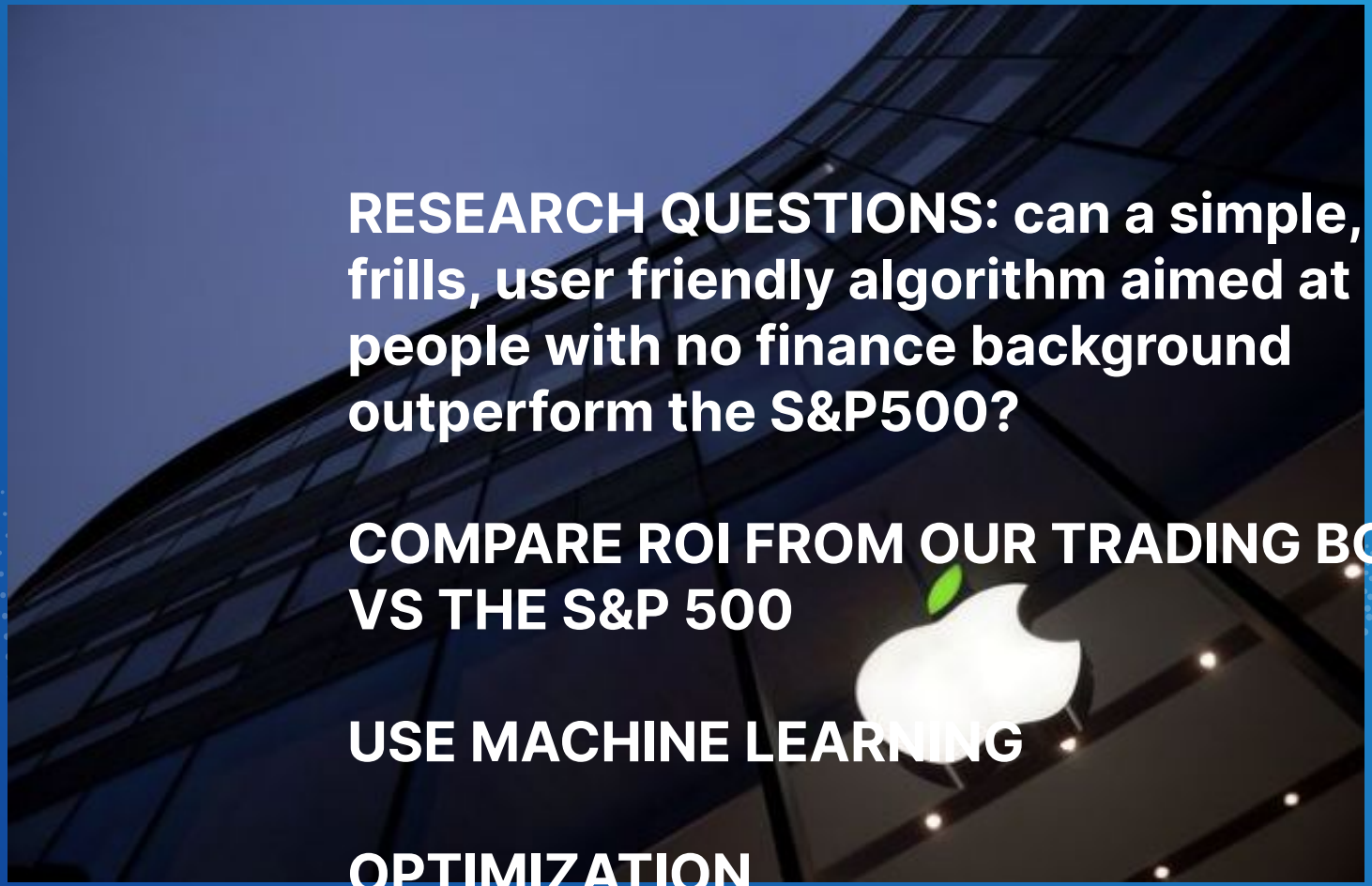
BUILD A TRADING BOT TO BUY AND SELL STOCKS TO OUTPERFORM THE S&P 500

EXECUTIVE SUMMARY

Our goal is to create a simple trading bot that takes the human element out of the equation, and outperforms the S&P 500. We used AAPL closing prices from January 3rd, 2022 through April 7th, 2022 to test our trading bot, and compare this against the S&P 500. The bot will buy a set amount of shares, in this case 500, every time the current closing price is lower than the previous closing price. When the closing price is a certain percentage point higher than the previous closing price it will sell and if neither conditions are met it will hold aka do nothing. At the end of a set trading period it will sell all accumulated shares. In this case the last trading period is April 7th.



RESEARCH QUESTIONS: can a simple, no frills, user friendly algorithm aimed at people with no finance background outperform the S&P500?

COMPARE ROI FROM OUR TRADING BOT VS THE S&P 500

USE MACHINE LEARNING

OPTIMIZATION

RESULTS of our trading bot

We tested the algorithm and our ROI is 1.5% through April 7th. It is currently outperforming the S&P500 by 8.8 percentage points. We will attempt to see if we can use unsupervised ML to fine tune the algorithm even further. I believe that in the future AI will replace human traders, because humans will let emotions cloud their trading decisions. And I fear that this will create an efficient market, making it harder for human traders and retail investors to make money in the market.

NEXT STEPS

TO DO MORE RESEARCH WITH PYTHON OPTIMIZATION PACKAGES

- **AtsPy** stands for *Automated Time Series Models in Python*. The goal of the library is to forecast univariate time series.

DATA SOURCES

ALPACA API (HISTORICAL STOCK PRICE DATA)

REST API (REAL TIME STOCK PRICE DATA)

OPTIMIZATION

ATSPY

PIPELINE (SKLEARN)

TECHNOLOGY

PYTHON LIBRARY, SKLEARN,

HVPLOT, MC FORECASTING, MATPLOTLIB




MEET OUR TEAM

- **Donika Berisha - Research and Development //** (Presentation, Read.me)
- **Sim Galbut - Research and Development //** (Code)
- **Kali Thiru - Project Manager //** (Presentation, Github Repo, Project Management analysis, results and conclusion, Optimization code)
- **Simon Wong - Lead Data Analyst** & Coding **(D**ata collection & clean up, API Code, Machine Learning Code, Results & Analysis Code, Optimization code)

Thanks!

- https://github.com/KaliPatternbraker/Project_2_Team_3