Kharagpur Data Science Hackathon 2024

Team Name: **#include<team.h>**

Institute Name: **IIT Patna**

Team members:
Chitraksh Dhingra
Vardhan Gacche
Hardik Singh
Ayush Tripathi

Strategy Ideation

1. BTC/USDT is trending and highly volatile market.
2. Problem statement demands for a low Drawdown
3. Focus on good trend strength and low volatility scenarios

Strategy Hypothesis

The hypothesis proposes a trading strategy for Bitcoin based on:

1

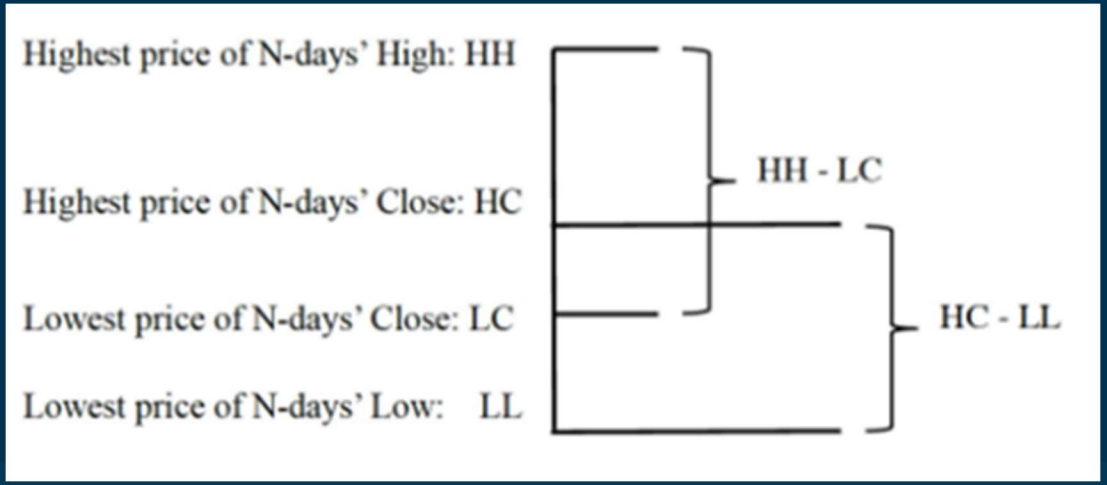
The historical price is used to calculate the range based on the close, high, and low over the most recent N days

2

A position is opened when the market moves a certain range from the opening price.

Implementation of Strategy

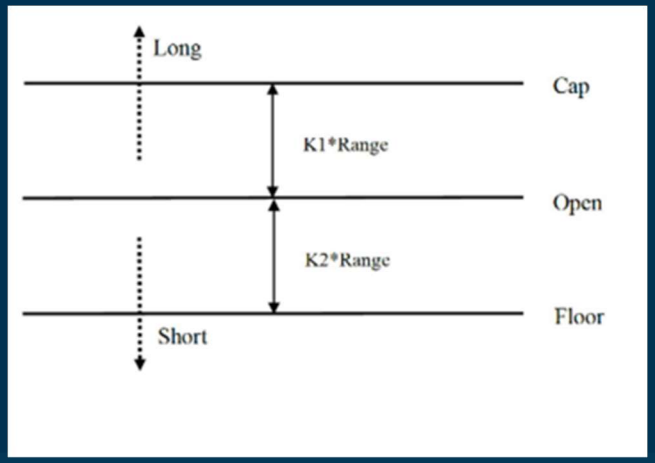
In order to calculate the range, each trading day we need the close, high, and low price data over the most recent N days. In addition, the open price of the current day is required in order to generate the signals. Then the range is calculated by **range=max(HH−LC,HC−LL)** In this implementation, we choose N=4. It is less than one week and the range would reflect the recent price change.



Trading Implementation

The long signal is calculated by **cap=open+K1×range**

The short signal is calculated by **floor=open–K2×range**



Risk management

Considering the fact that the BTC/USDT market shows high volatility, there is a good chance that an exit condition shows signs for immediate trend reversal to a considerable extent. Used MaximumDrawdownPercentPerSecurity Risk model to limit the maximum drawdown to a specific percentage.

All the Trades were limited to 8% drawdown as specified

Performance

Metrics	Value
Return(%)	1735.15%
Compound Ann. Return(%)	51.465%
Sharpe Ratio	1.058
Treynor Ratio	0.99
Profit-Loss Ratio	3.0
Max. Drawdown	23%
Average Drawdown	8%
#Trades	436
Win Rate	37%
Annual Standard Deviation	0.44
Total Fees	$3780330.94

Performance

Member role

Vardhan Gacche

Work upon:
Exploratory Data Analysis
Uniqueness
Completeness
Consistency
Univariate, Bivariate and multivariate analysis
Of Dataset

Chitraksh Dhingra

Work upon:
DL model construction

Ayush Tripathi

Work upon:
Backtesting and chosing the optimum model

Hardik Singh

Work upon:
Report and PPT and research about the model

Thank you