QuantWeb Assignment 7

June 25, 2024

Instructions

- The submission deadline is 26th EOD.
- Submit your work on GitHub Classroom as discussed in the meeting. Provide separate .ipynb files for each problem you have attempted and ensure that **ALL CELLS ARE RUN BEFORE SUBMITTING**.
- If you have any questions, please feel free to contact the mentors.

This assignment requires you to implement the backtesting framework found in the `app1/backtesting_frameworks.py` file and convert it to an object-oriented programming (OOP) format.

The function should follow a structure similar to the assignment 2 framework. It should accept a bitmask value and the following parameters:

- normal_stop_loss
- normal_take_profit
- trailing_stop_loss
- dynamic_exit_condition
- atr_stop_loss
- atr_take_profit

Based on the bitmask, you need to decode which risk management strategies are being used and apply the corresponding exit conditions. Break your code into as many functions as possible to enhance functionality.

The table below illustrates how we can decode the list of strategies from the bitmask.

Table 1: Bitmasking

Bitmask (in decimal)	**Bitmask (in binary)**	**Strategy Represented**
0 or 1	0000000 or 0000001	No strategy selected (all would be None)
6	0000110	normal_take_profit and normal_stop_loss selected
112	1110000	atr_take_profit, atr_stop_loss, and dynamic_exit_condition selected
126	1111110	All strategies selected

Based on the bitmask value, some variables will be set to 100 and others will have specific values based on user input. Use these values to design your engine.

Design it so that we can merge this in our website. You can try merging your engine too with the website.