



Group 4

# REINFORCEMENT LEARNING- BASED ALGORITHMIC TRADING BOT

Intelligent Trading with Machine Learning

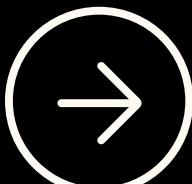


# INTRODUCTION

Imagine a world where your trades aren't driven by emotions, gut feelings, or outdated strategies. Instead, picture an intelligent AI that adapts, learns, and evolves with the market—executing trades with precision and maximizing your returns while you sleep. Welcome to our Reinforcement Learning-Based Algorithmic Trading Bot, where we combine cutting-edge machine learning with high-frequency trading strategies to outperform the markets in real-time.



# THE PROBLEM



## Traditional Trading Strategies

Traditional trading strategies often rely on fixed rules and indicators.

## Human Traders

Human traders struggle to react to market changes efficiently

## Need For Change

There is a need for an adaptive, data-driven trading system that optimizes returns dynamically.

# THE SOLUTION



## Trading Bot

A Reinforcement Learning (RL)-powered trading bot that learns from market trends.



## Agency

It automatically decides BUY, SELL, or HOLD based on live market data.



## Flexibility

Can be used in backtesting mode (historical data) or paper trading (live market, fake money).

# FEATURES



## Machine Learning

Uses Deep Q-Learning (DQN) or PPO for optimal trading.

## Multiple Modes

- Backtesting Mode: Simulates trades using historical data.
- Paper Trading Mode: Executes live trades using fake money.

## User Customization

- Choose stock/crypto asset.
- Adjust risk level, trading frequency, stop loss.

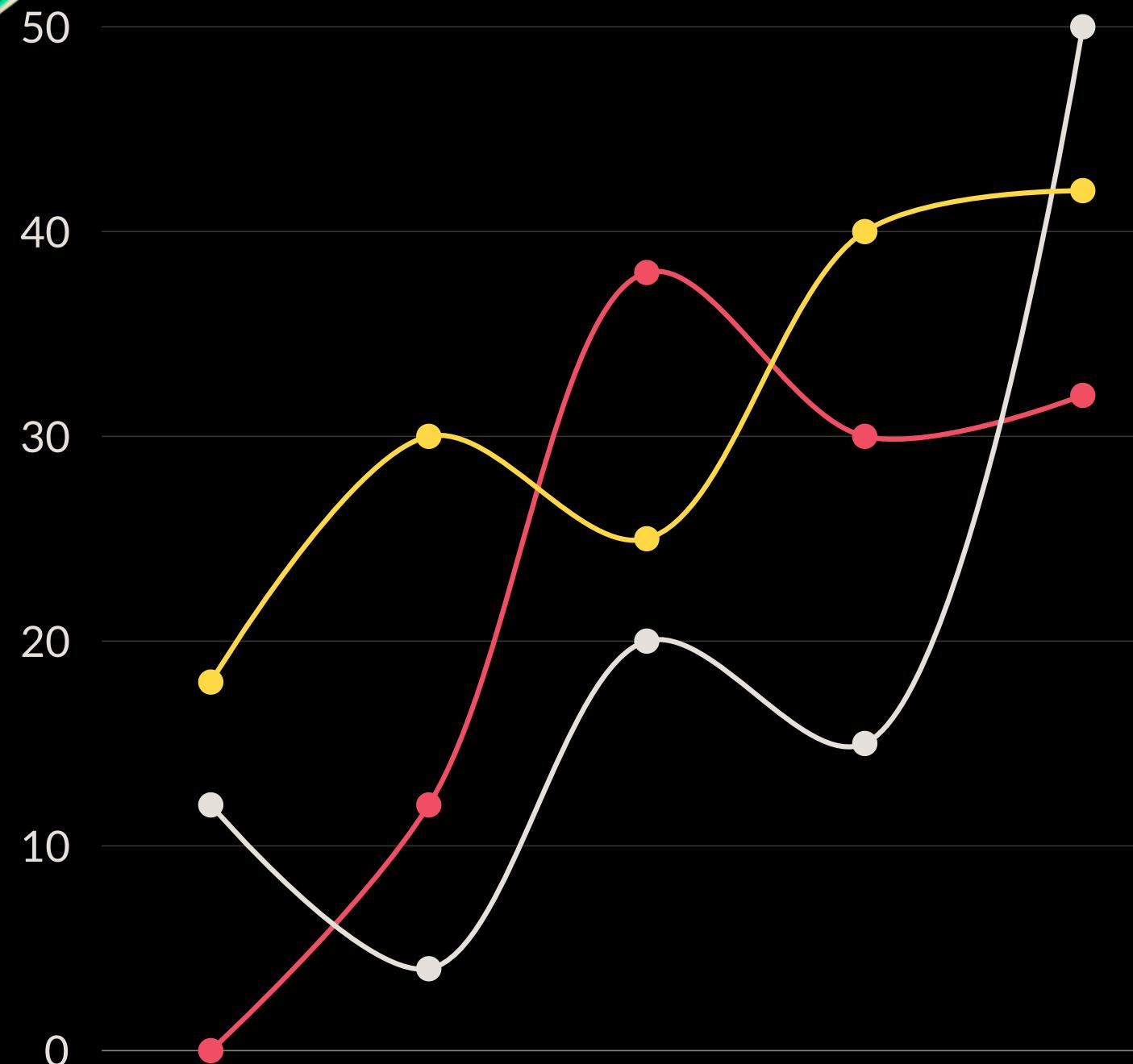
## Deployment

Streamlit dashboard for easy interaction.

# THE DATA

- Market Data: Yahoo Finance API, Binance API, Alpaca API.
- Technical Indicators: Moving averages, RSI, MACD, Bollinger Bands.





## EXPECTED RESULTS

The bot will be expected to outperform the market averages with the following considerations.

Improved risk-adjusted returns over traditional strategies.

Adaptive trading that learns and improves over time.

A user-friendly tool for quant traders and hedge funds.



Group 4

# THANK YOU

for your time and attention

Presented by Group 4

