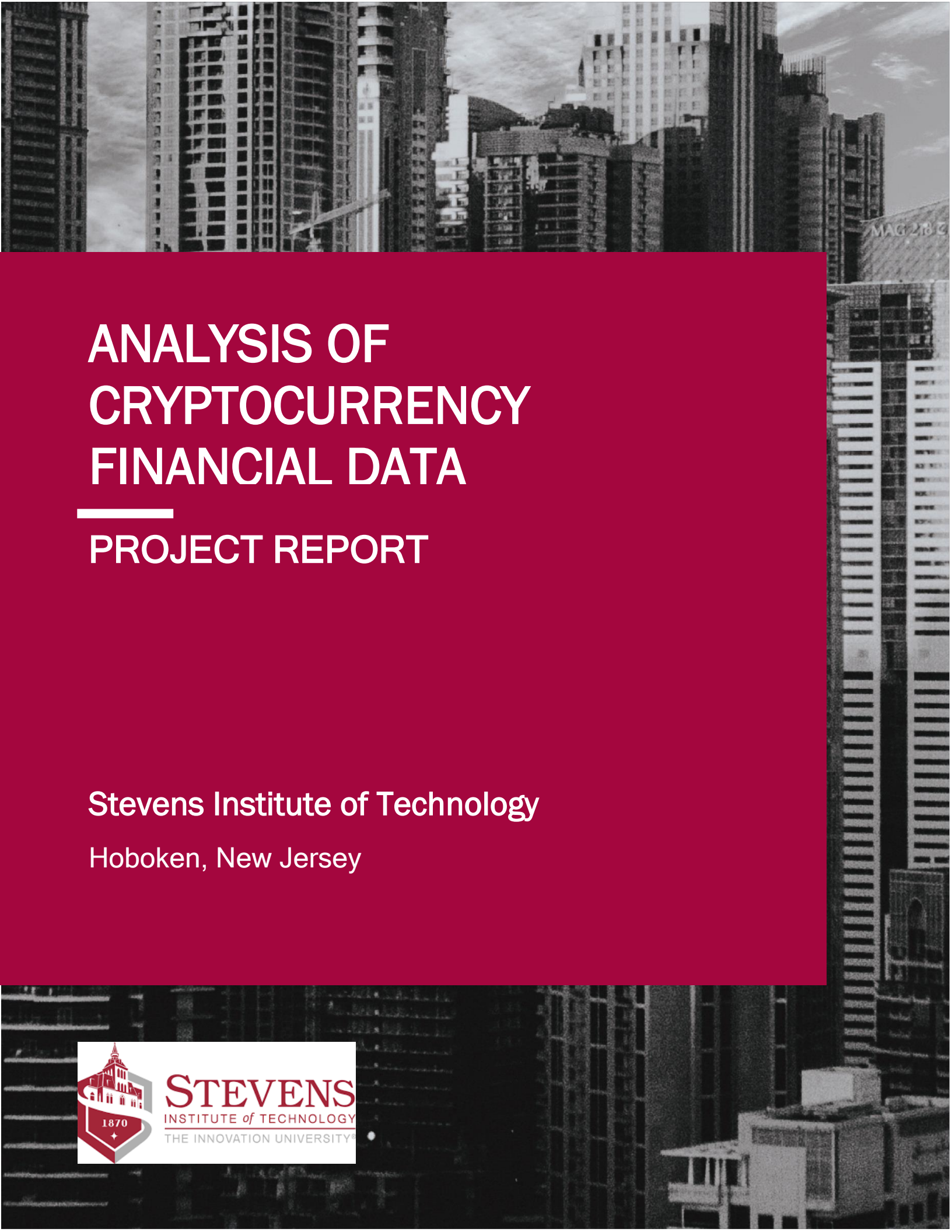

ANALYSIS OF CRYPTOCURRENCY FINANCIAL DATA

PROJECT REPORT

Stevens Institute of Technology

Hoboken, New Jersey

STEVENS
INSTITUTE of TECHNOLOGY
THE INNOVATION UNIVERSITY
1870

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Introduction

Cryptocurrencies are the newest form of money. The concept was first introduced in 1980's but was first implemented in 2009 by a pseudonymous developer Satoshi Nakamoto. Most famous Cryptocurrency includes Bitcoin. Ethereum, Ripple, Litecoin. There has been a lot of variations in the value of cryptocurrencies in the past one year. For example, Bitcoin has achieved a high of about $20,000 but is currently at about $4000.

The dataset I have analyzed includes 200 Cryptocurrencies. It has a total of 83,157 observations with 8 variables. The 8 variables being, Currency, Date, Open, High, Low, Close, Volume and Market Capital. The data of each is from their birth till February 11, 2018.

URL: https://www.kaggle.com/philmohun/cryptocurrency-financial-data

Types of data items – int, String

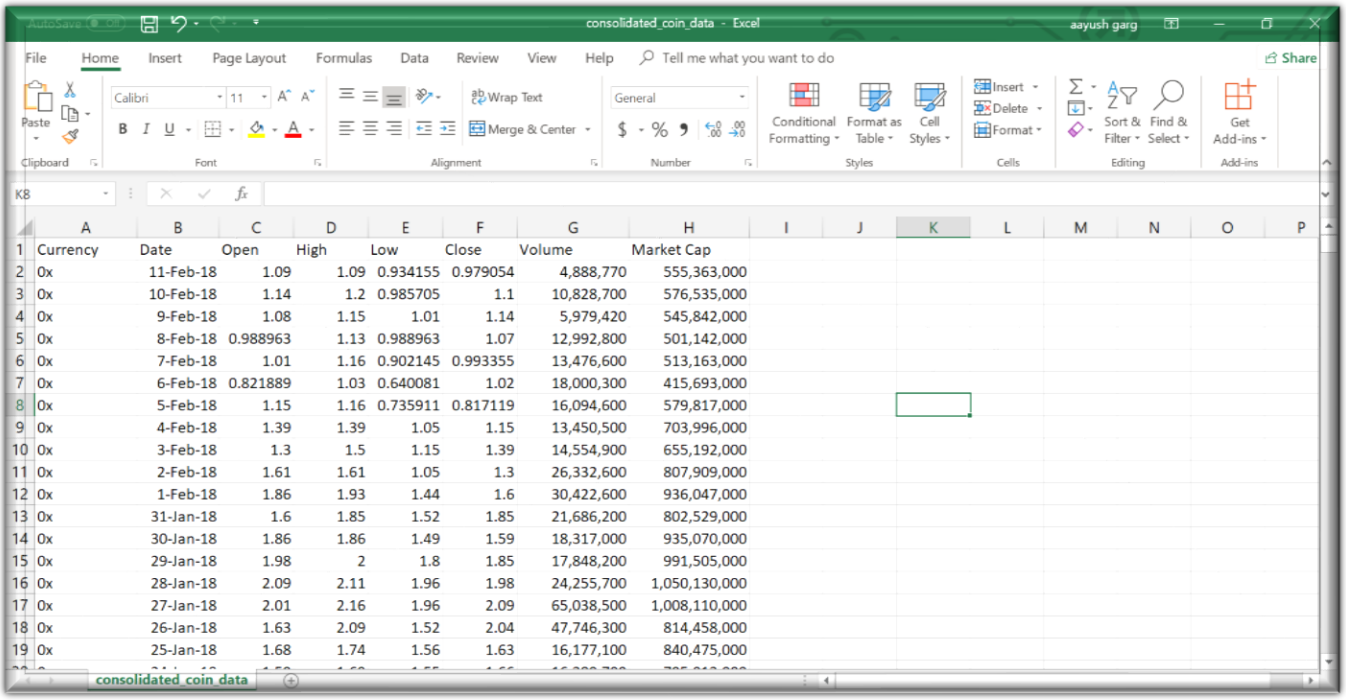
Source of the data – Kaggle

Project Goal

I have taken a database of 200 Cryptocurrencies (approx. 83k). By only using python I decided to analyze the data. Having no previous knowledge in coding of any sort, analysis of this dataset was a challenge from the very beginning when I had conceived the idea of doing such a project.

I decided to find out the age of the cryptocurrencies, finding out the co-relation among different currencies and analysis of Bitcoin, Ethereum and Ripple. Determination of most used currencies and most valuable currencies will also be a part of my analysis.

Here's a screenshot of the dataset in excel.



consolidated_coin_data - Excel

	Currency	Date	Open	High	Low	Close	Volume	Market Cap
2	0x	11-Feb-18	1.09	1.09	0.934155	0.979054	4,888,770	555,363,000
3	0x	10-Feb-18	1.14	1.2	0.985705	1.1	10,828,700	576,535,000
4	0x	9-Feb-18	1.08	1.15	1.01	1.14	5,979,420	545,842,000
5	0x	8-Feb-18	0.988963	1.13	0.988963	1.07	12,992,800	501,142,000
6	0x	7-Feb-18	1.01	1.16	0.902145	0.993355	13,476,600	513,163,000
7	0x	6-Feb-18	0.821889	1.03	0.640081	1.02	18,000,300	415,693,000
8	0x	5-Feb-18	1.15	1.16	0.735911	0.817119	16,094,600	579,817,000
9	0x	4-Feb-18	1.39	1.39	1.05	1.15	13,450,500	703,996,000
10	0x	3-Feb-18	1.3	1.5	1.15	1.39	14,554,900	655,192,000
11	0x	2-Feb-18	1.61	1.61	1.05	1.3	26,332,600	807,909,000
12	0x	1-Feb-18	1.86	1.93	1.44	1.6	30,422,600	936,047,000
13	0x	31-Jan-18	1.6	1.85	1.52	1.85	21,686,200	802,529,000
14	0x	30-Jan-18	1.86	1.86	1.49	1.59	18,317,000	935,070,000
15	0x	29-Jan-18	1.98	2	1.8	1.85	17,848,200	991,505,000
16	0x	28-Jan-18	2.09	2.11	1.96	1.98	24,255,700	1,050,130,000
17	0x	27-Jan-18	2.01	2.16	1.96	2.09	65,038,500	1,008,110,000
18	0x	26-Jan-18	1.63	2.09	1.52	2.04	47,746,300	814,458,000
19	0x	25-Jan-18	1.68	1.74	1.56	1.63	16,177,100	840,475,000

Data Representation

New Cryptocurrencies have been coming in the market from time to time.

Ten Oldest Cryptocurrencies	
Currency	Days
litecoin	1751
bitcoin	1751
peercoin	1750
ripple	1653
nxt	1531
dogecoin	1520
vertcoin	1484
digibyte	1467
reddcoin	1462
dash	1459

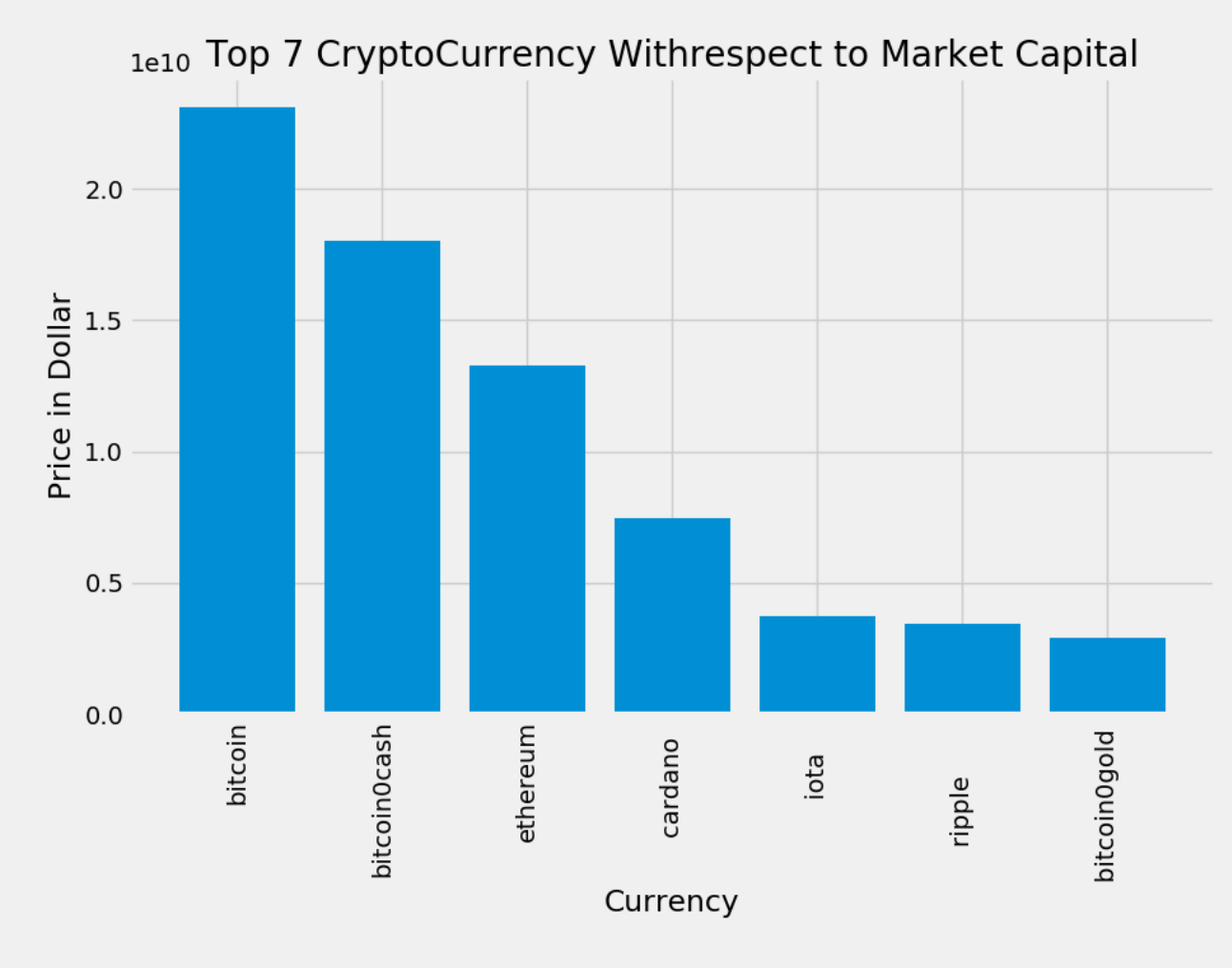
Table 1

Ten Youngest Cryptocurrencies	
Currency	Days
iostoken	27
theta0token	26
singularitynet	24
trinity0network0credit	21
c20	21
zilliqa	18
polymath0network	10
jibrel0network	7
bluzelle	6
ucash	3

Table 2

From table 1, it is clear that Litecoin and Bitcoin are the oldest Cryptocurrencies followed by Peercoin, and Ripple. Similarly, from table 2, it can be noted that the youngest currencies as of February 11th, 2018 are ucash, bluzelle and jibrel0network.

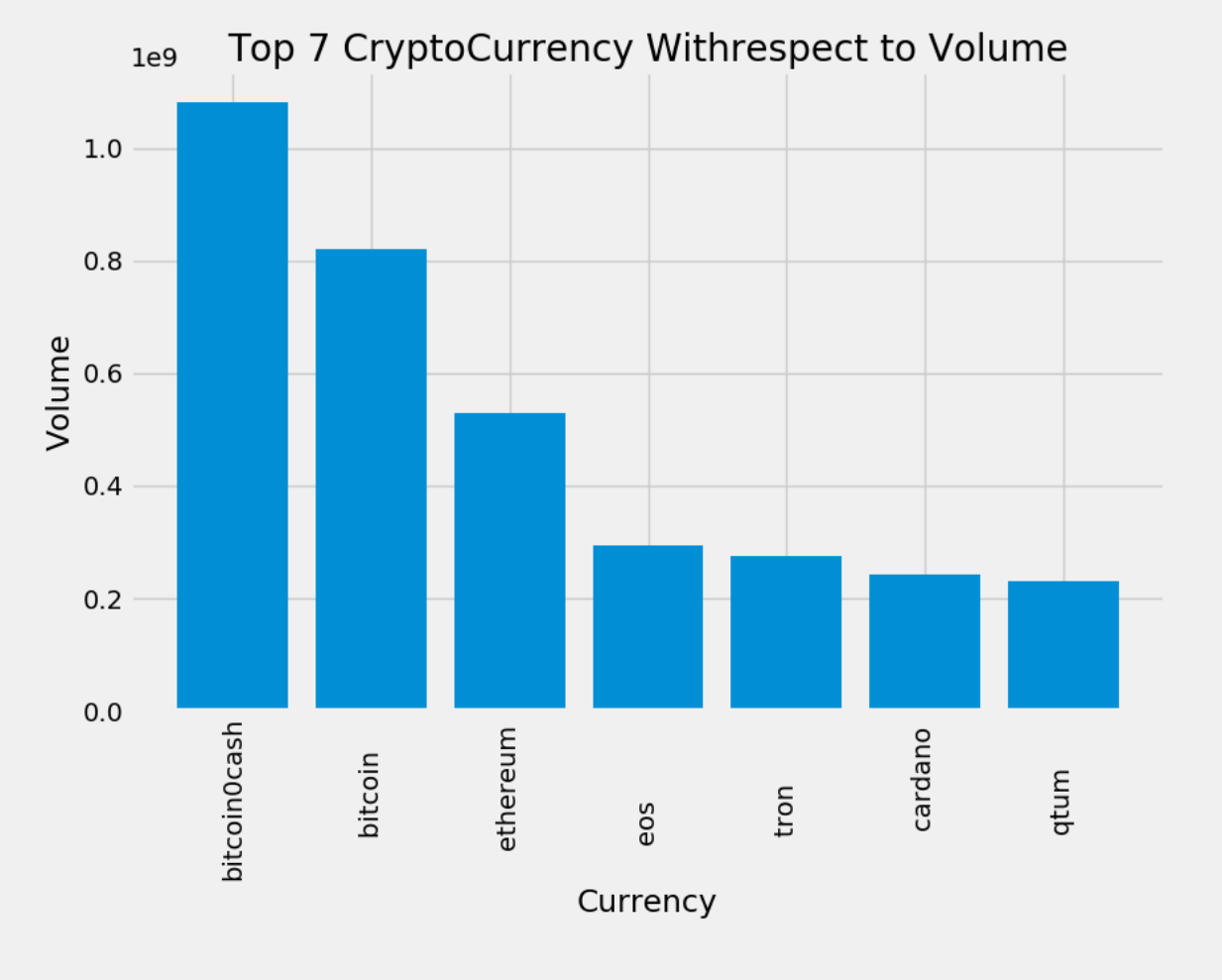
Market Capital is an important aspect for determining the total value of the entity. It does not have an upper limit. It can be calculated by multiplying the amount of coins in circulation and the cost of a single coin. This means that the exact value changes with both of these variables.



Graph 1

It can be judged from the above graph that Bitcoin is the most valuable in all the cryptocurrency in terms of Market Capital, valued at $ 486 Million. It is followed by Bitcoin-cash, which is valued at $ 44 Million. It is followed by Ethereum, which is valued at $ 21 Million.

Along with market capitalization, volume is one of the most prominent metrics in crypto. Volume is such an important metric when analyzing cryptos and it can help you in showing a coin's direction. It's the amount of the coin that has been traded in the last 24 hours. volume underscores how many people are buying and selling the coin.



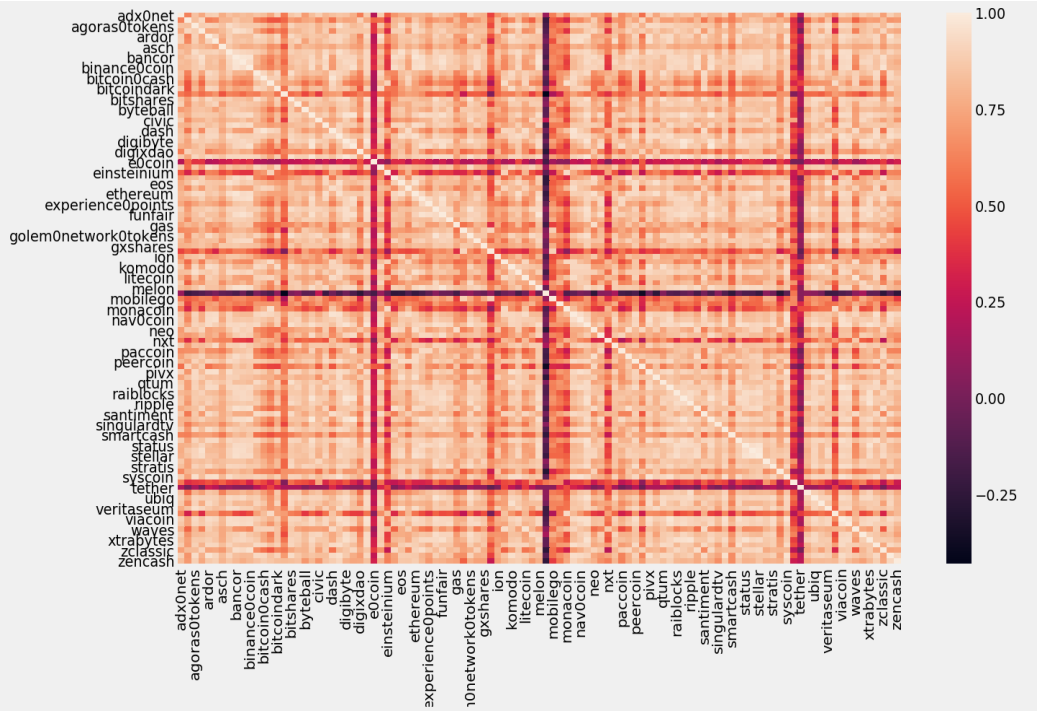
Graph 2

It can be analyzed from the graph above that Bitcoin-cash has the highest average volume among all the cryptocurrencies, which is followed by bitcoin and Ethereum.

Correlation

Correlation amongst assets is the degree to which they move in tandem. The values range between -1 and +1, where a value of -1 means that the returns move in opposite directions (e.g. BTC up 0.2% and ETH down -0.2%) and a value of +1 means the returns move in the same direction (e.g. BTC up 0.2% and ETH up 0.2%). A value of zero denotes no (linear) dependence between the assets. The results can be interpreted as follows:

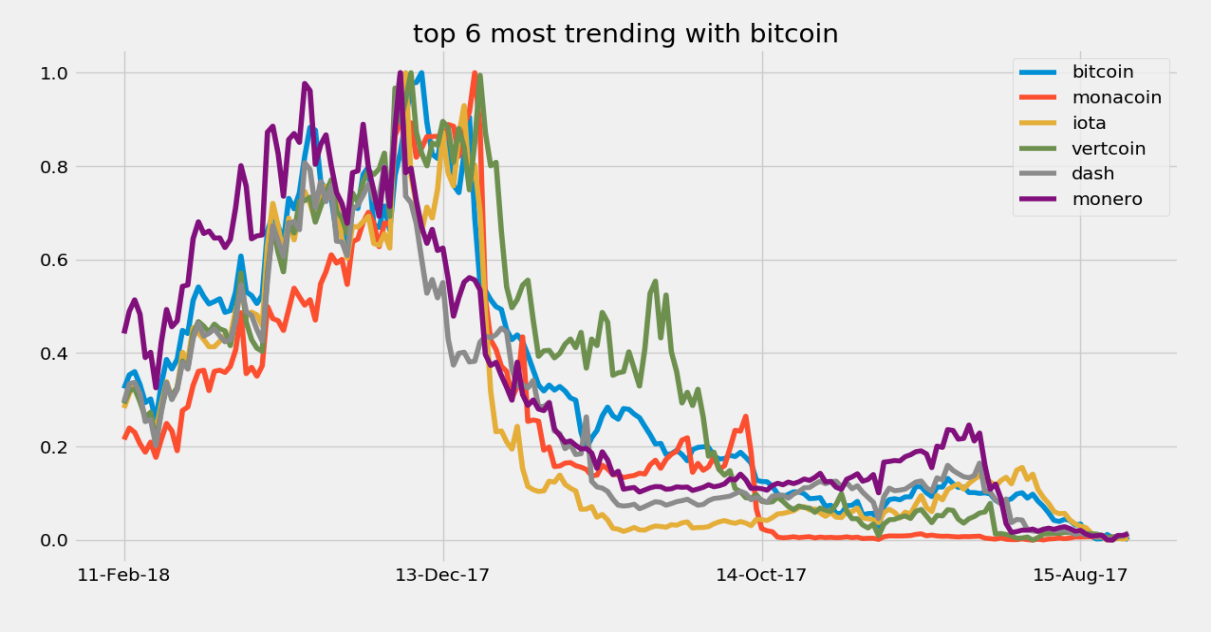
- 0.5 to 1: Strong positive relationship
- 0.3 to 0.5: Moderate positive relationship
- 0.1 to 0.3: Weak positive relationship
- -0.1 to 0.1: No linear relationship
- -0.1 to -0.3: Weak negative relationship
- -0.3 to -0.5: Moderate negative relationship
- -0.5 to -1.0: Strong negative relationship



Graph 3

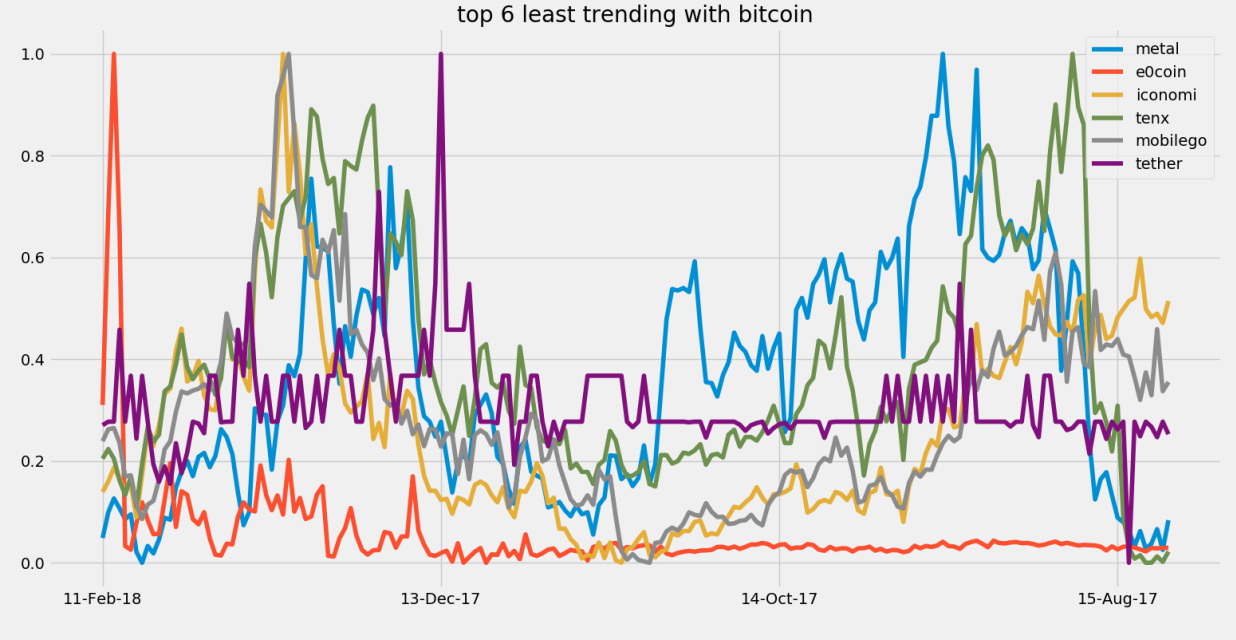
It can be implied from graph 3 that metal has a strong negative correlation with most of the other currencies. Similarly, for tether and e-coin.

Correlation of Bitcoin with other Currencies:



Graph 4

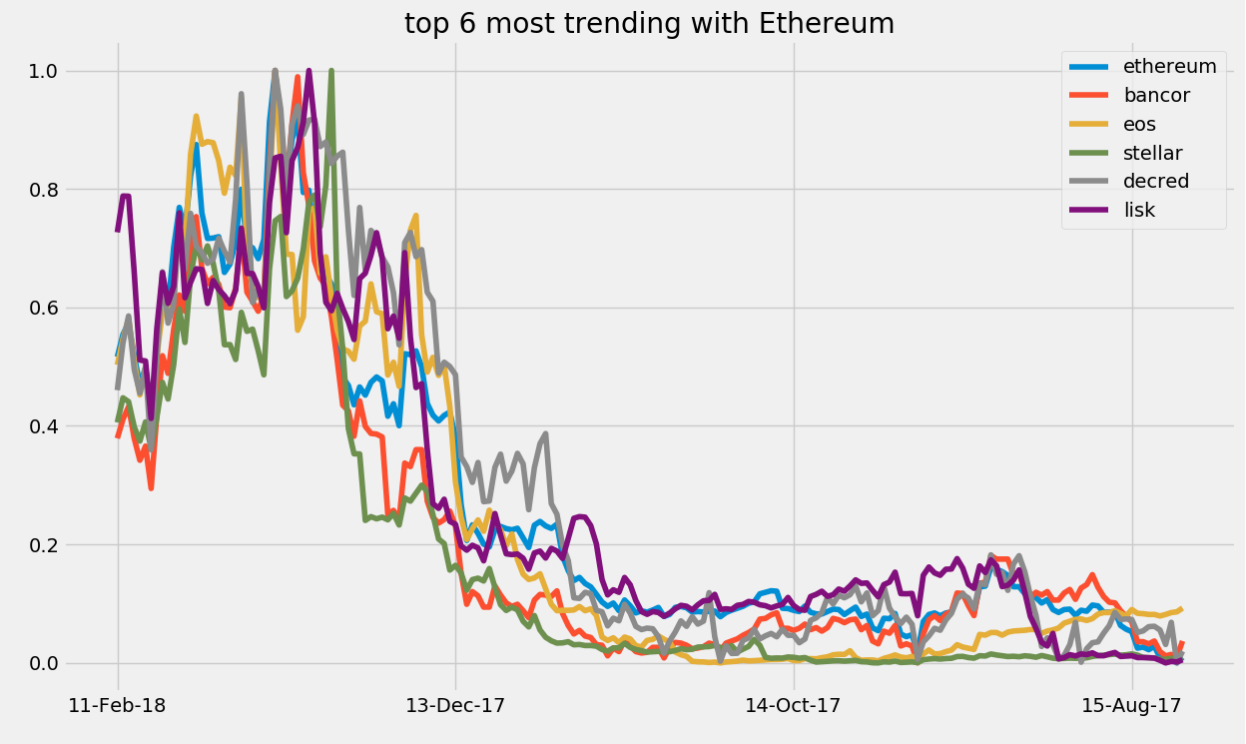
From the above graph, it can be interpreted that monacoin holds a strong positive relationship with bitcoin, with an average correlation value of 0.952. It is followed by iota, with an average correlation value of 0.94.



Graph 5

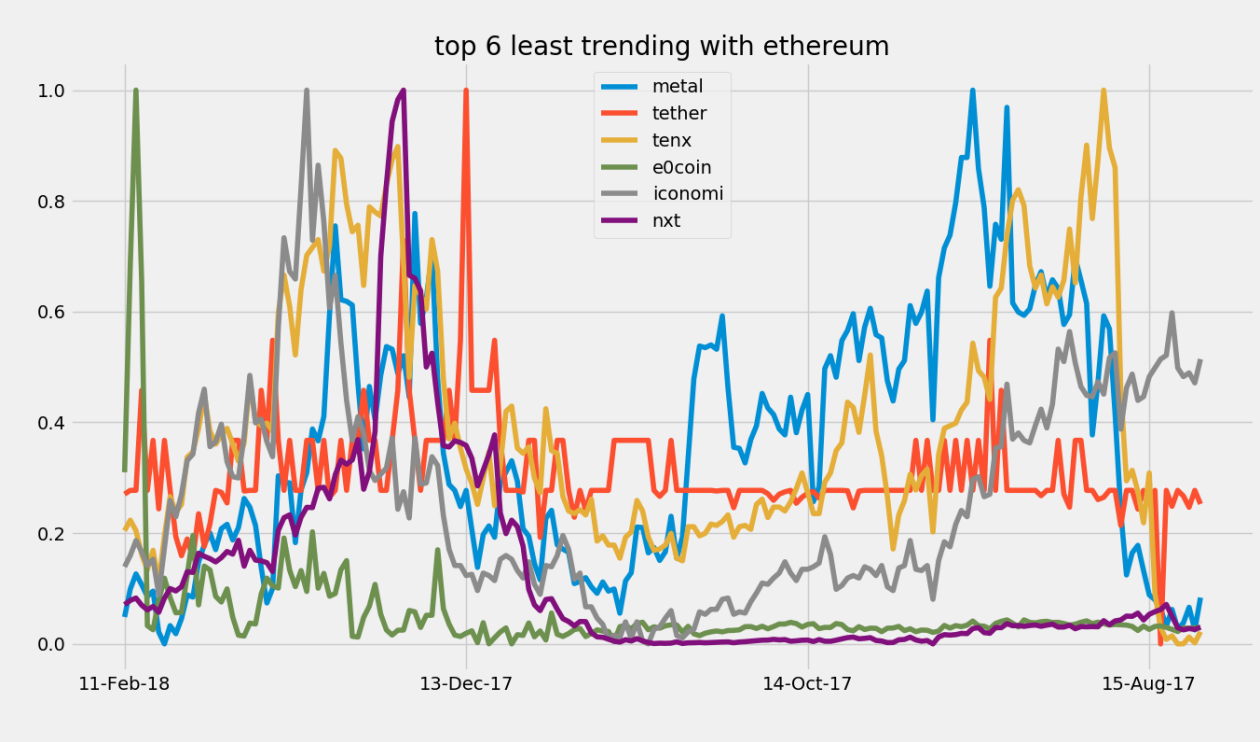
From the above graph, it can be interpreted that metal holds a negative relationship with bitcoin, with an average correlation value of -0.135. It is followed by e-coin, with an average correlation value of 0.152.

Correlation of Ethereum with other Currencies:



Graph 6

From the above graph, it can be interpreted that barcon holds a strong positive relationship with Ethereum, with an average correlation value of 0.974. It is followed by eos, with an average correlation value of 0.964.



Graph 7

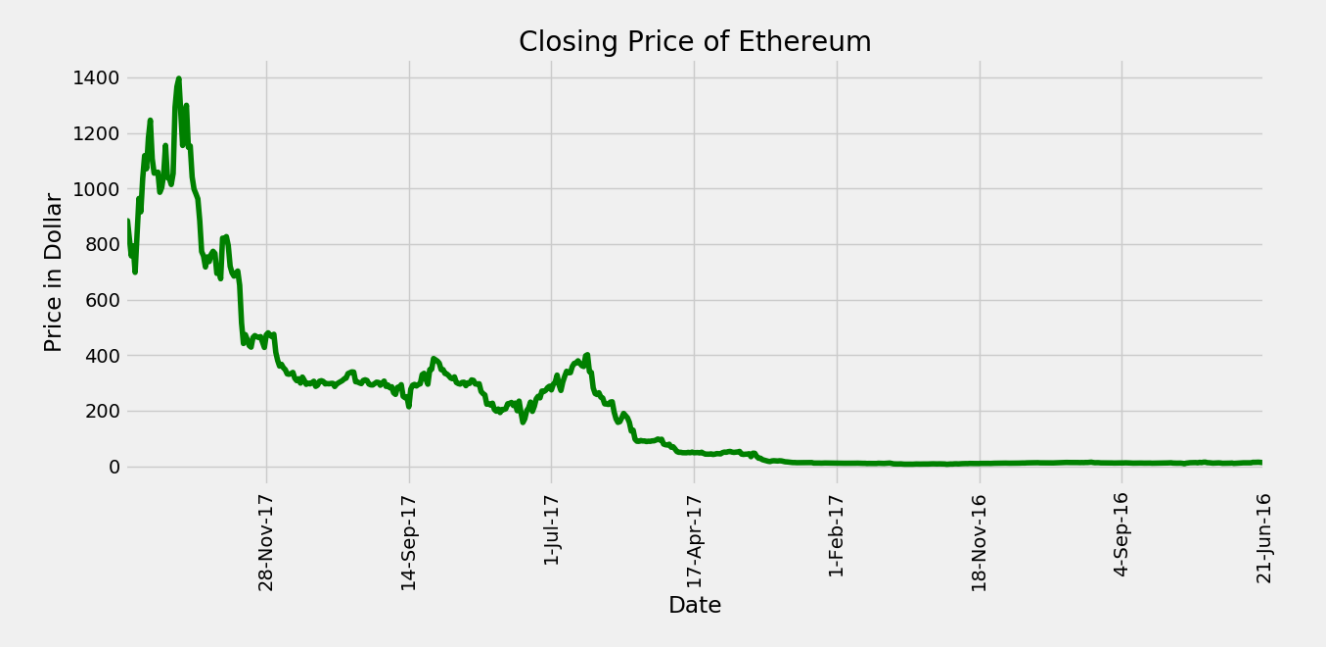
From the above graph, it can be interpreted that metal holds a negative relationship with Ethereum, with an average correlation value of -0.217. It is followed by tether, with an average correlation value of 0.133. So, like Bitcoin, Ethereum also has a negative correlation with Metal.

Analysis of Bitcoin and Ethereum

In 2013, Bitcoin ranged from $130 to $750 and it had never reached $1000 mark till January 2017. But by the end of the year it shook the world. In the next 12 months, it reached the mark of $20,000.

Graph 8

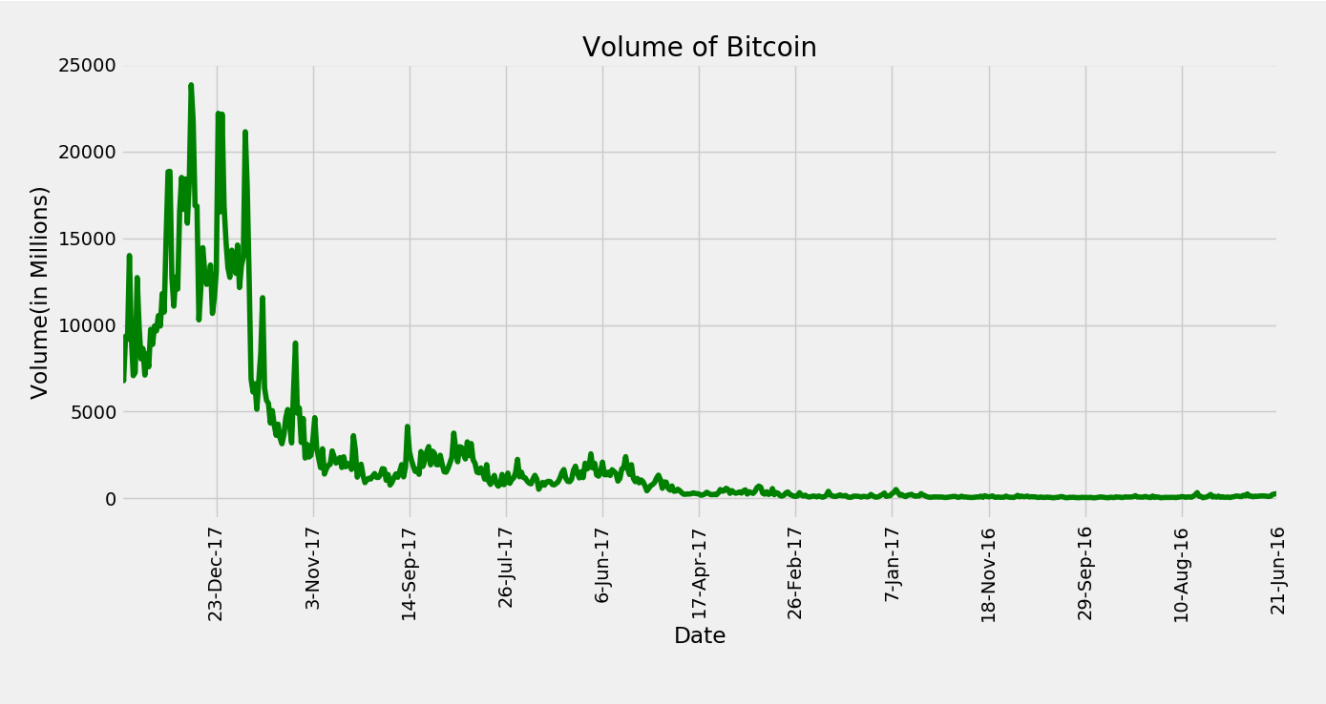
The summer of 2017 was pretty exciting for bitcoin as it reached an all-time high for bitcoin. But it was nothing in comparison of what was to come. By the end of 2017, it reached $19,783.21 on December 17th. However, just a few days later a 30% drop was recorded. And later it tumbled below $11,000. The price of bitcoin fell by about 65% during the month from 6 January to 6 February 2018.



Graph 9

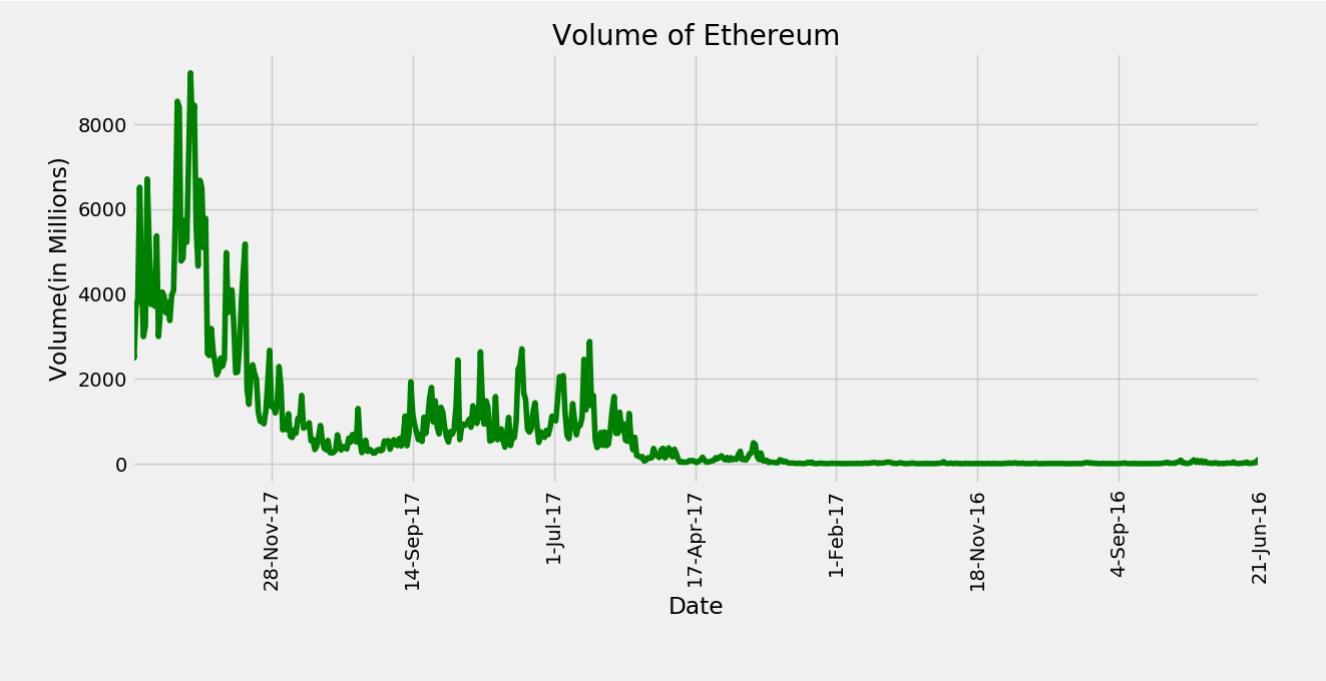
Ethereum has always been similar to Bitcoin. Though there was a 100% surge in May 2017. However, it fell back. Then in September 2017 Ethereum had the same movement as Bitcoin. Later, It also achieved it all time high in December 2017 and crashed soon after, just as Bitcoin and all the other Cryptocurrencies.

Several reasons have been attributed to the cryptocurrency market's sudden downturn. A day before the crash, several media outlets reported that some Asian countries were going to impose heavy regulations on digital currencies and initial coin offerings. Yet another plausible reason for the decline could have been the rumors suggesting that China was seeking to ban cryptocurrency mining operations in the country. Despite the rumor turning out to be reported as false a few days later, it was simply a case of too little, too late.



Graph 10

Volume of Cryptocurrency is the amount of the coin that has been traded in the last 24 hours. The jump in the volume of Bitcoin only came in December 2017 and it lasted till the February of 2018. The Highest volume of a single day has been $23.84 billion and the average of volume of bitcoin is $953 million.



Graph 11

It can be conjectured from the above graph that there were two main instances in the life-cycle of Ethereum where there were heavy stretches in the volume of Ethereum. The first happens from the mid-June 2017 to mid-September 2017. It was due to the surge and then due to the fallout. The second stretch lasted from December 2017 to mid-February 2018. The Highest volume of a single day has been $9.2 billion and the average of volume of bitcoin is $529 million.

Conclusion

Cryptocurrency became popular in 2017. With bitcoin, being the most popular, and Ethereum, being back by many popular firms.
Since 2013, all the cryptocurrencies have achieved a high point in December 2017 but this was short lived and this fall cost a lot of people billions of dollar.