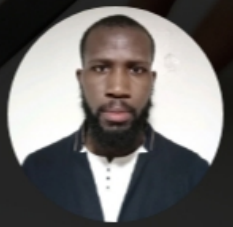
Stock Market Prediction

Using Anonymized Datasets



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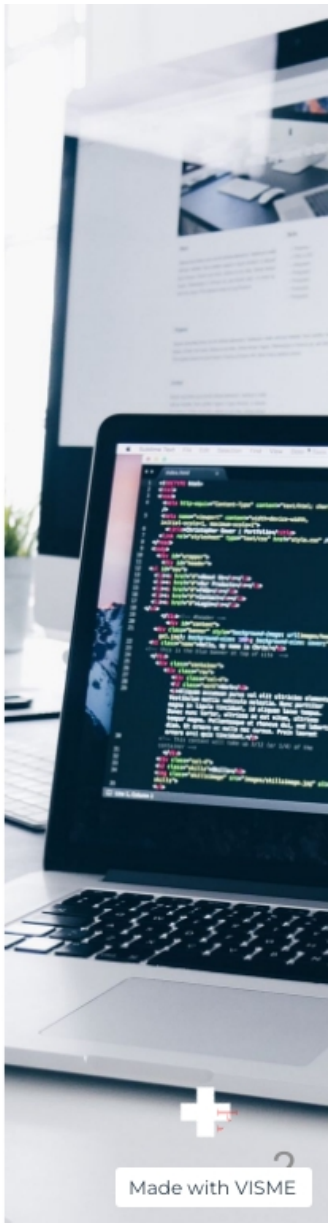
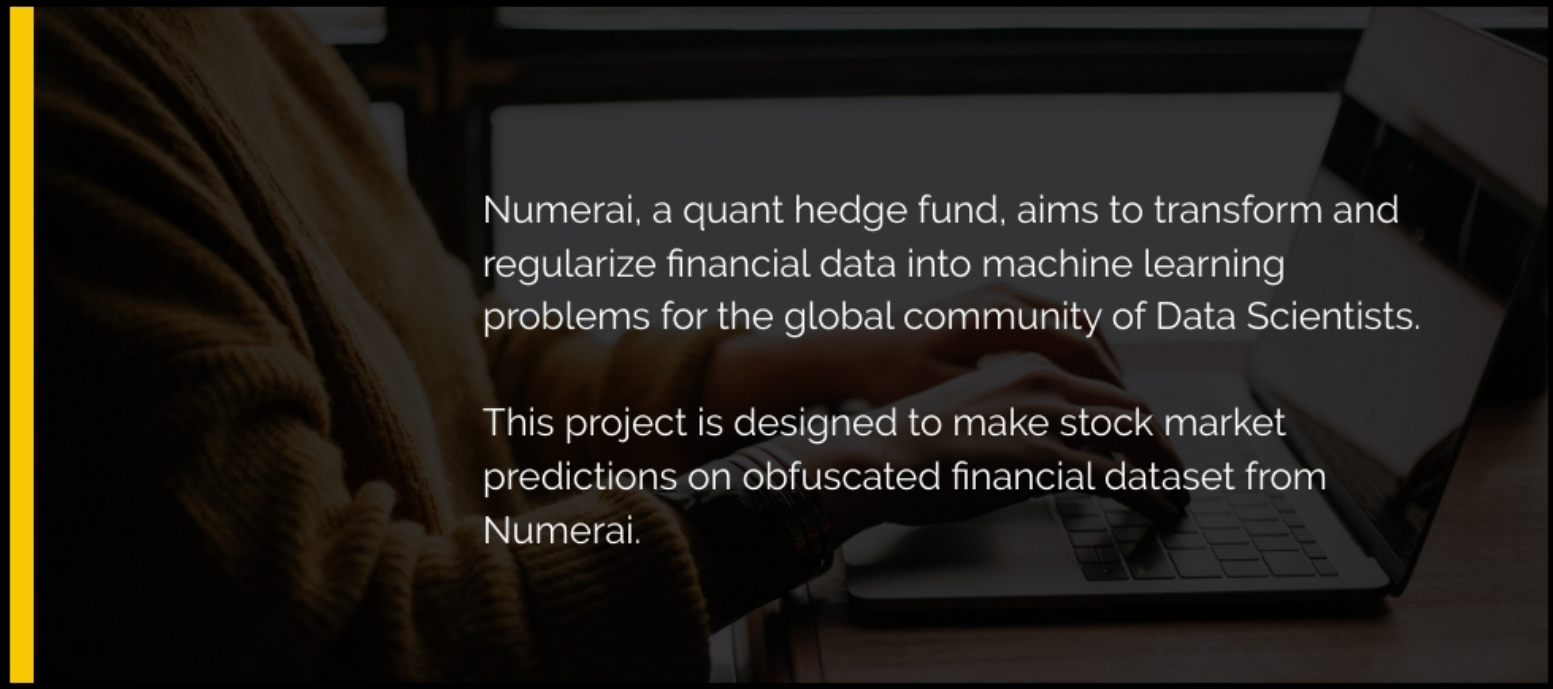


Problem Statement

Stock market prediction is one of the most difficult tasks even for experts. Market volatility and other factors that influences the value of a stock lead to difficulties in prediction

However, with the introduction of Deep Learning Algorithms, the accessibility of huge compute power, and the democratization and anonymization of financial data by platforms like Numerai, stock market predictions are becoming easier.
This project is to show you how.



Numerai, a quant hedge fund, aims to transform and regularize financial data into machine learning problems for the global community of Data Scientists.

This project is designed to make stock market predictions on obfuscated financial dataset from Numerai.

Introduction

Techniques Used In the Prediction

- Used "medium' features of the dataset which is optimal for 30 GB RAM
- 'Medium' contains 472 Features
- Got the per-era correlation of each feature with the target and used the information to get 50 riskiest eras by checking the largest correlation differences within each era

Model Predictions

- The predictions of the model, that is the validation and live predictions were neutralized to the 50 riskiest features and were ranked from 0 to 1 to meet the Numerai upload requirements.

Model Performance

To get the statistical information on how our model performed, which is contained in the validation data, I compared the two predictions, the normal and the neutralized predictions to the target values of the validation data. While there were not many changes in the mean, the neutralized predictions have a higher Sharpe ratio than the normal predictions.

A Sharpe ratio describes how much excess return you receive for the extra volatility you endure for holding a riskier asset. The higher the Sharpe ratio, the better. In the subsequent iteration of the project, I wish to work on the model improvement to increase the Sharpe ratio..

System Requirements for Stock Market Prediction Using ML

Software Requirements:

- **Operating System:** Windows, Linux
- **IDE:** Jupyter Notebook
- **Data Set:** .parquet file, .csv file
- **Server:** Web Server with HTTP Process

Conclusion

Stock market prediction using anonymized datasets, large compute power and a network of Data Scientists is a new and creative way of extracting optimal value from financial data.

The implementation of Data Science models on financial data for stock market predictions will bring in massive return on investments for industries, investors and data scientists.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