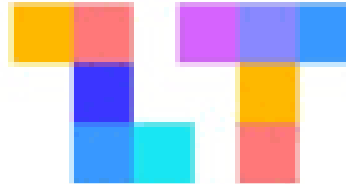


The logo for untrade, consisting of a stylized 'U' made of black squares followed by the word 'untrade' in a bold, black, sans-serif font.

**untrade**

The logo for ZeltaLabs, featuring a colorful, pixelated 'Z' made of small squares in yellow, red, blue, and purple, followed by the word 'ZeltaLabs' in a bold, black, sans-serif font.

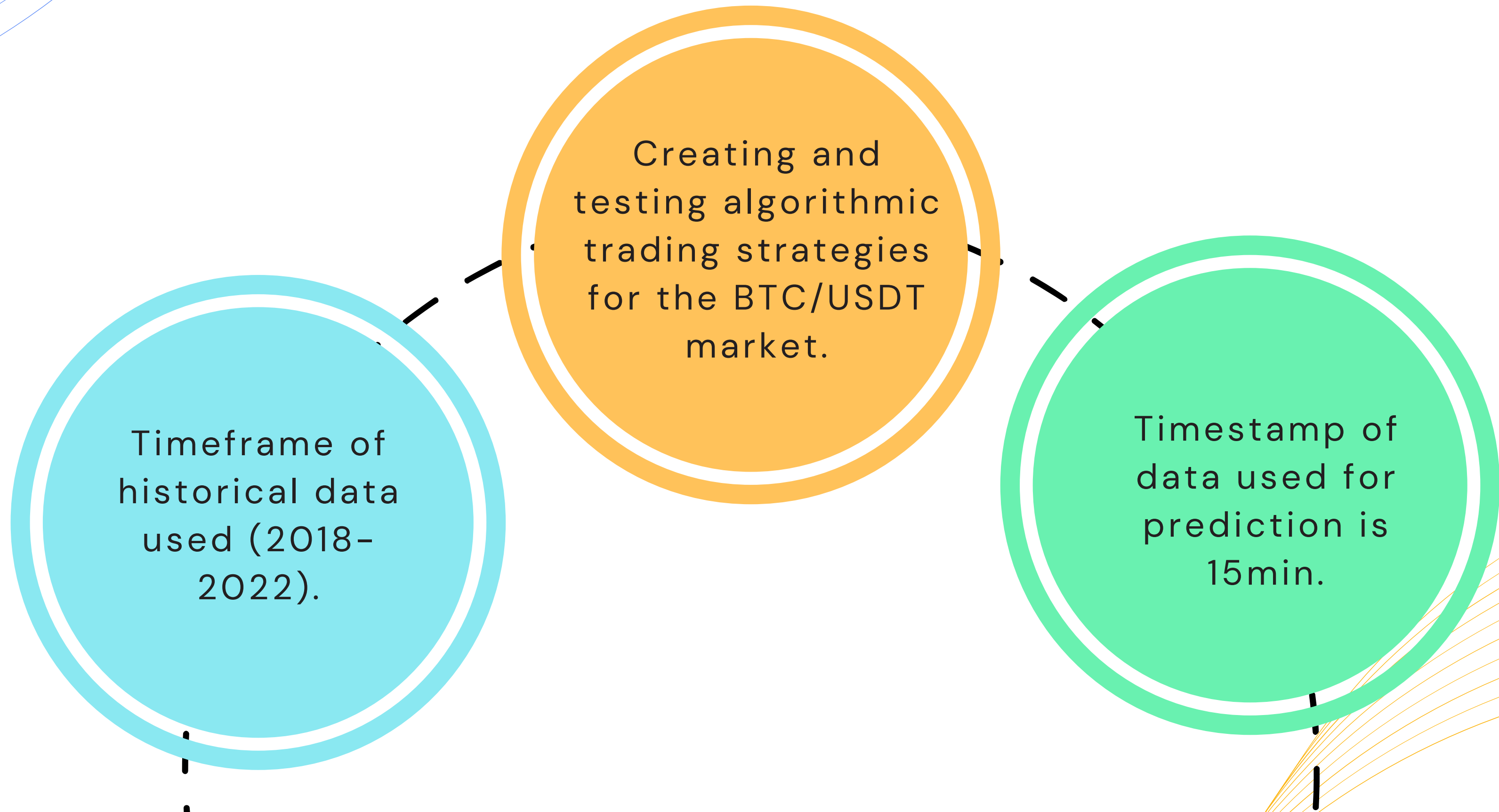
**ZeltaLabs**

**presents**

# CRYPTO TRADING CHALLENGE

**Team 59**

# BACKGROUND



# WHY INDICATORS?



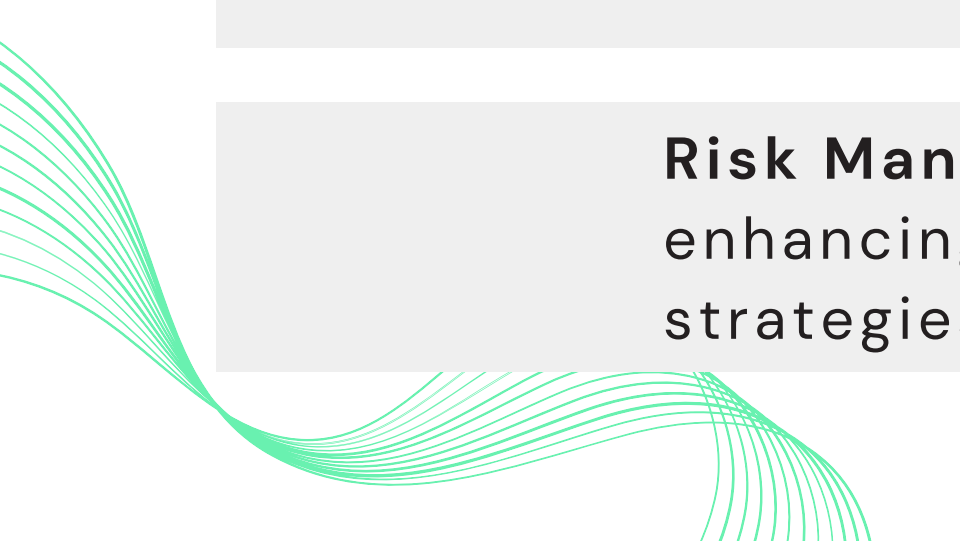
**Efficient Analysis:** Indicators enable rapid processing of market data, identifying trends and patterns for timely decision-making.

**Continuous Surveillance:** Algorithmic trading bots, utilizing indicators, operate 24/7, ensuring constant monitoring of market conditions.

**Objective Decision-Making:** Indicators provide quantifiable metrics, reducing the impact of emotions on trading strategies.

**Pattern Recognition:** Indicators aid in recognizing recurring market patterns, optimizing trading opportunities.

**Risk Management:** Indicators contribute to assessing and managing risks, enhancing the overall effectiveness and profitability of algorithmic trading strategies.



# INDICATORS WE USED AND WHY?

## MACD

Used for identifying trend directions and reversals, showing the relationship between two moving averages of a cryptocurrency's price.

## RSI

Measures the speed and change of price movements. It helps in identifying overbought or oversold conditions in the trading of an asset.

## SUPERTREND

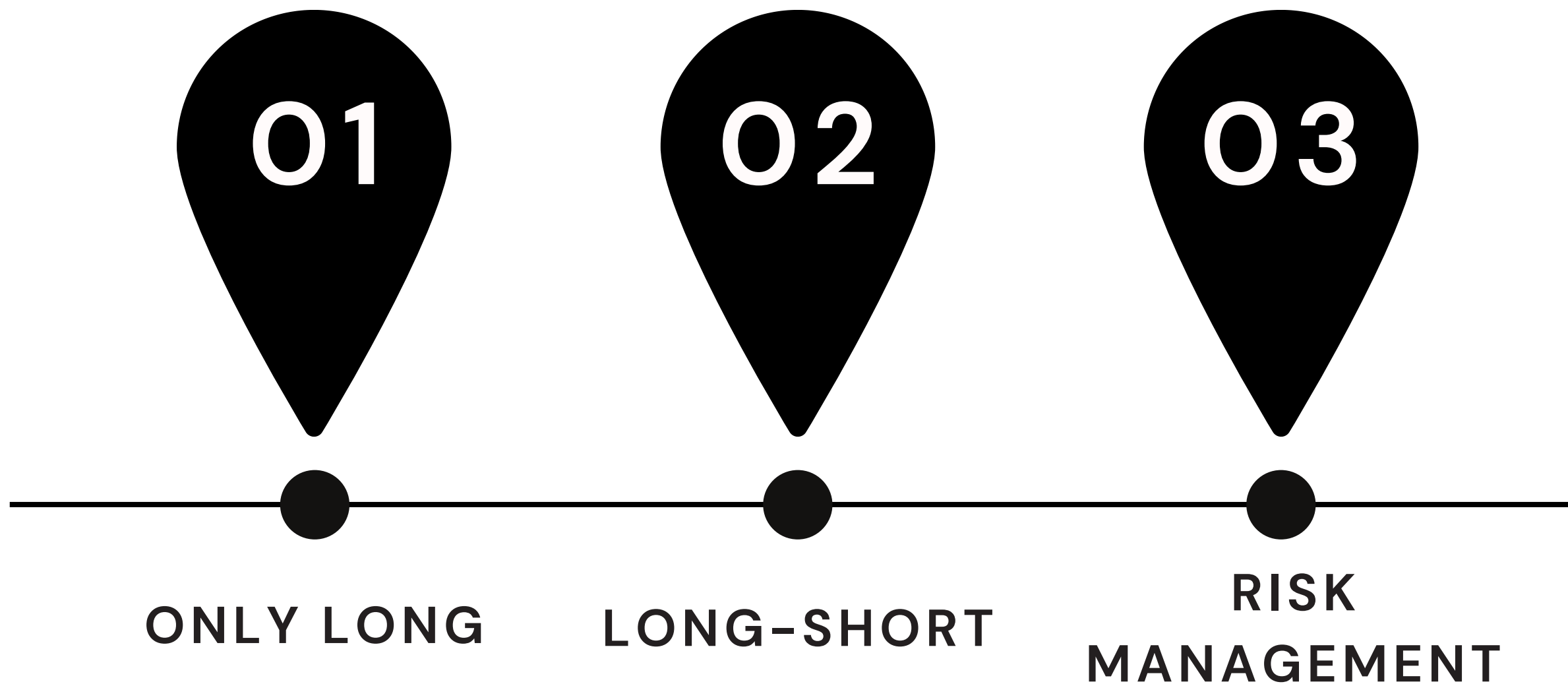
A trend-following indicator. It's effective in capturing the trend's direction and provides clear buy and sell signals.

## EMA

Gives more weight to recent prices, thus reacting more quickly to price changes. It helps in identifying the trend direction and potential reversal points.

# STRATEGY DEVELOPMENT

We developed our strategy by putting together signals from different indicators. We carefully chose the settings based on the timeframe, aiming to earn more profits while keeping the risks low. It's like mixing ingredients to get the best recipe—each indicator plays a part, helping us trade smartly and safely.





# STRATEGY DEVELOPMENT



```
if (  
    data['RSI'][i] < 15  
    and data['close'][i] > data['SuperTrendUpper'][i]  
    and data['close'][i] > data['EMA'][i]  
    and data['MACD'][i] > data['SignalLine'][i]  
):  
    signals[i] = 1 # Buy signal  
#For Sell: If RSI is greater than 70 i.e overbought condition.  
elif (  
    data['RSI'][i] > 70  
    and data['close'][i] < data['SuperTrendLower'][i]  
    and data['close'][i] < data['EMA'][i]  
    and data['MACD'][i] < data['SignalLine'][i]  
):  
    signals[i] = -1 # Sell signal
```



# ONLY LONG STRATEGY

## Advantage

It successfully capitalizing on the bull market, capturing almost the entirety of the bullish trend.

## Disadvantage

This strategy resulted in overexposure of our capital for an extended duration (245 days), making it highly susceptible to market volatility

```
{'From': '2018-01-01 05:30:00',  
  'Total Trades': 125,  
  'Winning Trades': 62,  
  'Losing Trades': 63,  
  'Win Rates': 49.6,  
  'Benchmark Return': 2167.0776732331815,  
  'Net Profit': 3835.982102007822,  
  'Gross Profit': 4023.482102007822,  
  'Average Return': 30.687856816062578,  
  'Maximum Drawdown': -27.727503825686867,  
  'Largest Win': 1580.5377478852372,  
  'Average Win': 96.82787994420899,  
  'Largest Loss': -262.3113854658742,  
  'Average Loss': -22.991002534317122,  
  'Maximum Holding Time': Timedelta('245 days 19:45:00'),  
  'Average Holding Time': Timedelta('6 days 08:34:55.200000'),  
  'To': '2022-01-12 05:30:00'}
```

# LONG-SHORT STRATEGY

In this approach, we initiate a short position immediately after closing a long position, and vice versa.

## Advantage

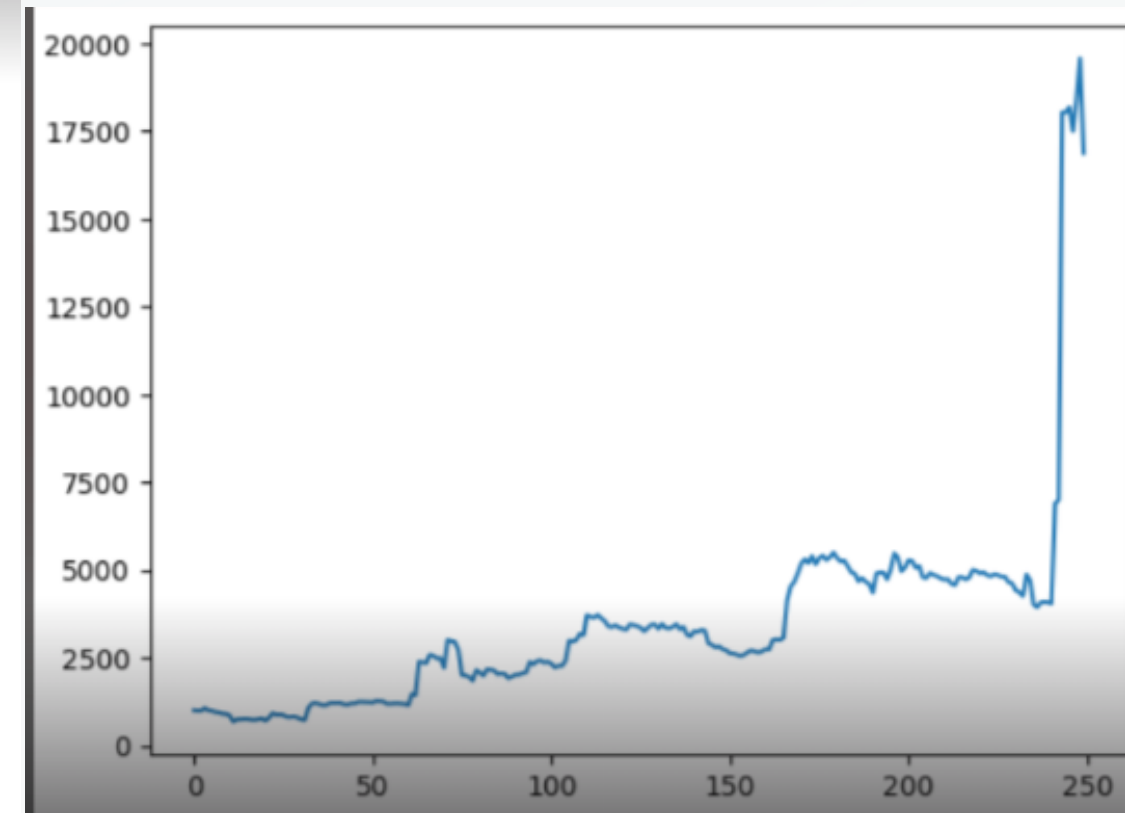
While the static approach successfully beat the benchmark returns, the compounding approach showed remarkable results, with an approximate 16-fold increase in value.

## Disadvantages

- Holding Time Adjustment
- Improving Win Rate and Profitability
- Addressing Maximum Drawdown
- Reducing Maximum Dip

```
Static
{'From': '2018-01-01 05:30:00',
 'Total Trades': 249,
 'Winning Trades': 113,
 'Losing Trades': 136,
 'Benchmark Return': 2167.0776732331815,
 'Win Rates': 45.38,
 'Gross Profit': 4698.398986386611,
 'Net Profit': 4324.898986386611,
 'Average Profit': 17.36907223448438,
 'Maximum Drawdown(%)': -37.77455002821625,
 'Largest Win': 1580.5377478852372,
 'Average Win': 77.9828997874681,
 'Largest Loss': -262.3113854658742,
 'Average Loss': -27.561457280314734,
 'Maximum Holding Time': '245 days 19:45:00',
 'Average Holding Time': '5 days 12:33:54.939759036',
 'Maximum Dip': 30.20439481201409,
 'Avg. Dip': 2.904795431791776,
 'Sharpe Ratio': 2.2111665975409593,
 'Sortino Ratio': 9.060986238325683,
 'To': '2022-01-12 05:30:00'}

Compounding
Initial Balance: 1000
Number of trades: 249
Maximum PNL: 11049.331065992434
Minimum PNL: -2697.032639969192
Peak Portfolio Balance: 19575.26967279677
Lowest Portfolio Balance: 680.5796159276649
Final Balance: 16878.23703282758
Total Fee: 1257.5008019831841
```





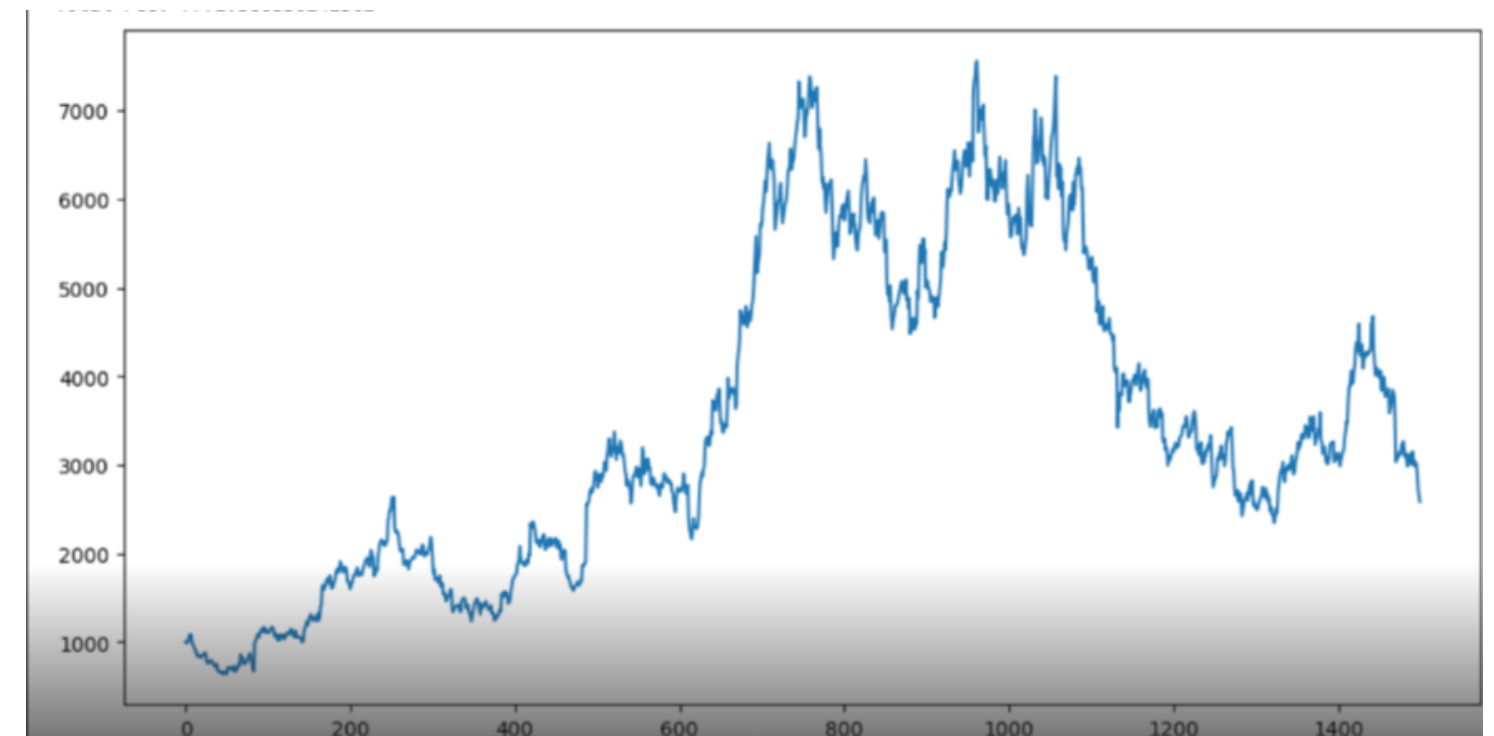
# RISK MANAGEMENT

We applied the risk management to increase % win rate and to reduce the maximum holding time.

**Swift profit-taking at 1% and Re-entering long positions**

This adjustment was intended to leverage compounding benefits and improve the win ratio.

```
Static
/Users/adin/Desktop/jarvis/v1/ts/lib/python3.11/site-packages/jarvis_engine/engine/bt_engine_futures.py:137: FutureWarning
as labels (consistent with DataFrame behavior). To access a value by position, use `ser.iloc[pos]`
self.strategy_statistics['Benchmark Return'] = ((self.data.close[-1] - self.data.close[0]) / self.data.close[0]) * self.
{'From': '2018-01-01 05:30:00',
'Total Trades': 1499,
'Winning Trades': 895,
'Losing Trades': 604,
'Benchmark Return': 2167.0776732331815,
'Win Rates': 59.71,
'Gross Profit': 4126.136953916467,
'Net Profit': 1877.6369539164668,
'Average Profit': 1.2525930312985103,
'Maximum Drawdown(%)': -53.79575475387009,
'Largest Win': 465.78259211644485,
'Average Win': 21.628692739118403,
'Largest Loss': -163.73999704805598,
'Average Loss': -27.39823095594102,
'Maximum Holding Time': '38 days 03:45:00',
'Average Holding Time': '0 days 22:01:13.849232821',
'Maximum Dip': 25.204117962081483,
'Avg. Dip': 3.177864097479678,
'Sharpe Ratio': 1.2208629272082943,
'Sortino Ratio': 1.9161468122976777,
'To': '2022-01-12 05:30:00'}
```



**Key Observation :** High Trading Fees Impact

# RISK MANAGEMENT

To reduce the impact of higher trading fees we increased the take profit percentage from 1% to 10%.

```
total trades taken: 250
total profitable trades: 114
total non-profitable trades: 136
maximum days BTC hold kiya : 158 days, 22:45:00
maximum profit jo hau :19347.7200000000005
win rate:45.6
Maximum Drawdown: 55.49%
minimum balance values during trade:647.2543958142245
maximum balance values during trade:38662.064602977945
total fees spend:783.6896573868781
Total Non-profitable short sell trades: 73
```

# SENTIMENT ANALYSIS

## Fear and Greed Impact

Acknowledged the influence of the Fear and Greed Index on Bitcoin prices, given its high dominance in the crypto market (50-60%).

## Expectation

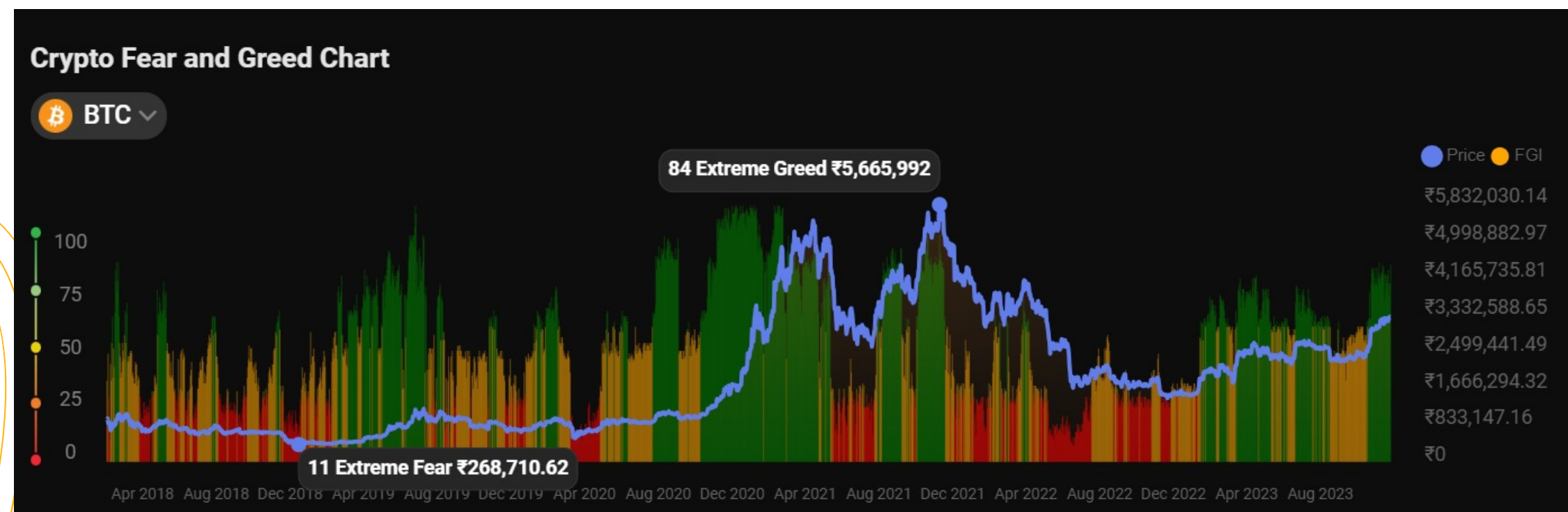
Aiming to reduce losses in unexpected market conditions by adding sentiment analysis.

## Reality

Results showed a reduction in total trades, a decrease in win rate, and a decline in the overall portfolio value.

## Decision

After testing various data APIs, the sentiment layer was discontinued due to unfavorable outcomes.



# THANK YOU

*Team 59*

