Patrick Castles (Section Wed 6:30 pm) & Naveen Purushotham, Sonal Thakkar (Section Thu 6:30 pm)
Final Project Proposal
W200 Intro to Python
UC Berkeley MIDS Fall 2018
November 27, 2018

Topic: Data-Analysis of Cryptocurrency Market Behavior

DataSet:
https://drive.google.com/file/d/12EIiX1KepmozdWfaJ7Bv8jdu0xzie09r/view?usp=sharing
(No-sign in required for UCB IDs)

https://drive.google.com/file/d/1caz4_EPwaPVasg-axKPjTfVDWD7cYNaI/view?usp=sharing

GitHub Repository:
https://github.com/UCB-INFO-PYTHON/w200-project2-patrick-sonal-naveen.git

Key Research Questions We Intend to Address: Do cryptocurrencies trade (i.e., price, volume, etc.) similarly to other financial assets (e.g.,. stocks, bonds, gold, etc.)? Within the cryptocurrency asset class, is there a strong correlation among the different cryptocurrencies (e.g., Bitcoin, Ethereum, etc)?

Background: Bitcoin is a digital cryptocurrency and payment system that is entirely decentralized, meaning it is based on peer- to-peer transactions with no bureaucratic oversight. Transactions and liquidity within the network are instead based on cryptography. The system first emerged formally in 2009 and is currently a thriving open-source community and payment network. Based on the uniqueness of Bitcoin's payment protocol and its growing adoption, the Bitcoin ecosystem is gaining lots of attention from businesses, consumers, and investors alike. Namely, for the ecosystem to thrive, we need to replicate financial services and products that currently exist in our traditional, fiat currency world and make them available and custom-tailored to Bitcoin, as well as other emerging cryptocurrencies.

Variables We Plan Analyze: price action, volume, volatility, correlation

Insights We Expect to Glean:

1. How do cryptocurrency markets behave? Similar or different to other financial assets?
2. Are the markets for different cryptocurrencies inseparably linked or largely independent?
3. How did the historical prices / market capitalizations of various cryptocurrencies change over time?
4. Which cryptocurrencies are more volatile and which are more stable?

5. How does the price fluctuations of cryptocurrencies correlate with each other?

Report Organization: We plan to collaborate on all aspects of the project. Our plan is to organize the report into four sections:

1. Introduction - research question(s), goals, methodology, major assumptions, etc.
2. Data visualizations - tables, charts, figures, etc.
3. Discussion and analysis - results, challenges, etc.
4. Conclusion - major takeaways, next steps, etc.

Examples of Data Visualizations (e.g.plots, figures and tables):

Date	Open	High	Low	Close	Volume (BTC)
2014-01-07	874.67040	892.06753	810.00000	810.00000	15.622378
2014-01-08	810.00000	899.84281	788.00000	824.98287	19.182756
2014-01-09	825.56345	870.00000	807.42084	841.86934	8.158335
2014-01-10	839.99000	857.34056	817.00000	857.33056	8.024510
2014-01-11	858.20000	918.05471	857.16554	899.84105	18.748285

Supplemental Data Sets We May or May Not Incorporate Into Our Report:

1. https://blog.quandl.com/api-for-bitcoin-data
2. https://poloniex.com/support/api/
3. Kaggle(Sign-in required) Download (699 KB)

References:

1. http://cs229.stanford.edu/proj2014/Isaac%20Madan,%20Shaurya%20Saluja,%20Aojia%20Zhao,Automated%20Bitcoin%20Trading%20via%20Machine%20Learning%20Algorithms.pdf
2. https://blog.patricktriest.com/analyzing-cryptocurrencies-python/
3. https://www.kaggle.com/sudalairajkumar/cryptocurrencypricehistory
4. https://medium.com/tradecraft-traction/blockchain-for-the-rest-of-us-c3fc5e42254f