A small position keeping application

Background

One of the largest applications developed at FIS Front Arena is PRIME. PRIME is, among other things, a position keeping system. This is an application that traders and risk managers use to keep control over the value and risk of banks' positions in various financial instruments. It is a real-time updated application that holds huge amounts of data in memory, and updates calculated values quickly when the market changes.

Follow Specification 1, 2, 3 and 4 below to write a small application that allows a user to create instruments, and trades in those instruments, and display the traded positions as well as some data connected to the positions.

Implementation

You may use whichever programming language you feel the most familiar with. You do not necessarily need to create a graphical user interface but could do with printouts on the command line instead. It takes a bit more work to create a GUI in C++ than it would take in C# so if you choose to write your solution in C++ you may put more effort in the code instead. The spreadsheet may be replicated with tabulated lines. The instrument and trade data does not need to be stored between sessions even though it would make the program more useful.

The emphasis of our judgement will be on the code structure and readability, user friendliness and the level of ambition put into the work. **You should not spend more than a couple of days with the task**.

Specification 1

Create a simple application that allows a user to create a financial instrument of any kind. The user must be able to specify different properties on the instrument. Some typical fields on the instrument could be:

- Instrument name
- Instrument currency
- Issuer

Example:

Instrument name = ‘ABB’

Instrument currency = ‘SEK’

Issuer = ‘Asea Brown Boveri’

Specification 2

Once the instrument is created the user may want to trade it on a market. Create a means for the user to make trades that refer to the new instrument(s). Some typical trade fields could include:

- Instrument
- Portfolio (e.g. 'Stock Portfolio')
- Price
- Trade time
- Acquirer (e.g. 'Equity Desk')
- Counterparty (e.g. 'Deutsche Bank')
- Quantity
- Marketplace (e.g. 'OMX')

Specification 3

The set of trades that has been made in a certain instrument is called a **position**. A typical position keeping application usually uses some sort of grid or spreadsheet component. Below is a picture of the position keeping application in PRIME:

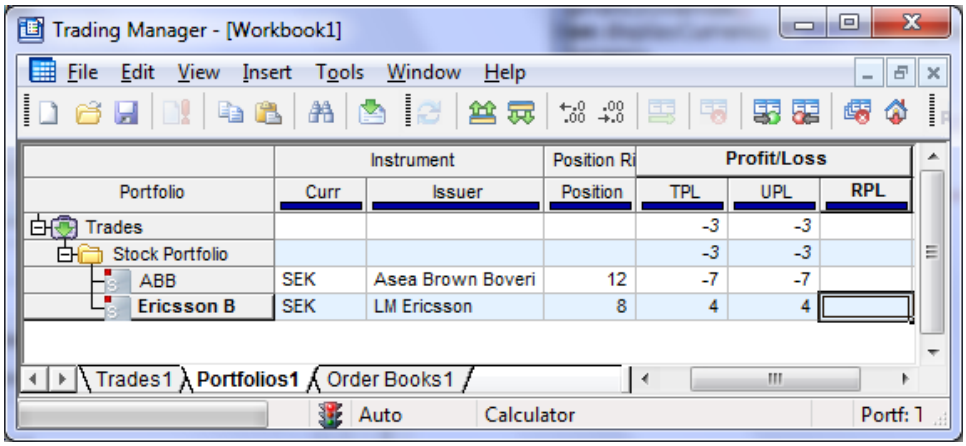

Figure 1. Position view

Create a simple position keeping application. Allow the user to monitor his or her positions in a simple position keeping view. Display some columns with data relevant to the position.

Some typical columns could include:

- Instrument name
- Instrument currency
- Calculated data derived from the position like the market value of the position.

One value that is quite easy to calculate is the total traded amount of each position. You **do not** have to spend time on making columns with more complex calculations (e.g. UPL - unrealized profit and loss).

Specification 4 (Optional)

Create a grouping functionality. Implement the possibility to group the trades on at least one more instrument or trade attribute – in addition to the mandatory instrument grouping. In **figure 1** the trades have been grouped on portfolio and instrument. Other possible groupers could be counterparty/instrument or acquirer/instrument.

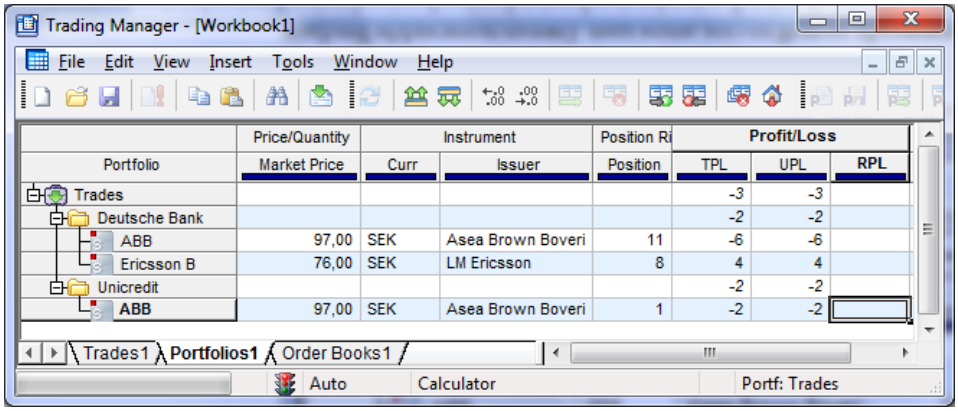

Figure 2. Grouping on counterparty/instrument