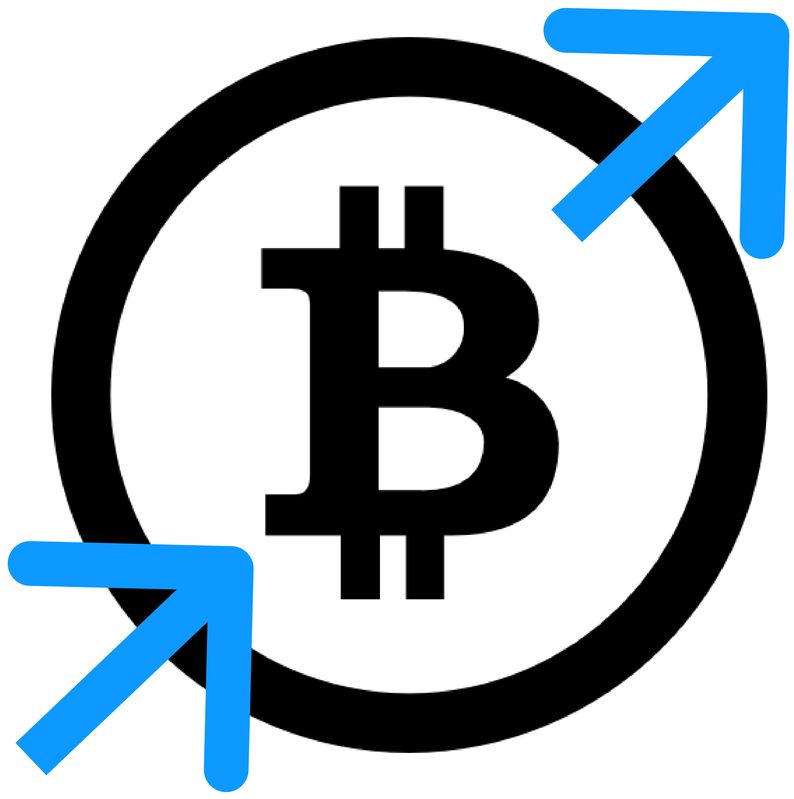

Name:

TradeCrypto

Customized Cryptocurrency Investment Assistant

Contact Info:

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Data:

Crypto Pricing Dataset from Kaggle:

- Num of rows: 2,382,643
- Num of available features: 17
- Duration: Jan 2016 - Nov 2022
- Num of crypto options: 50+

About Me:

The investment of digital cryptocurrency offers unprecedented opportunities and challenges for investors. Given the dynamic and rapidly changing environment of the new technologies and investment options, I served as a cutting-edge assistant to empower investors with machine learning models and data visualizations to help investors navigate the complex world of cryptocurrency investments.

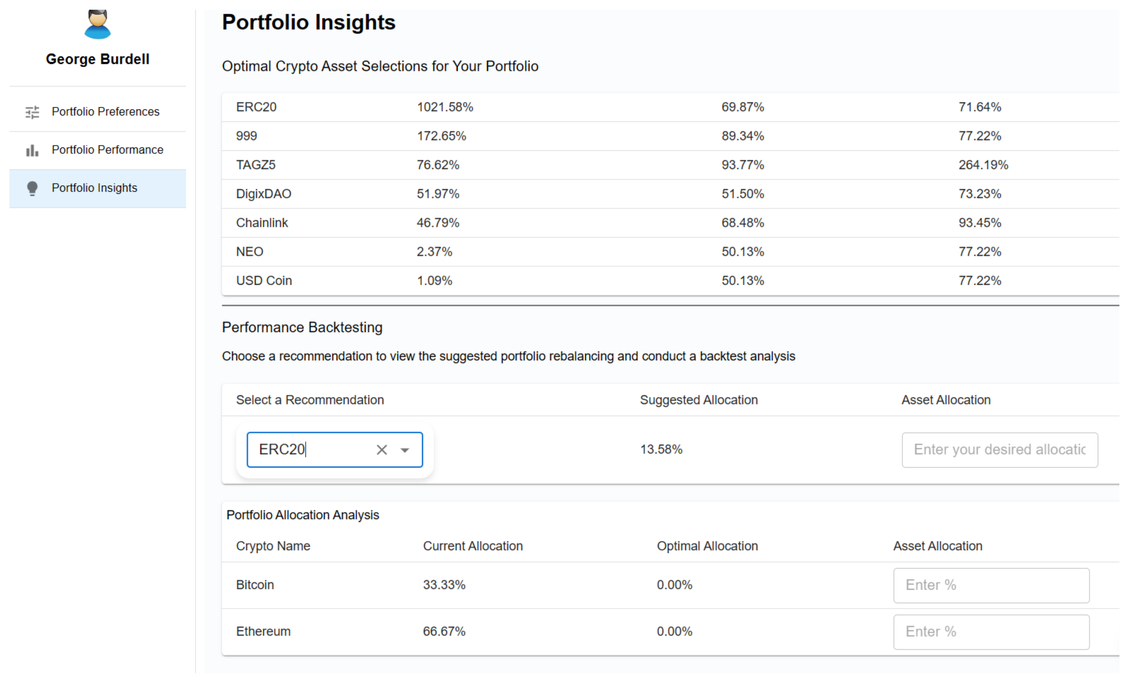
Approaches:

1. Price Forecasting: A Time Series Based Algorithm

To provide better ranking and recommendations to the investors, I am equipped with machine learning models and enabled to know “What’s next”. The algorithm was designed and implemented by a hybrid time series model using Prophet by Meta and Python. By studying the price history of each cryptocurrency, I can estimate the future price change with a fair accuracy (measured by MAPE, mean absolute percentage error) and provide substantial insights (confidence interval, etc.) to further support ranking and customized recommendation.

2. Ranking & Recommendation

With 6 months of price prediction, I can optimize and generate new allocations for various combinations of the top 20 most profitable assets with the yield of positive returns. From there, the user can choose one of the recommendations and perform back tests.



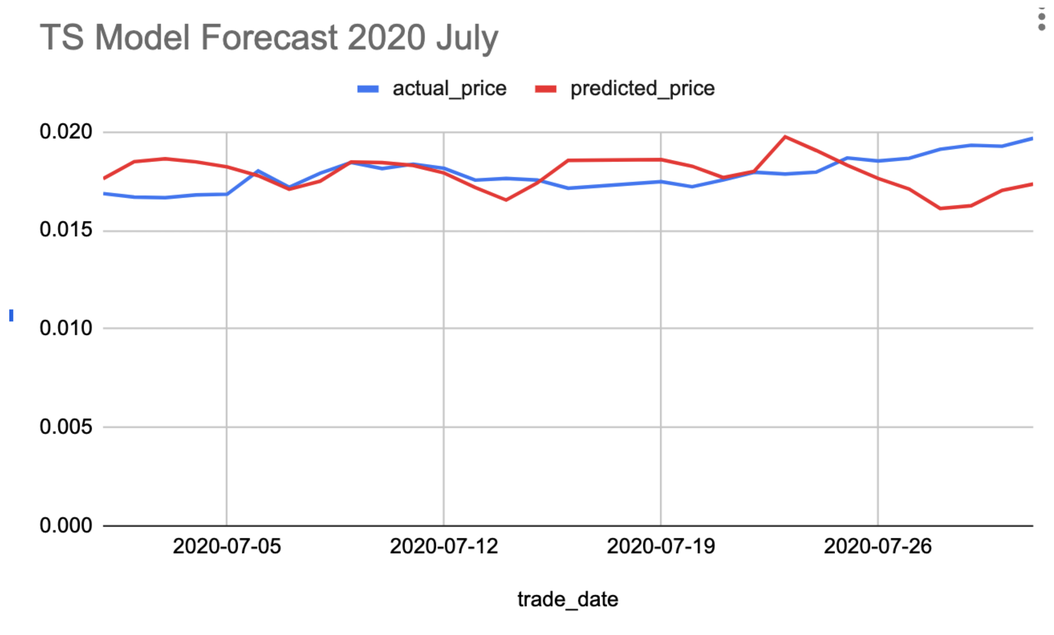
3. Visualization: An Intuitive and User-friendly UI Design

To make the application and analysis results accessible to users, I am equipped with a web interface using React, where users are allowed to select the level of risk tolerance, the portfolio duration, and min and max market cap of the asset they’re interested in. After the requirements and preferences are collected, the rankings & recommendations generated from the back end will be displayed.

Experiments & Results:

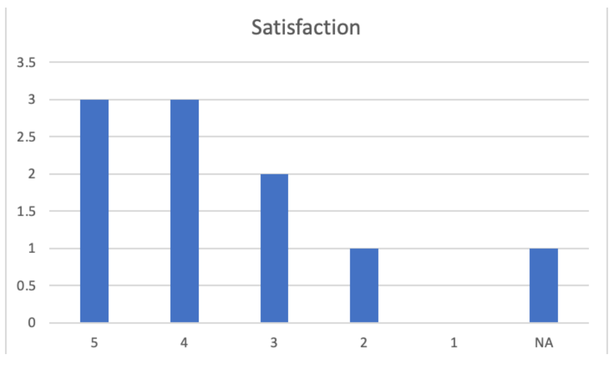
Time Series Model Performance

The below chart shows how the hybrid time serious model tracks TRON prices in July 2020. The models were trained on duration from Jan 2016 till the most recent history. The final model forecast was the average of a series of time series models with different hyperparameters. In July 2020, the error rate by MAPE was 7.6%.



User Survey Results

The results of user survey was collected through Qualtrics Experience Management. The questionnaire contains 8 questions to user’s demographic information, such as level of investment experience, goals, strategies and timeline.



The overall satisfaction level and potential improvement focus are also collected in the second portion.
10 responses were received in total. The majority of the app users are “beginners” and their investing goal is wealth accumulation in the long-term using passive strategies.
I received 3.89 out of 5 as the user satisfaction level. The biggest focus for further improvement is related to the recommendation mechanism. Next potentials are around user interface and better price forecasting accuracy.