FTEC5530 Assignment II. Trading Cost Analysis

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

VWAP orders as below: (parent_oder.csv)

date	strategy	sym	orderid	side	starttime	endtime	qty	targetpct
2020/12/2	VWAP	000001.SZSE	V001	-1	9:25	11:00	800000	
2020/12/3	VWAP	600030.SHSE	V002	1	10:00	14:00	754400	
2020/12/9	VWAP	000001.SZSE	V003	1	9:25	10:00	236400	
2020/12/14	VWAP	600030.SHSE	V004	-1	9:25	15:00	989000	
2020/12/15	VWAP	000001.SZSE	V005	-1	9:25	15:00	1789300	

Child order execution data is provided (child_order.csv)

Aim:

Calculate the trading cost analysis as below format (assignment 2.xlsx).

	Order Characteristics				Cost (bps)					Fill statistics			
OrderID	Notional (Million CNY)	ADV%	Trading Speed	Spread (bps)	Open	Arrival	iVWAP	Close	PWP5	MOO%	MOC%	Passive%	Aggressive %
V001	100.00	3.10%	2.50%	9.80	-10.50	-4.60	-1.50	0.50	-1.20	2.00%	3.00%	66.00%	29.00%
V002	50.00	3.41%	3.50%	10.80	-9.50	-6.60	-1.80	1.50	-1.50	0.00%	1.00%	22.00%	77.00%
V003	33.00	4.10%	20.50%	11.80	-8.50	-8.60	-3.10	2.50	-2.20	5.00%	6.00%	40.00%	49.00%
All	183.00	3.37%	6.00%	10.40	-9.90	-5.90	-1.90	1.10	-1.50	2.00%	3.00%	49.00%	46.00%

Please note there are only three orders in above example for illustration purpose, the assignment has five orders.

Hint:

- the performance number should be all side adjusted
- If order start time is before market open, then arrival price should use open price instead of mid of quote
- Sometime market tick data has small delay, for example, you may see last price end around 15:00:03, you should normalize all trades after 14:57 as close price, timestamp as 15:00: for example an order end time is 15:00, then all those trades slightly after 15:00:00 shall be also included for iVWAP or volume calculation

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Requirement:

Provide both of your code script (python/R/MATLAB/KDB or other languages, KDB is a plus) and result (filled in the assignment 2.xlsx spreadsheet with 2 digital accuracy).