Fintech Society Trading Algorithm Competition 2024

RoboFunds Competition 2024 – RFC2024

The challenge involves creating the best algorithmic trading bot by individuals or teams of up to 4, Competitors can use any strategy or tricks they desire to generate as high of a return as possible not including glitches or exploits in software. When the competition ends and bots are submitted to be tested the winner receives a prize (TBD). The traded assets will be a pre-determined selection of shares.

The purpose of the competition is to promote research into quantitative techniques and collaboration between students. For those who are not confident at python this competition is an opportunity for improving their skills with it. Teams being optional allows for choice in their approach. By providing a goal and motivation, a person is much more likely to put a greater effort into learning. By using a competition, I believe this will draw out more unique approaches from students as they iterate and improve their program.

Allowed assets:

Limiting the tradable universe allows for a more focused approach and eliminates issues arising from low liquidity. A range is still provided for diversification. Individual scores will be given for each asset class.

Any listed index, component of index or asset listed below:

- S&P 500
- FTSE 100
- NIKKEI225
- Gold, Silver, Oil
- BTC, ETH

Rules

1. Individuals or teams of up to 4. Competitors cannot be on multiple teams or submit individually if already on a team.
    - Both teams face disqualification if a person is on two teams.
2. No interference with other teams, such as sabotage.
    - Offending player is banned, and their team is disqualified.
3. Competitors must submit a competition form which provides information on the trading algorithm created and team members. This document must show understanding of their technique.
    - Teams with missing information or late are not considered.
4. Trading algorithm must have a mechanism for managing risk with hedging or limiting position size.
    - No YOLO trades.
5. Trading algorithm must be original, no copy and pasting.

6. Trading algorithm must contain a single function called **Trade** which takes a data frame and returns data in JSON format of the trade to be executed.
7. Code must not rely on third-party libraries to make decisions on trades or risk management unless it uses neural networks.
8. Decisions cannot take longer than 1 period, which it is meant to trade, or 5 minutes real-time.
    - E.g. Using 1 minute data means decision cannot take longer than 1 minute.
9. Libraries must be well known and reputable.
    - Such as pandas, scipy, scikit-learn, tensorflow, numpy and any built in libraries.

Program requirements (WIP)

The submitted software must meet the criteria to be accepted and tested. The program will also be tested in other areas but failure to meet these criteria will result in overall failure. All price information inputted is assumed to be correct by the program.

1. The function create_trade() located in __main__.py must only output the next desired trade to be executed using the relevant provided objects from trading_api.py.
2. create_trade() has to be reliable. Not meeting this requirement counts as a fail. Team will have one 7 day chance to resolve all issues.
    a. No errors
    b. Not get stuck in infinite loops/recursion.
    c. Be able to handle bad inputs.
3. Must not modify the portfolio object used to

Winning Criteria and measurements (WIP)

All Submissions to be tested with same methods and data.

Information ratio

Sharpe ratio

Performance against index/Relative return

Value at Risk

Volatility and Average Max downdraw

Monte-Carlo simulations using properties of allowed stocks at distinct points in time.

Win/Loss of trades