**Team Name: The League of Extraordinary Data Scientist**

Team Members:

* Chris Holt
* Jason Ree
* Julian Freeman
* Jack Lindsay
* Alex Wolf
* Lawrence Ferretti

**Final Project: Forex – USD/EUR Exchange Rate Prediction**

Hypothesis: USD/EUR Forex price predictions are affected by historical Forex prices/trends, market indicators (Federal Reserve Bank/European Central Bank interest rates, Dow/Euro Index), and financial/political news.

Null Hypothesis: The prediction of USD/EUR Forex prices have no correlation to past trends or market indicators.

Description: To gain a wide perception of factors that may have an effect on future USD/EUR Forex rates, historical rates of the USD/EUR currency pair, economic, and political factors are assessed and analyzed to discover their impacts and correlations to Forex prices. Analyses of the historical Forex data will provide a strong foundation for the prediction model. Supplementary factors such as economic indicators, such as interest rates, and financial/economic information from news sources will be included to account for possibly explaining any unanticipated shifts in the prices.

Data:

|  |  |  |  |
| --- | --- | --- | --- |
| Analyses |  | Data | Source |
| Technical Analysis |  | 2018 Forex Data (USD/EUR) | <https://www.histdata.com/download-free-forex-data/> |
| Fundamental Analysis | Currency / Interest Rates & Indicators | Federal Reserve Bank | * <https://www.federalreserve.gov/newsevents/pressreleases.htm> * <https://www.federalreserve.gov/monetarypolicy/quarterly-balance-sheet-developments-report.htm> |
| European Central Bank | <https://www.ecb.europa.eu/pub/html/index.en.html> |
| Economic Indicators | Dow Jones | <https://etfdb.com/index/dow-jones-industrial-average/> |
| MSCI Europe Financials Index | <https://etfdb.com/index/msci-europe-financials-index/> |
| Financial / political News (web scrape) | Collection of News | * [https://www.cnn.com](https://www.cnn.com/politics) * <https://www.wsj.com/> * <https://www.msnbc.com> * [https://www.newsapi.org/](https://www.newsapi.org/\) |

Description: 2018 Forex data of the USD and Euro will be obtained and used to observe prior trends and patterns. Dow Jones Industrial Average and MSCI Europe Financials Index data by minute will be the indicator for the relative economic status or reference of the two regions. Additionally, interest rates will also be assessed to be added to the analyses. Finally, information of financial or political factors will be web scraped from a broad range of news sources and handled using natural language processing to later be included in our predictive model.

Description: Technical Analysis (TA): Analyze by minute data using Kmeans, Linear regression, Neural Networks, etc. Fundamental Analysis (FA): Develop a buy or sell indicator based on the selected market indicators. Combined Analysis: Merge model from TA and FA to improve performance of the predictive model we propose.

Needs data numbers and screenshot