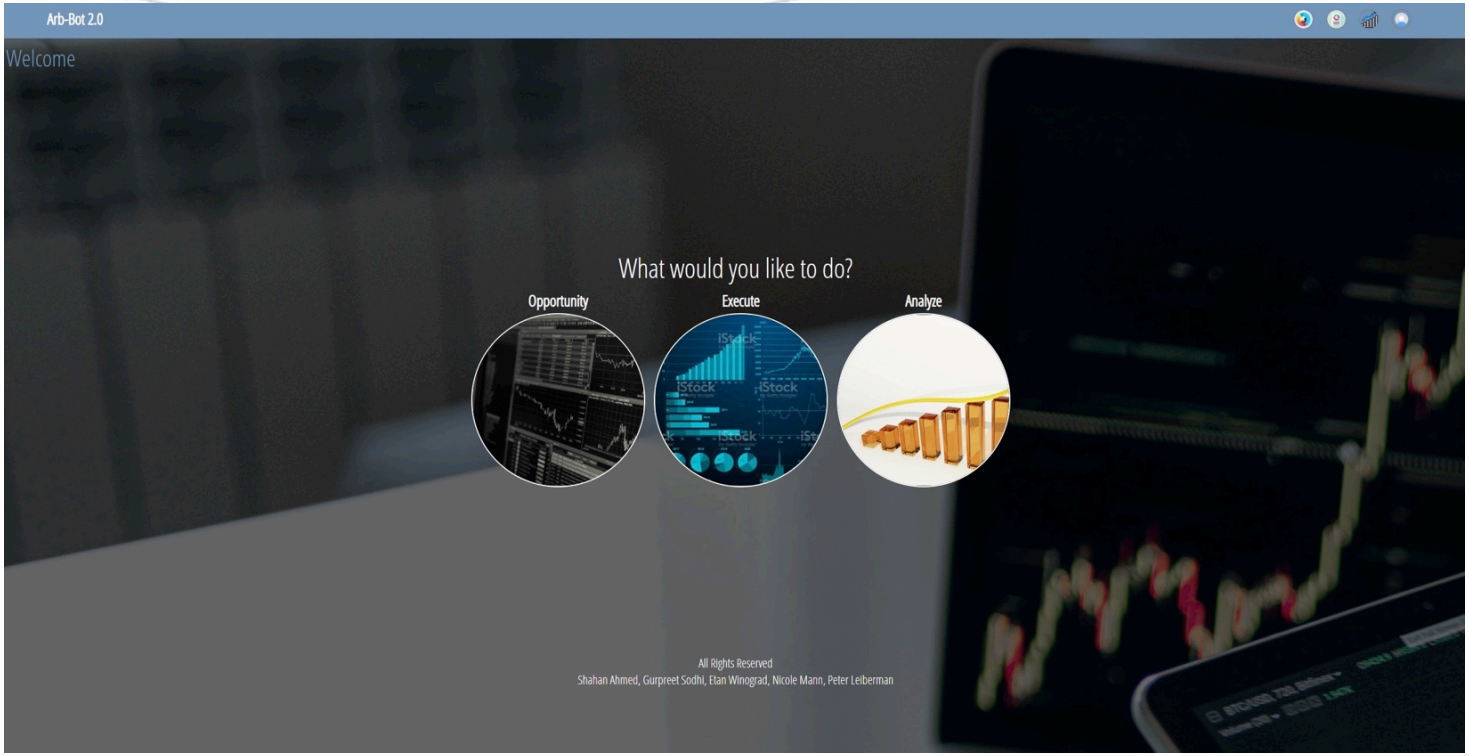
Arb-bot 2.0

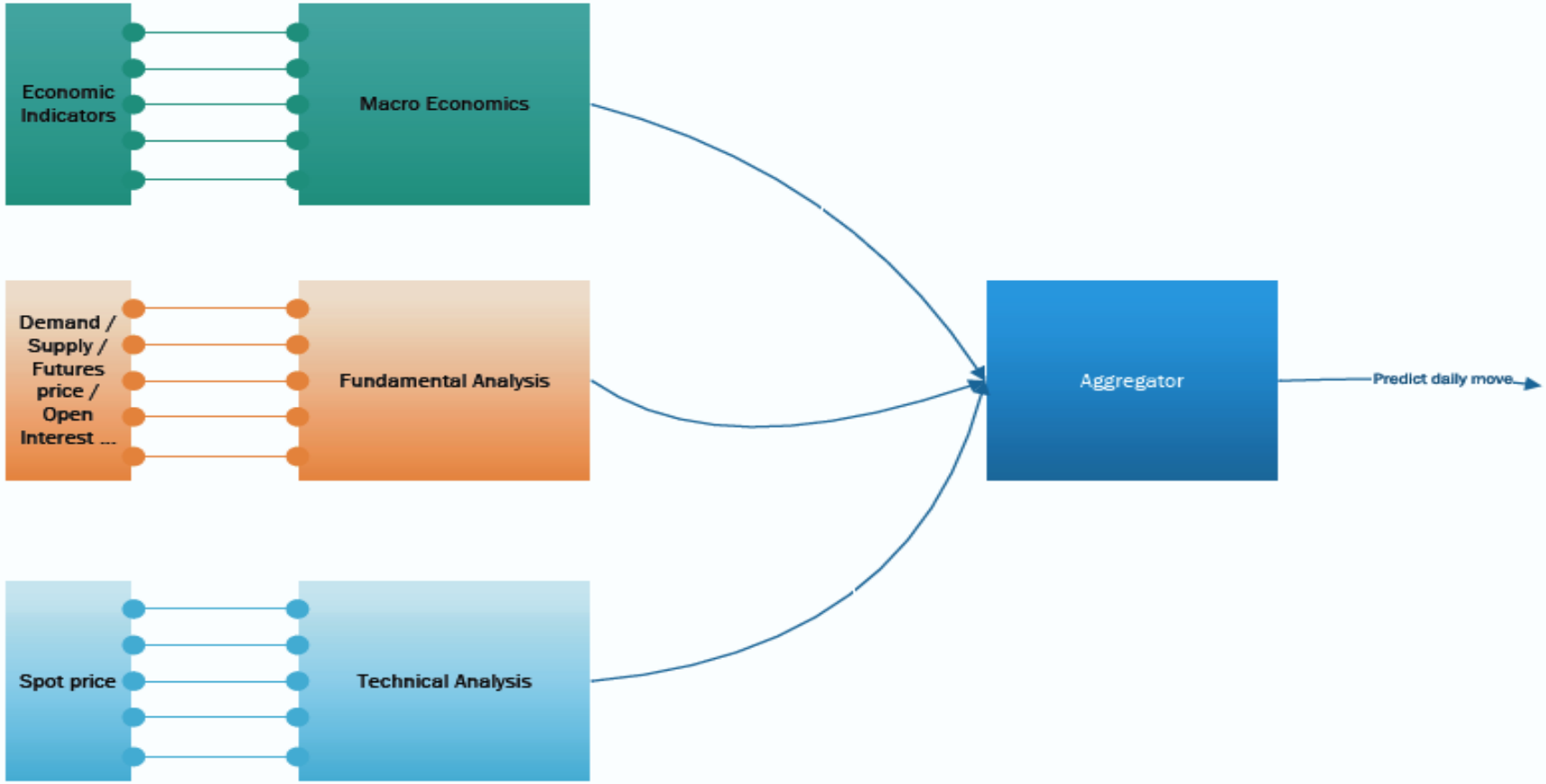
Algo Trading



Team #4 – Project 2

Gurpreet Sodhi, Shahan Ahmed, Nicole Mann, Etan Winograd, Peter Leiberman

Logic Flow


Economic Indicators
Macro Economics
Demand / Supply / Futures price / Open Interest ...
Fundamental Analysis
Spot price
Technical Analysis
Aggregator
Predict daily move

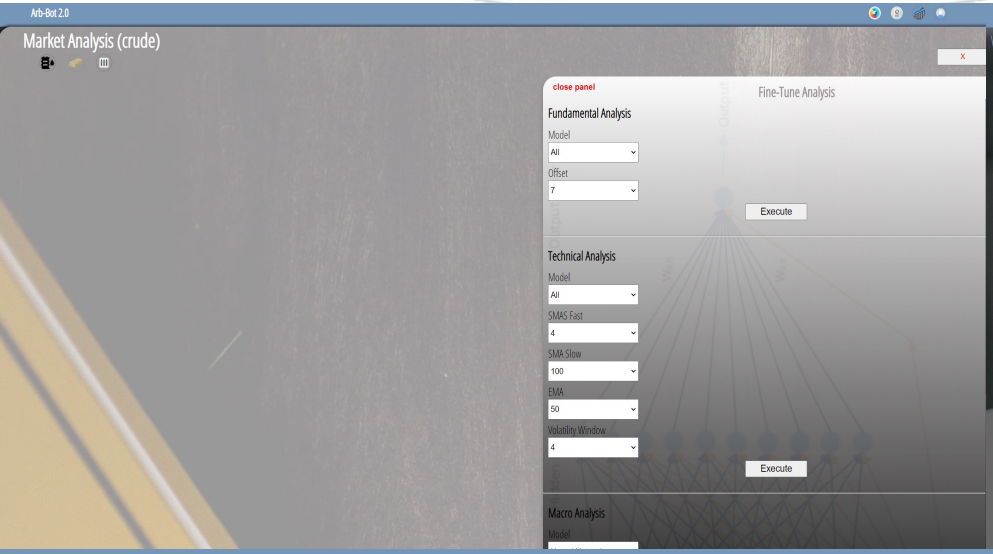
Technology Breakdown

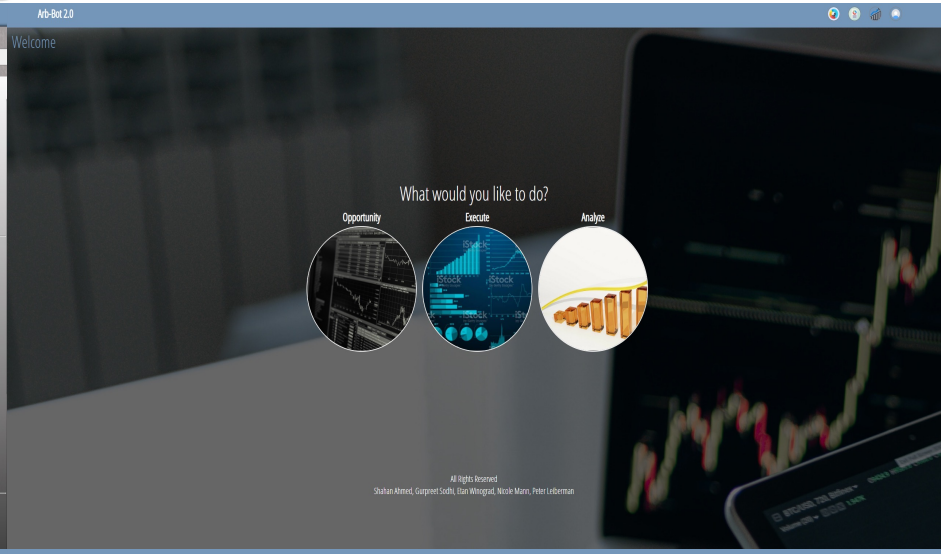
- Python – ML libraries, data processing , and calculations.
- HTML – Markup language used for graphical Interface.
- JavaScript – Processes the user interactions.
- PHP – Server side communication.

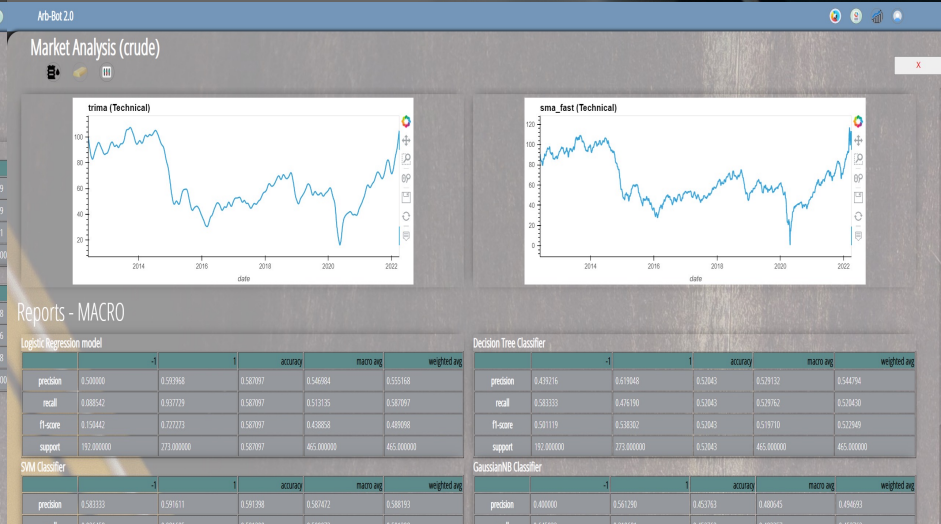
Data Preparation

- 10 years of crude and gold price data (spot and future) from Bloomberg terminal.
- 10 years of economic data from Bloomberg.
- Convert data for appropriate machine learning models.
- Enhance data by creating square terms, cross terms, and filling in missing data.

Demonstration

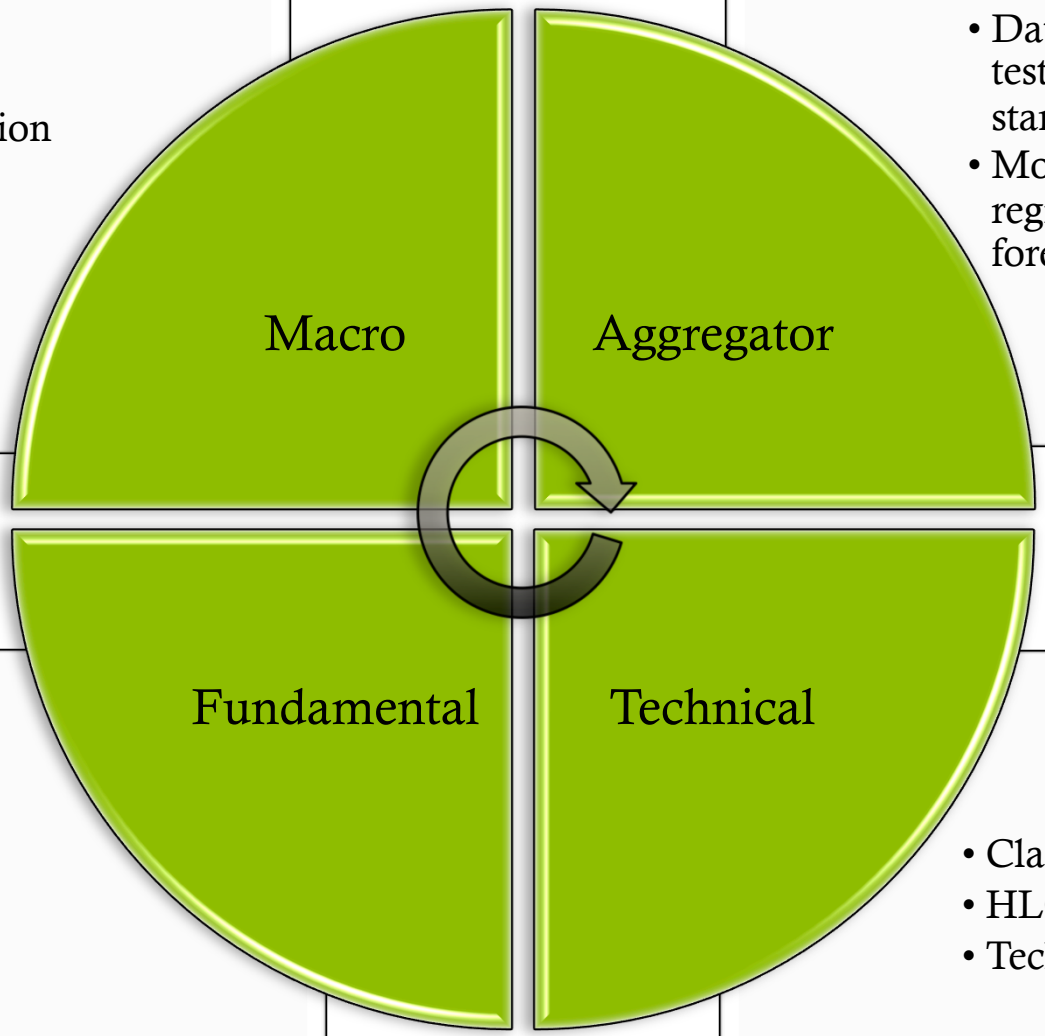






Arb-Bot 2.0 Core Models

- Deep learning neural networks
- Multi class classification
- Data preparation



- Data preparation: train test split, oversampling, standard scalar
- Modeling: logistic regression, random forests, SVM

- Classifier models
- Spot and future price
- Demand/supply indicators

- Classification models
- HLOCV data
- Technical indicators

Future Enhancements

Predict the future, NOW!

- Horizontal enhancement – more asset coverage.
- Vertical enhancement
  - Data optimization
  - Fine-tune ML models

Conclusion

Aggregate is better than the sum of individuals

- We brought together three streams of finance (Macro, Fundamental, Technical) on the same platform.
- Each stream leveraged the best possible ML model.

Appendix

- Gurpreet – Fundamental analysis
- Peter – Aggregate analysis
- Nicole – Macro analysis
- Etan – Technical analysis
- Shahan – Code integration & front end

GitHub link - https://github.com/gurpreetsodhi/Columbia_Fintech_Project2