FTEC5530 Assignment I. Calculation of Stock Market Micro-structure

Tick data sample(trade and quote) is provided in the month of 2020 Dec(trade.csv and quote.csv)

1. **Estimate the Average Daily Volume (ADV), Average Daily Turnover (ADTV) and daily volatility, intraday volatility (volatility5), average spread, avg quote size of each stock in the month of 2020 Dec. （score: 40% ）**

Result should be in a format like below:

Stock	ADV	ADTV	Volatility	Volatility5	Spread (bps)	Quote Size
000001.SZSE						
600030.SHSE						

2. **Generate the intraday market micro-structure report for stock 600030, draw the every 5-min intraday chart for volume profile, volatility/spread/quote size profile (score: 60%)**

Format sample:

time	vol5	spread	qsize	volpct
9:25				0.5%
9:30	4.3%	7.8	17,871	4.6%
9:35	3.4%	7.3	20,000	4.2%
9:40	2.8%	6.7	22,660	3.4%
9:45	3.5%	6.8	19,209	3.4%
9:50	2.7%	6.6	23,124	2.9%
9:55	2.7%	6.8	20,566	2.7%
10:00	2.9%	6.8	21,435	2.5%
10:05	2.5%	6.7	18,216	2.4%

Hint: generate minutely and daily data from the raw and quote data, and perform calculation.

Requirement:

Provide both of your code script (python/R/MATLAB/KDB or other languages) and result.