Stock price prediction using Generative Adversarial Networks

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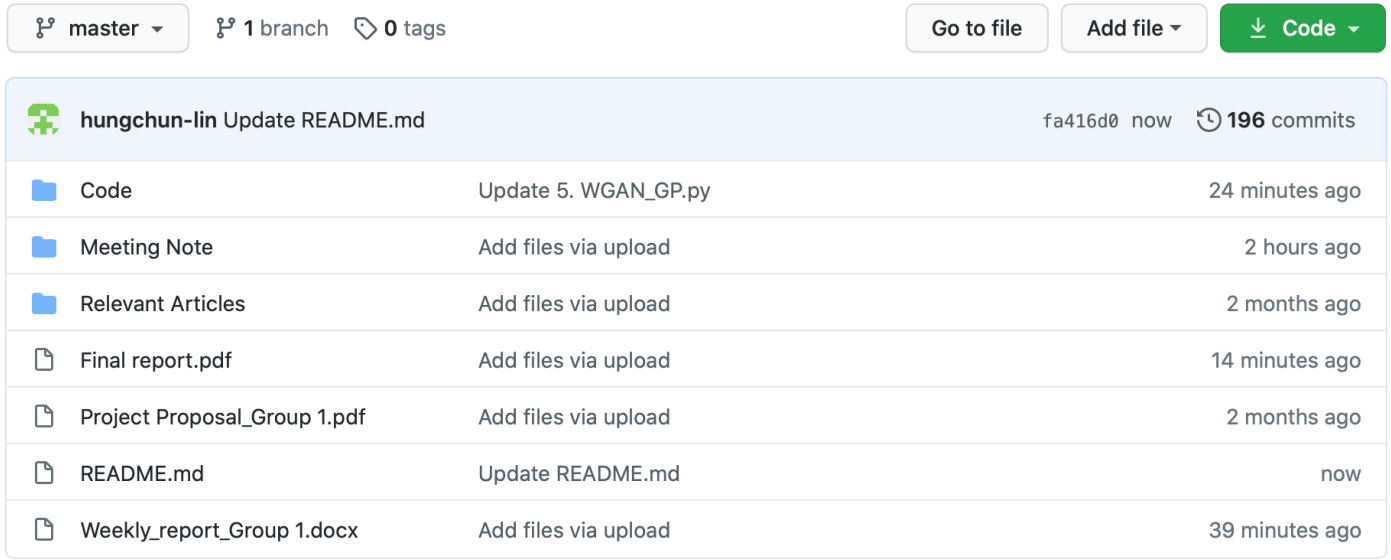
Introduction

- In this project, we will compare different algorithms applying to stock prediction.
- Goal: Built the model to get more accurate stock price prediction.
- Models in this project:
  - Long short-term memory (LSTM)
  - Gated recurrent units (GRUs)
  - Basic Generative adversarial networks (GANs)
  - Wasserstein GAN with gradient penalty (WGAN-GP)

Github

- Github link: https://github.com/hungchun-lin/Stock-price-prediction-using-GAN-Capstone-Group1
- This Github includes:
  - Code
  - Meeting Note
  - Relevant Articles
  - Project Proposal
  - Weekly Report
  - Final Report



Data Source link

- Data:
  - Stock price: https://finance.yahoo.com
  - Economic index: https://fred.stlouisfed.org
  - Daily news: http://seekingalpha.com/

Contribution

- Compare two kinds of RNN based model, the GRU and the Long LSTM networks
- Proposed the GANs model, with GRU as a generator and CNN as a discriminator for predicting the multi-step ahead stock price.
- Improve the result by adjusting the loss function in the GAN model, which is the WGAN-GP
- Extract the daily news topic through Natural Language Process as one of the vital indexes in the features
- Compare model performance for normal times and COVID-19 period

Thanks!