# Goal

The goal of this project is to determine if the trend of positive or negative tweets about bitcoin can significantly predict the trend of bitcoin’s price index (BPI).

# Procedure

1. Construct a database.
   1. Sentiment Table:
      1. Date, sentiment, and certainty of prediction.
   2. BPI Table:
      1. Date and price index.
2. Extract tweets containing “bitcoin” using the Twitter API.
3. Analyze the sentiment of each tweet using the Aylien API and store in the database.
   1. Manually determine the positive/negative sentiment of 20 tweets.
   2. Calculate the accuracy of the API.
4. Extract the bitcoin price index using the Coindesk API and store in the database.
5. Perform Granger Causality test between the sentiment time series and the BPI time series.
   1. <https://www.wessa.net/rwasp_grangercausality.wasp>
   2. <https://en.wikipedia.org/wiki/Granger_causality>
6. Display statistics and data within plots.

# APIs

* [Twitter API](https://developer.twitter.com/en/docs/tweets/search/api-reference/get-search-tweets.html)
* [Aylien text analysis API](https://developer.aylien.com/text-api-demo?text=&language=en&tab=sentiment&mode=document)
* [Coindesk API](https://www.coindesk.com/api/)

# Software Options

* Java application
* Web service

# Schedule

* 1/26 – Go over procedure
* 2/02 – Complete project proposal
* 2/09 – Setup database
* 2/16 – Work collecting tweets
* 2/23 – Work collecting tweets **(Stage 1 Update)**
* 3/02 – Work on analyzing tweets
* 3/09 – Work on analyzing tweets
* 3/16 – Work on storing BPI
* 3/23 – Work on storing BPI **(Stage 2 Update)**
* 3/30 – Work on stats
* 4/06 – Work on data visualization
* 4/13 – Work on data visualization **(Stage 3 Update)**
* 4/20 – Work on presentation
* 4/27 – Final Presentation
* 5/04 – Detail Report