Strategy Report for Abra

How you explored the dataset

I started by loading and inspecting the order book and trades datasets. Using `pandas`, we looked at:

- The first few rows to get a sense of structure.
- The distribution of bids, asks, and trades over time.
- The bid-ask spread and its fluctuations.
- The relation between trades and order book depth.

This exploration revealed

- The spread typically remained small.
- Large trades often crossed the spread immediately afterwards.

What inspired your strategy

My strategy was influenced by

- The observation that buying below the midpoint and selling above it could be profitable.
- Market microstructure theory—liquidity providers typically buy at the bid and sell at the ask, capturing the spread.
- The need to account for volatility to avoid unfavorable trades.

Core logic of your algorithm

The algorithm performs the following:

- Computes the *spread* and *midpoint* from the best bid and ask.
- Sets buy and sell prices at a discount or premium to the midpoint.

- If the best ask drops below our buy price, we execute a buy; if the best bid exceeds our sell price, we execute a sell.

This approach lets us

- Provide liquidity while avoiding unfavorable trades.
- Profit from the small fluctuations in pricing.

Experiments, variations, and insights

I experimented with

- Different discount and premium percentages (25% of the spread vs. 10%).
- Position limits to control risk.
- Volatility-adjusted pricing—wider margins during high volatility.

Insights:

- A 25% discount/premium provided a reasonable balance between execution and profits.
- Large trades sometimes crossed the spread immediately; adding volatility-adjusted margins avoided losses in those cases.