Software Engineering

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Foreword

There are many different implementation strategies that can be used to solve the problem we have outlined. If you feel you have hit a roadblock, below we try to aid you in your analysis. If you have any questions, please **contact us**.

Constructing end of day account views

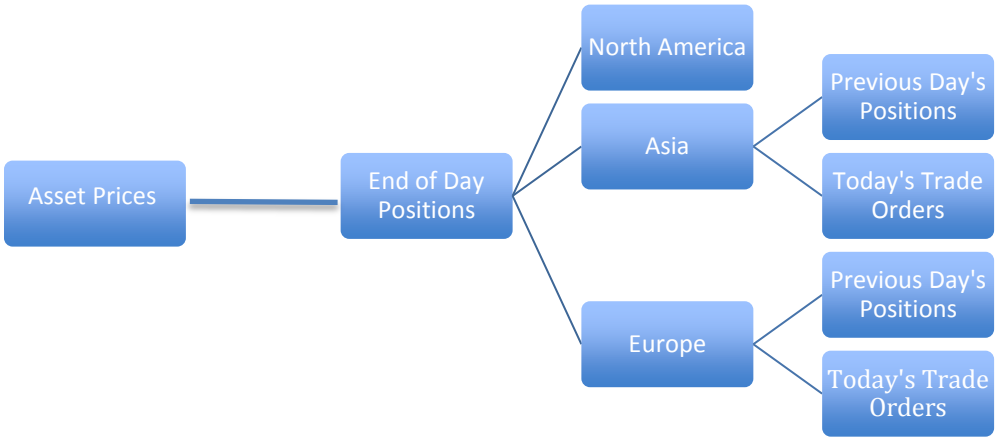
Recall that the North America data is already in an end of day view. The first task is to take the previous day's positions and couple them with today's trades to find the end of day positions for the accounts in Asia and Europe. The rules for this transformation are as follows:

Previous Day's Position	*Today's Trade*	*Action Required*
Long Short	Buy Short	Increase position size
Long	Sell	Reduce position size
Short	Buy	Reduce position size; If Buy > Short, add Long position
Long	Short	Close out Long position; Add Short position, Size = Short - Long
- -	Buy Short	Create new position
Long Short	- -	No action necessary

Once the end-of-day (EOD) account views are created you can **calculate the margin required** for each short position; then aggregate over the account to get the total margin requirement for the account. Comparing the calculated margin requirement with the available cash balance allows you to determine whether or not there should be a margin call.

Implementation

Below is a schematic representation of one possible way to transform the available data tables:



Submission instructions

Please use **this form** to submit a brief document explaining the specific data structures you would create and how you would implement them as well as the sequence in which you would complete your calculations. *You are encouraged to submit your code in a zip file alongside your write-up.*