**Auto Trading Test Case in C# for Junior Platform Developer Candidates**

**1. Input**

Future market data is provided in CSV format. (TickData.zip)  
 **2. Requirements**

Implement Windows Forms application in C# with separate threads to do the following tasks

a. Tick Data Reader Thread  
 1. Read & parse tick data from the raw data file (TickData.csv)  
 2. Publish the tick data to the strategy thread.  
b. Strategy Executer Thread  
 1. Receive tick data from the tick reader thread  
 2. Check trade condition  
 3. Execute trades (buy or sell [Trade Size: 1 lot]) on each trading signals (Buy Signal, Sell Signal) according to the condition.

[Input Parameter]

|  |  |  |
| --- | --- | --- |
| Parameter | Value | Unit |
| Average Tick Count | 500 |  |
| Offset | 0.05 | Points |
| Trade Size | 1 | Lot |
| Signal Interval | 60 | Seconds |
| Position Limit | 5 | Lots |
| Stop Loss | 1,000,000 | Won |

[Trade Condition]

|  |  |
| --- | --- |
| Condition | Description |
| Buy Signal | [Buy Signal] - Mid Price is higher than Average Mid Price + [Offset: 0.05] - Buy Signal can’t be issued more than once within [Signal Interval : 60 seconds] unless the preceding Signal is Sell Signal. |
| Sell Signal | Sell Signal - Mid Price is lower than Average Mid Price - [Offset: 0.05] - Sell Signal can’t be issued more than once within [Signal Interval : 60 seconds] unless the preceding Signal is Buy Signal. |
| Position Limit | If new trade incurs exceeding the absolute value of [Position Limit: 5], do not trade. |
| Stop Loss | If total loss (Total PnL) reaches [Stop Loss: 1,000,000 Won], clean all position (trade out all position at market price) and stop trading |
| Total PnL (Profit and Loss) | Total PnL to be recalculated based on Mid Price after receiving new tick. |

[Tips]  
> Mid Price = (Bid Price + Ask Price) / 2  
> Average Mid Price = Average Price of last [Average Tick Count: 500] ticks’ Mid Prices   
> PnL Calculation (Future 1 point = 500,000 Won)  
 ex) Trades: Buy 1 at 284.40, Sell 1 at 284.20, Buy 1 at 284.60, Current Mid Price: 284.375  
 => Current Position: 1, Total PnL: -212,500  
> Use Ask Price for buying, Bid Price for selling and assume every trade is fully executed at market price.  
> Trade Time = Market Time of the tick

**3. Output Requirements**   
 1) Buildable Project Files including Source Files (No 3rd party components to be used)  
 2) When executing the program, trade List in DataGridView control to be presented in the application.  
 - Mandatory Fields in Trade List

|  |  |
| --- | --- |
| Field Name | Value (Format) |
| Trade Time | "HH:mm:ss.fff" |
| Trade Side | Buy, Sell |
| Trade Size | “N0” |
| Trade Price | "0.00" |
| Mid Price | “0.000” |
| Average Mid Price | “0.000” |
| Position | “N0” |
| Total PnL | "N0" |
| Trade Reason | Buy Signal, Sell Signal, Stop Loss |

3) Input Parameters to be editable from UI (Optional, Not mandatory)  
 4) Documentation is not required if it’s not necessary.

**4. Evaluation Criteria**  
1) Compliance of output requirements (3. Output Requirements (1~2))  
 : Any solution that breeches this criteria will be ruled out of the evaluation.  
 (Refer to the output example below)2) Accuracy of trades details and PnL results according to the trade condition  
 : Any solution that presents unreasonable trades or results will be ruled out of the evaluation.  
3) Codes quality: Class design, Business Logic, Event handling, accurate use of data type and collection and UI (Data presentation in Grid)  
 : Evaluation puts emphasis on efficiency of codes. Therefore, please refrain from making too many codes and classes.

**[Output Example]** : Do not refer to the trade details and PnL results below (Input parameter values were given differently.)

