC sell 236.00 50

OUTPUT:

#3 237.45 90 #2

#3 236.00 20 #6

#4 236.00 10 #6

#5 236.00 20 #6

Input must be read from a text file, and output should be printed to the console. Your program should execute and take the location to the test file as a parameter.