

# Small-Cap Stock-Price-Movement Prediction

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# Overview

Objective: Predict intraday price movements

Goals of Analysis:

- Preprocess, engineer features
- Construct predictive models

# Data Understanding

- 8027 -> 160 Stocks
- Dec. 17, 2017 - Dec. 17, 2020
- TD Ameritrade Price History API
- Open, high, low, close, volume, datetime, ticker

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# A First Look



# Feature Engineering

- Target Variable
- Moving Averages
  - 10, 50, and 200 Day
  - Mean Reversion
- % Daily Price Change

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# Target Variable



# Moving Averages

160 Small-Cap Stocks' Mean Closing Prices



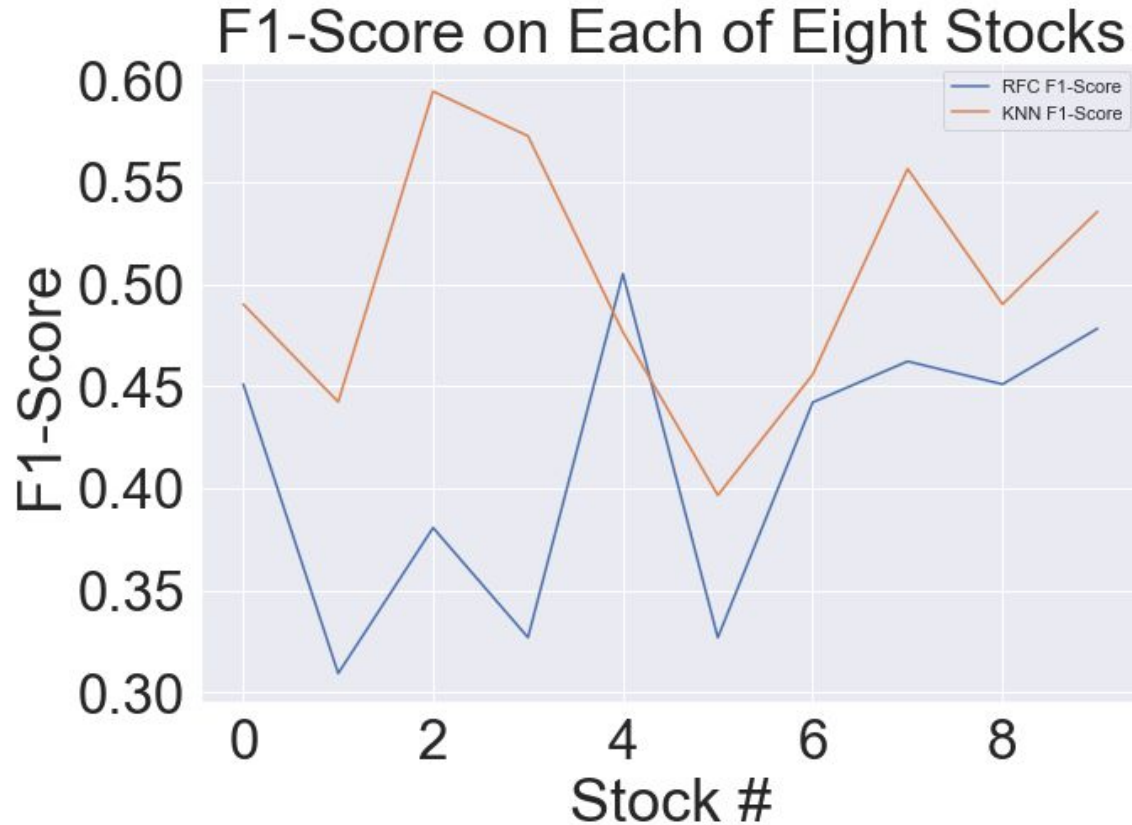
# Modeling

1. KNN, RandomForest
2. ARMA
3. Evaluate
  - a. F1-Scores
  - b. RMSE

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# Performance Comparison



# Conclusion and Next Steps

- KNN F1 > RFC F1
  - Avg. RMSE = .287
  - Only 8/160
  - Add additional models, ensemble
  - More Features
    - MACD, RSI
    - Std. Dev., Beta
    - % Daily Change Volume
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