Formulating a Trading Strategy

Step 1: Early Approaches/Hypothesis

When first formulating a trading strategy, there are 3 main things to consider:
1) **Movement:** Assets will rise and fall
2) **Market Inefficiencies:** There exist arbitrage opportunities to take advantage of
3) **Fundamental Drivers:** Earning reports/news

Context: IMC Prosperity

In the simulated environment, I don't believe we receive earnings reports or news that can impact trading. Furthermore, there definitely are no market inefficiencies. Therefore it is logical to assume that we should devise a strategy based on movement

Step 2: Identify Types of Movement/Combinations

Next we want to build up a strategy. To do this we have to consider different types of movements and other factors.
1) **Mean Reversion:** Prices tend towards a historical average (with maybe slight increase overtime)
2) **Momentum:** There's herd behavior/it goes up and will keep going up with occasional periods of turn down. Look at SPY as an example.
3) **Volatility:** Price fluctuations follow predictable statistical distributions
4) **Random Walks:** Market is stochastic and will follow probability based concepts

Context: IMC Prosperity

From the wikipedia page and using the constraints of the classes, we have access to historical pricing data, other people's trades, and our own trades. Thus some people will be designing algorithms based on just price, some will design algorithms based on other people's behavior, and some will do both.

This leads me to believe that Momentum based trading is definitely something we need to incorporate (but not be the whole concept) into our strategy because a high (or at least non negligible) percentage of strategies will be based on other people's trades. I also believe that we should combine parts of other concepts as there is not a "correct" answer (especially as someone who hasn't participated before)

Something to consider for random walks is that would require us to run some kind of simulation with price paths which might be more work (even though it could lead to a better algorithm).

Step 3: Combining Strategies/Adaptability

I personally believe that taking the strengths of all approaches would be best. For example, mean reversion is a great strategy for periods of high volatility, but momentum is best for strong trends (upward or downward). So I believe that we should allow changing the weight of indicators.