

AI Systematic Trading Challenge

Euklid Ltd.

Project Description

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Welcome to Euklid Ltd, where innovation meets finance to shape the future of systematic trading through the power of Artificial Intelligence. In today's fast-paced financial world, data is the new gold, and the ability to forecast market movements is invaluable.

The challenge we present to you is to design and develop an AI-driven systematic trading model that can navigate the intricacies of financial markets with precision and agility. By harnessing the power of this dataset, your model will need to identify patterns, predict market movements, and execute trades that capitalize on these insights, all while managing risk and maximizing returns

Dataset Features

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- **Date/Time Stamp:** Each record is associated with a specific week, allowing for temporal analysis of financial metrics over time.
- **Open, High, Low, Close Prices (OHLC):** These provide the opening price, the highest price, the lowest price, and the closing price of a stock or index for the week, crucial for understanding market trends and volatility.
- **Volume:** The total number of shares or contracts traded for the stock or index during the week, indicating the level of activity and liquidity.
- **Adjusted Close Price:** This accounts for any corporate actions such as dividends, stock splits, or rights offerings, providing a more accurate reflection of the stock's or index's value over time.

How to get the dataset

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We will give you 6 different weekly data datasets as csv files.

Assignment

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- **Preprocess the Dataset:** Ensure data quality by handling missing values, possibly through imputation, and prepare the dataset for modeling. Given the financial nature, focus on normalization or standardization of continuous variables like prices and volume.
- **Feature Engineering and Selection:** Develop features that capture market dynamics, such as technical indicators like Moving Averages, RSI, or MACD, based on weekly data.
- **Train/Test:** Divide your dataset in train and test, usually 80%/20%.
- **Systematic Trading Model:** Create a method based on AI to forecast financial time series. Your goal is to optimize the choices of your trading model, whether to go long, short or exit, to maximize the gain of your algorithm
- **Performance Evaluation on Test Data:** Assess the final model's performance on a test set not seen by the model during training or validation. Compare predicted outcomes with actual market movements to evaluate accuracy.
- **Results Analysis and Interpretation:** Provide a comprehensive explanation of the model's predictive performance, including an analysis of where the model succeeds and where it may fall short. Discuss potential improvements or alternative approaches that could enhance model accuracy and generalization to unseen data.

This structured approach aims to harness AI for systematic trading, offering a methodical pathway from data analysis to actionable trading insights.