

A Network Tour of Data Science

Team 31

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1 Project Proposal

Cryptocurrencies are a trending topic that rarely stays out of the news more than a couple of days. However, there are still many grey zones and falsehoods in what is being said. “Cryptocurrencies are only used to pay drugs”. “Cryptocurrencies are going to replace banks”. Through this project, we will try to make sense of these big statements and explain how reality is a lot more nuanced.

The goal of our project will be to study the network of Bitcoin, the first cryptocurrency, which appeared in 2009. We will use the blockchain, the public and chronological ledger of Bitcoin transactions, to extract the information we need. As the blockchain is constantly evolving, we will study the state of the network on January 9th 2018, the 9th anniversary of Bitcoin.

Through the list of transactions, we will be able to construct the list of nodes, the accounts of Bitcoin holders. Two sets of edges will be extracted from the digital ledger: the number of transactions that took place between any pair of accounts, and the total amount of the transactions between these same accounts.

We will then create the necessary labels in order to extract meaningful information from the network. Even though the information provided by the blockchain are minimalistic, the interest of our project will be to create new ones. What seems like the most important information beginning our study are the current balance of the account and the last date of use.

Using this data, but also using other sources of information about the network, we will hopefully make more sense of Bitcoin. We will also be able to answer questions like: “Are cryptocurrencies only used to pay drugs?” or “Will cryptocurrencies replace banks?”.