WPF Assignment Briefing

The FX trading desk trade numerous currency pairs, on a variety of venues but for the purposes of this exercise we will only focus on one venue (EBS). They are in need of a tool to view market depth over time for the trading venue. The trading venues of interest all use a "limit order book" and send us book snapshots every time it changes but for the purposes of GUI consumption it is then sampled every second. A book snapshot for a given currency pair, say EURUSD, consists of the following information:

time	: the time in GMT that the snapshot was received
currencyPair	: the instrument code. E.g. AUDUSD, USDJPY
market	: the venue code. E.g. Hotspot, Currenex, EBS
bidPriceX	: the *bid* price for level X, where X=1,…,10 with 1 being the best/highest bid
bidSizeX	: the amount that can be traded at bidPriceX. E.g. 13,500,000
bidCountX	: the number of distinct bid contributors to bidSizeX. E.g 14
askPriceX	: the *ask* price for level X, where X=1,…,10 with 1 being the best/lowest ask
askSizeX	: the amount that can be traded at askPriceX. E.g. 1,500,000
askCountX	: the number of distinct ask contributors to bidSizeX. E.g 14

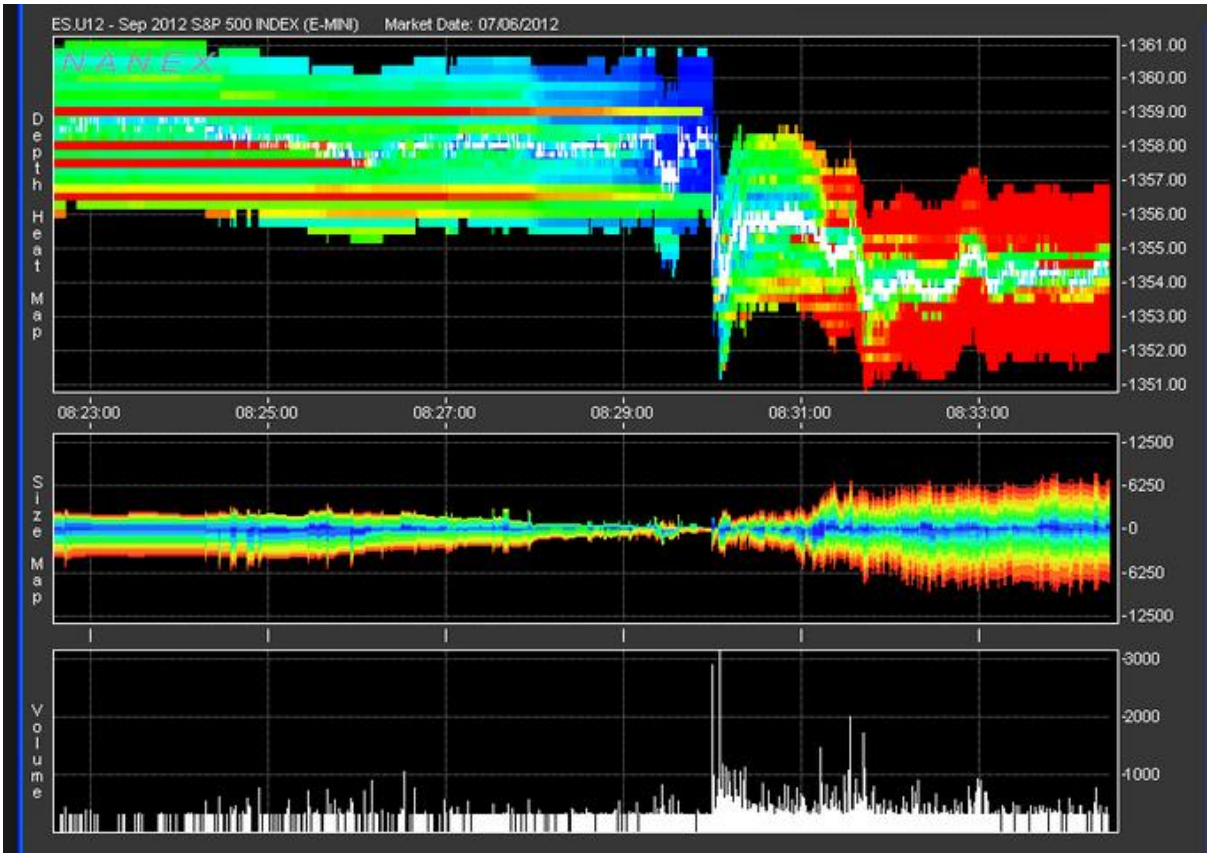
This data is delivered by a server-side app as a CSV file for the GUI to consume. A sample file is attached for you to use in this assignment. The current limitation of only being able to view historical data after the delivery of such data is acceptable at this phase of the project, but we envisage real-time delivery of the previous 24 hours in a future version of the server-side app.

Typically the trading desk want to view/analyse this data for a specified period of time such as the whole day or say 45 mins either side of some market event of interest. They will enter the start/end time in GMT.

The best way for them to view market depth over time is to see a depth heat map where we use colour to indicate the market depth at levels 1 through 10 on both sides of the book (bid and ask). By market depth we mean the bidSizeX and askSizeX values. Using an RGB spectrum we should put *lower* values towards the blue end of the spectrum and *higher* values towards the red end of the spectrum. Using a white line, we should also plot the "mid price" which is defined as the unweighted average of bidPrice1 and askPrice1. An example of a depth heat map that shows depth and price information over time is shown in the top part of the image below.

We have been tasked with building a prototype of such a tool that uses the provided data file sample to show the trading desk. The GUI should be developed as a WPF/C# application that is structured in an appropriate fashion. The user is a highly-intelligent, power-user quant trader who wants to see relevant information quickly and have the ability to define the time period of interest.

You will be assessed on code quality, code structure, and delivery of required functionality. As a prototype is should demonstrate the required functionality and doesn't need a high degree of UI polish. Please provide a zipped source that includes source and also binaries. The target platform in .Net4/Windows7. There isn't a set time frame for delivery of this but we find that most applicants can turn it around in a week.


ES.U12 - Sep 2012 S&P 500 INDEX (E-MINI)
Market Date: 07/06/2012
NANEX
Depth Heat Map
1361.00
1360.00
1359.00
1358.00
1357.00
1356.00
1355.00
1354.00
1353.00
1352.00
1351.00
08:23:00
08:25:00
08:27:00
08:29:00
08:31:00
08:33:00
Size Map
12500
6250
0
-6250
-12500
Volume
3000
2000
1000