Bitcoin Price Prediction

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Intro to Data Science

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Motivation ($$$)

- Bitcoin (BTC) has been known to increase exponentially and has made several people ludicrously wealthy (on paper)
  - 1500% increases in a year
  - Followed by 50% decrease in a month → extremely volatile
- Cryptocurrencies continue to grow in popularity, many in favor of BTC becoming the "world's currency"
- Financial institutions are attempting to profit off of "investing" (gambling) with bitcoin

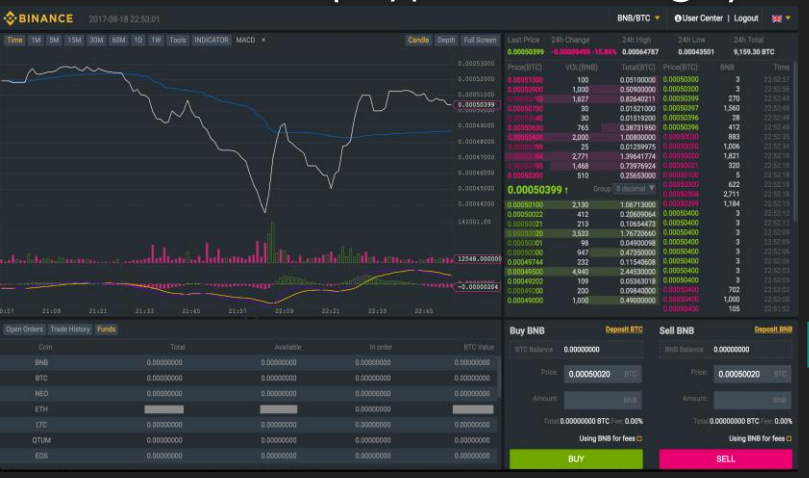
COINCAPITAL™

CAM
Crypto Asset Management

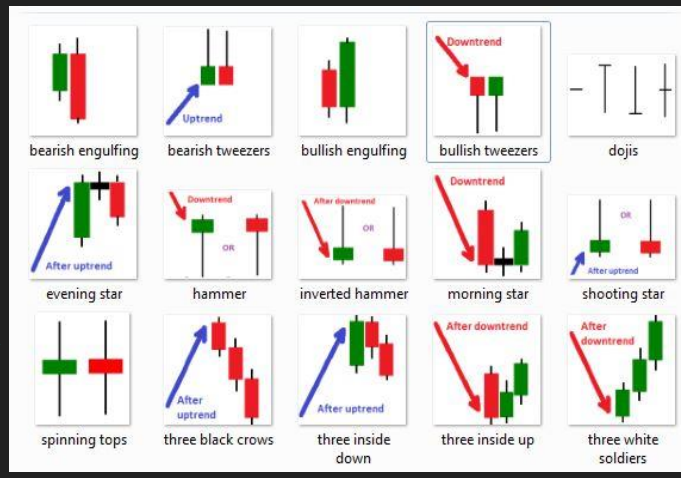
Motivation Cont.

- Many individuals attempt to "day-trade" bitcoin based on various patterns both mathematical (Fibonacci retracement) and visual (candlestick charts)

A snippet of trading information from Binance.com (crypto exchange)



Candlesticks



https://cryptopotato.com/bitcoin-crypto-advanced-technical-analysis/

Motivation Cont.

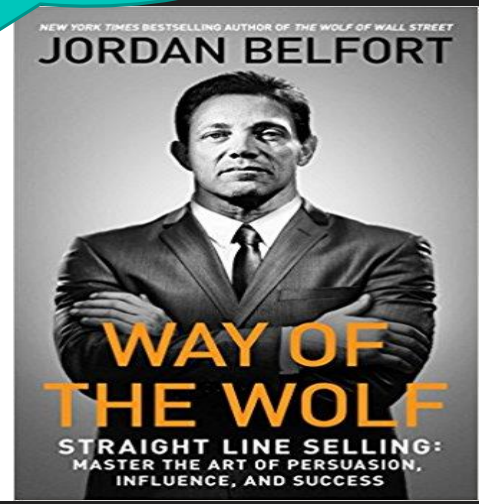
- Everyone wants to profit off of bitcoin and buy a Lamborghini

Motivation

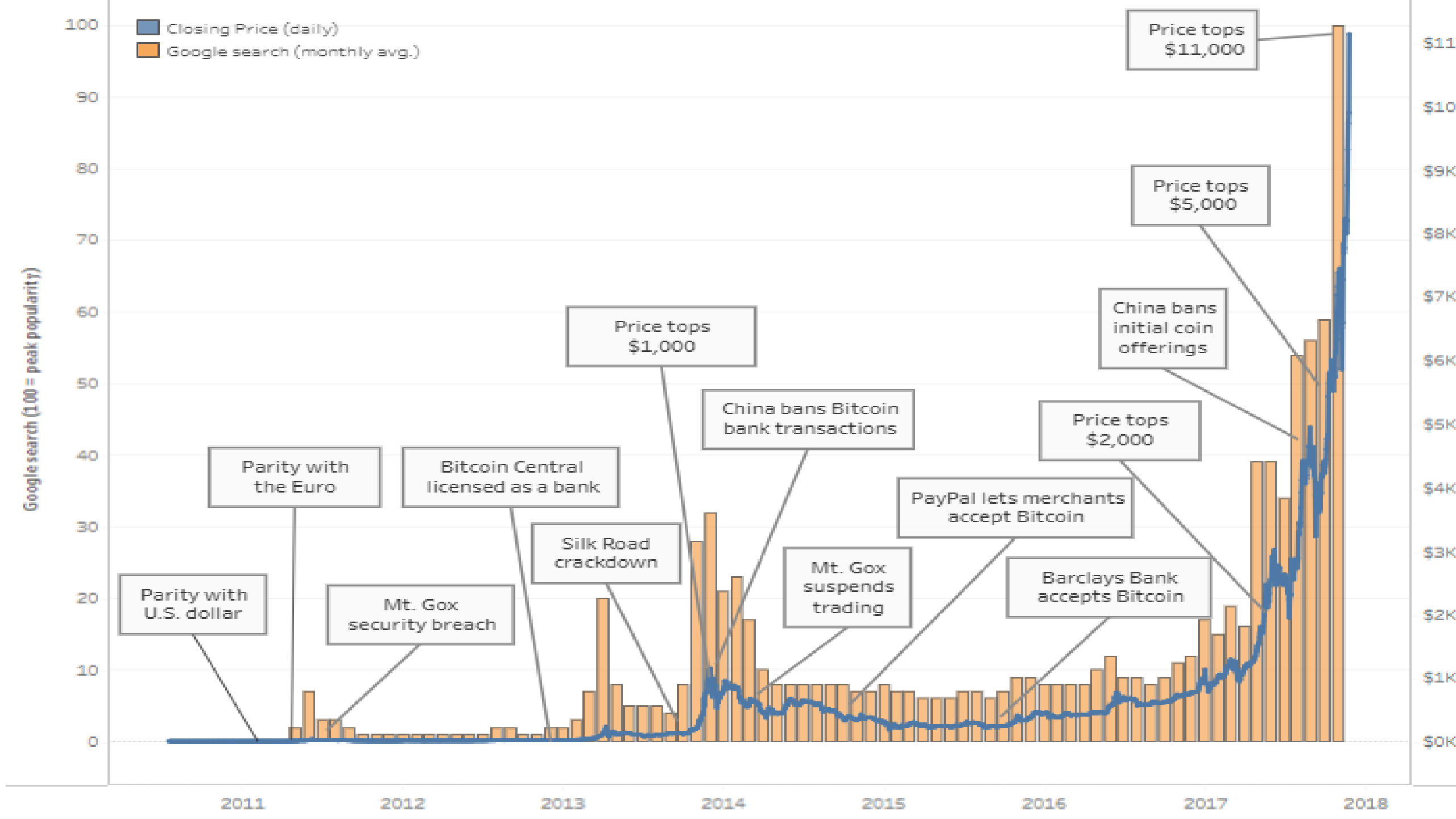
- Bitcoin seems to grow in value as it gets more popular

“Bitcoin is a bubble”

--Warren Buffet &
Jordan Belfort

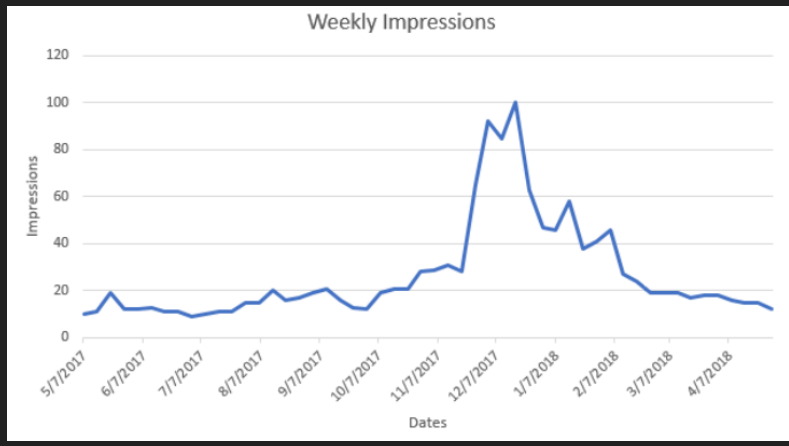


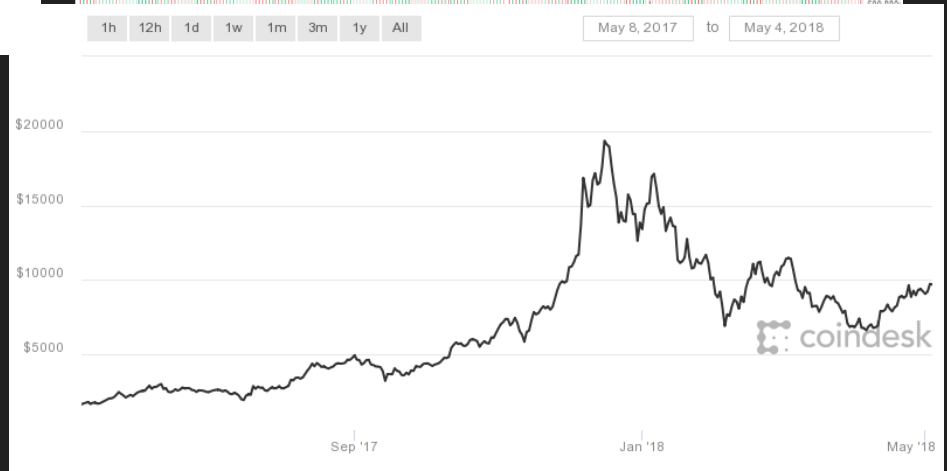
https://www.cnbc.com/2017/11/29/this-chart-show-bitcoins-meteoric-rise-over-the-last-6-years.html


Closing Price (daily)
Google search (monthly avg.)
Google search (100 = peak popularity)
100
90
80
70
60
50
40
30
20
10
0
$11K
$10K
$9K
$8K
$7K
$6K
$5K
$4K
$3K
$2K
$1K
$0K
2011
2012
2013
2014
2015
2016
2017
2018
Parity with U.S. dollar
Parity with the Euro
Mt. Gox security breach
Bitcoin Central licensed as a bank
Silk Road crackdown
Price tops $1,000
China bans Bitcoin bank transactions
Mt. Gox suspends trading
PayPal lets merchants accept Bitcoin
Barclays Bank accepts Bitcoin
Price tops $2,000
China bans initial coin offerings
Price tops $5,000
Price tops $11,000

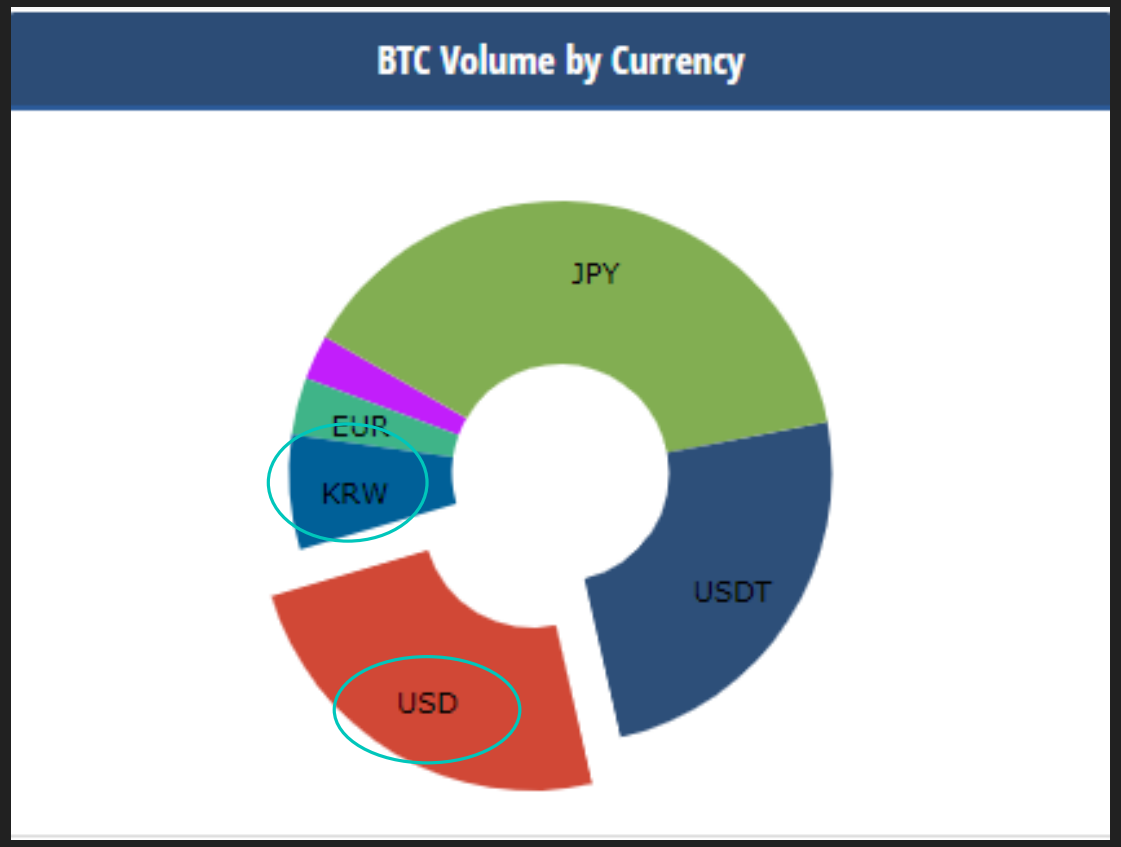
Predicting Bitcoin

Prediction based off of NASDAQ, KOSDAQ, and Google Trends "Impressions"





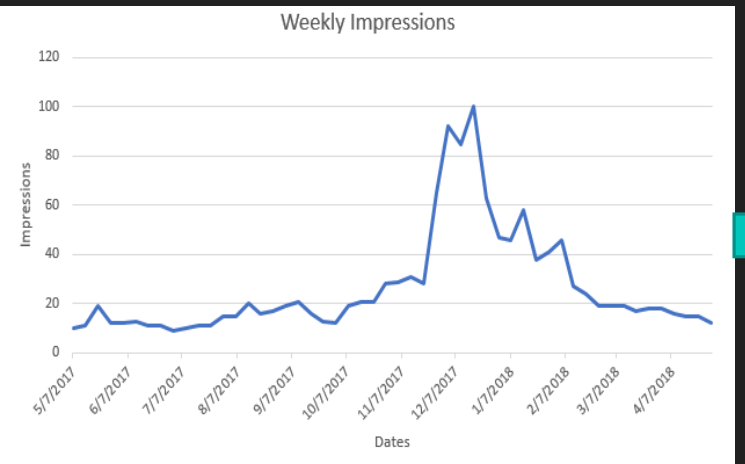
Predicting Bitcoin

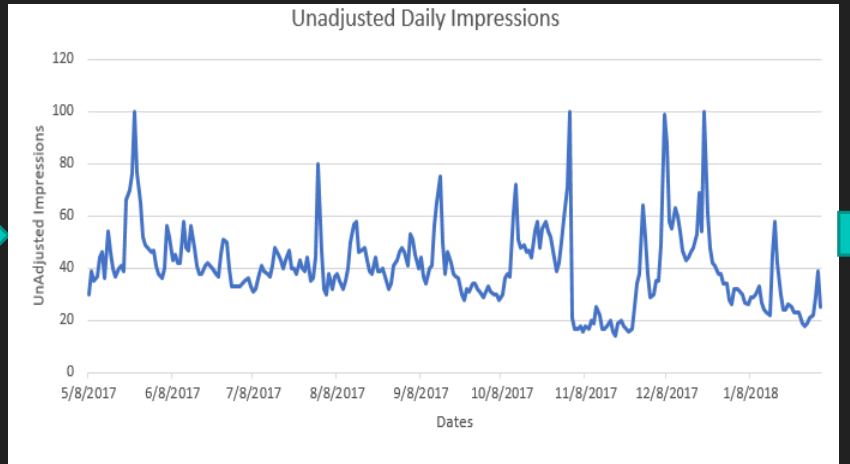


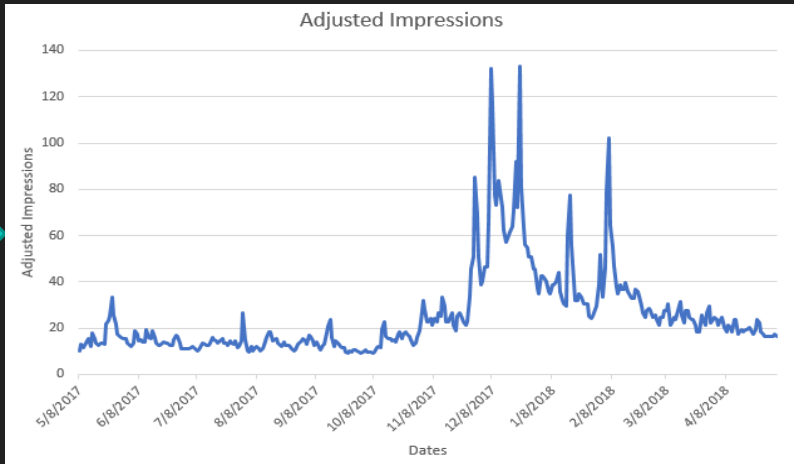
- Yen to BTC is most common, but markets done line up
- Nikkei 225 doesn't match NASDAQ
- USDT is another crypto
- US and Korea only comparable countries left

Trouble with Impressions

- May 8, 2017 to May 4, 2018 → WEEKLY impressions on 1 to 100 scale
- 90 day intervals → DAILY impressions on 1 to 100 scale
- Combining four 90-day intervals from May 8, 2017 to May 4, 2018 yields erroneous peaks
  - Need to interpolate based on weekly data

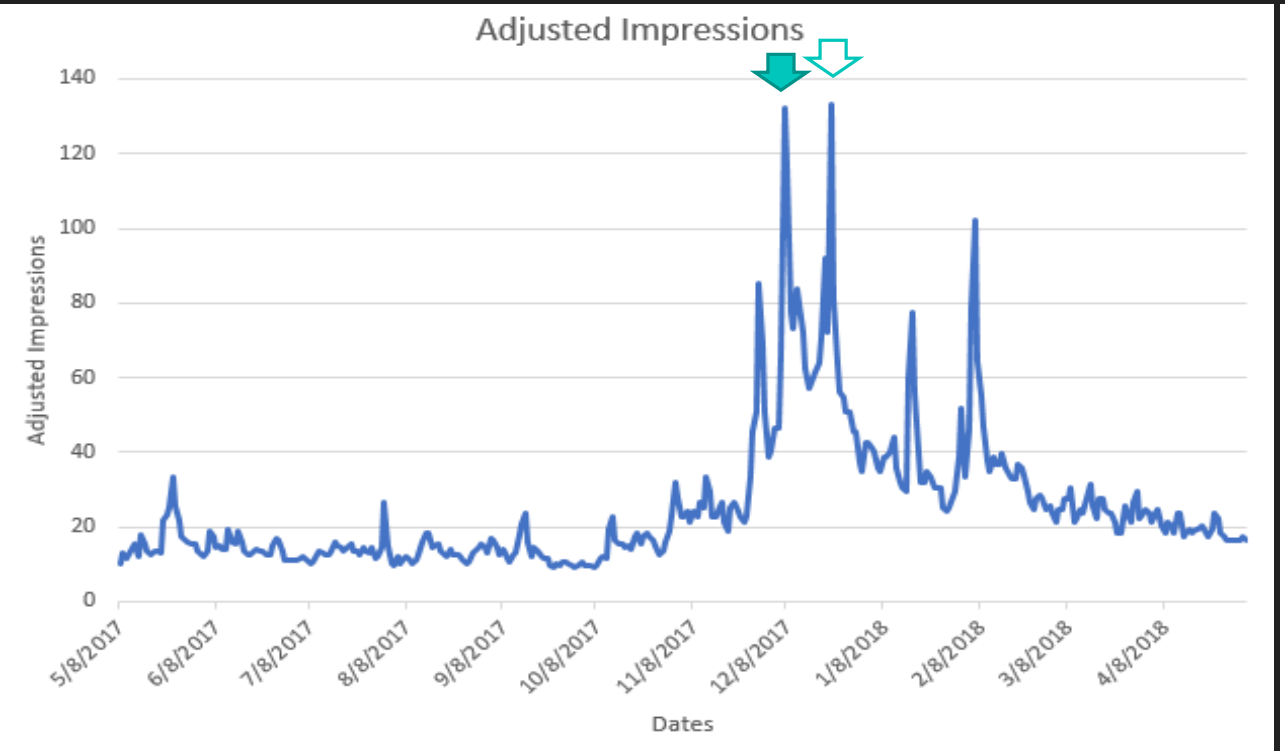






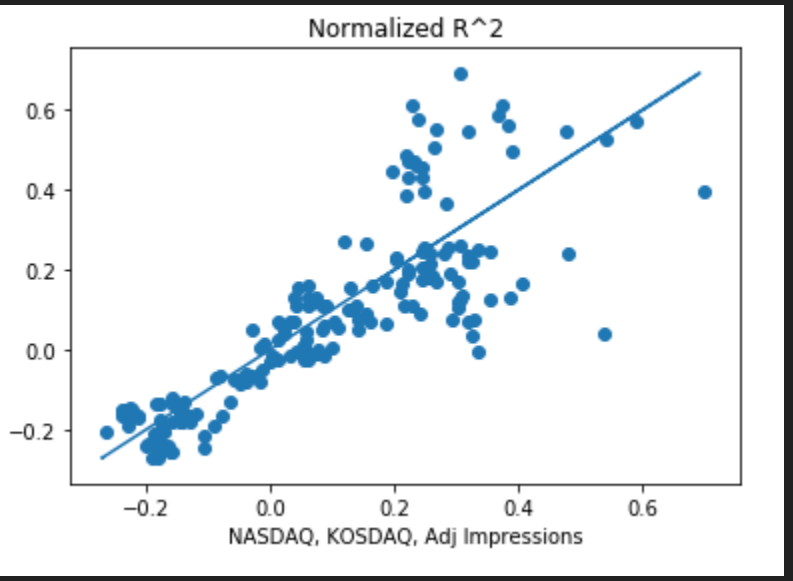
Impressions vs BTC

- Looks Promising

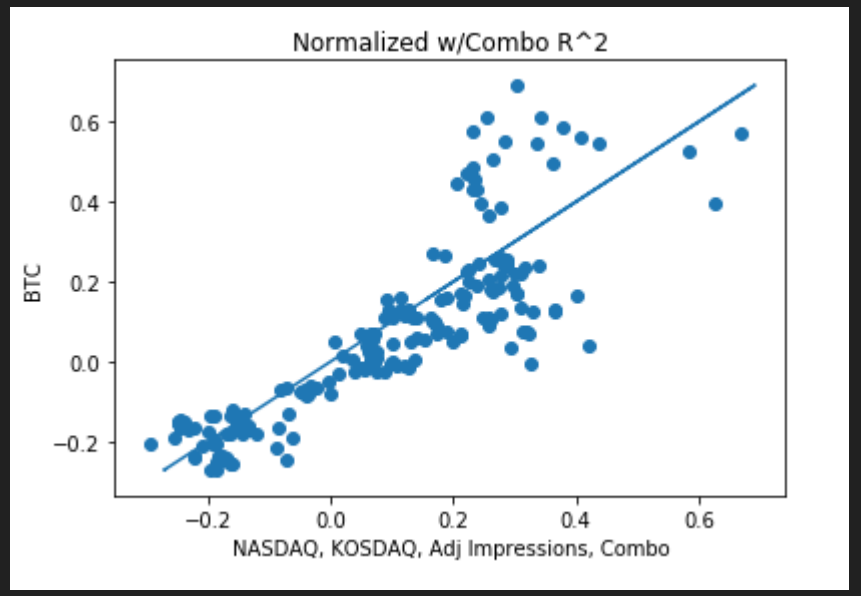
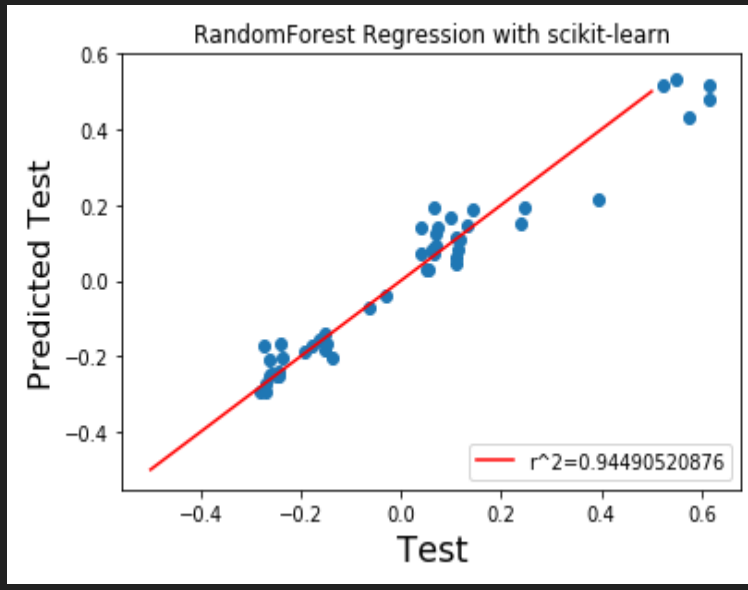


Results

Linear Regression: **R^2 =.69**



With combo variable: **R^2 = .71**



Random Forest: **R^2= .94**