Operational Analyst Assignment

Disclaimer: WE ARE LOOKING FOR SOLUTIONS THAT ARE SCALABLE. WE ENCOURAGE YOU TO USE PYTHON. ANSWERS MUST BE DISPLAYED IN A CLEAR AND CONCISE MANNER. PLEASE PROVIDE US WITH YOUR SOURCE CODE.

Exercise: Handling stock data in SQL and Python

For the whole exercise: assume Buy_Sell_Flag=0 means a sell and Buy_Sell_Flag=1 means a buy. Please write the answers to the questions in the provided python notebook, including the sql queries as in the example given.

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1. **Using the python file provided, import all the tables in trading_database.db database into python data frames.**

2. **Rewrite the SQL query "SELECT * FROM trades" to return a list of stocks with, “Number of trades of the stock”, “Average traded price”, “Volume weighted average traded price”, “Volume weighted average traded price of the BUY” and “Volume weighted average traded price of the SELL”.**

3. **From the table trades, obtain the following in 2 ways, using SQL and using Python: total notional traded (notional defined as price * volume), total notional bought, total notional sold. Using the “stocks” table to map the stocks to trades, calculate the above quantities for every stock.**

4. **Get the first five trades in each instrument where the instrument is specified (i.e. the name is visible).**

5. **Using python, plot a graph of notional traded per stock over time.**

6. **Using python, calculate and plot the 5-minute moving average price of each stock. What are the top five 5 minute moving averages and lowest five 5 minute moving averages for each stock?**

7. **Calculate and plot the cumulative P/L of a portfolio through a time series. Which stock made the most money? To calculate this correctly, the position needs to be valued at the last traded price, as it is the last point where supply and demand agreed.**