**Capstone project 2**

**Proposal for Capstone Project**

**Title: Time-series analysis of Bitcoin’s price**

**Problem:**

Bitcoin was such a hype investment alternative last year. This kind of new technology magnetizes a billion of dollars from around the world. A lot of investors earn their new house. Some investors even become a millionaire in just a few months. However, investing in such a skeptical product like cryptocurrency makes investors worry about the future of their investment. Is the possible to predict the trend or the price of Bitcoin? This can be a million dollar question which everyone is looking for.

**Who cares? :**

In this particular question, investors in bitcoin are the one who should pay attention the most. However, the price of bitcoin can affect other investments in the financial market. Nowadays, cryptocurrency becomes a type of alternative investment considered by large financial institution around the world. Money always finds the best place to fit in. If there is any drop in bitcoin market, the money is going somewhere else that yield more profit to the investor. In the other way around, if the price of bitcoin skyrockets, the money from other financial market has to be withdrawn to purchase bitcoin. Knowing the trend or price of bitcoin can be used to reduce the risk of other financial products. Therefore, this question could draw attention from everyone who invests in financial markets.

**Data:**

The data will be collected by various APIs. Cryptocurrency price will be collected by Cryptocompare API. The price of stocks will be collected by Morningstar API. And, the Google trend features will be drawn by Pytrend. Each data requires different approaches to clean and import.

**Limitation:**

First, there is a limitation to import different data. Some features have only daily data. Some features have hourly data. Also, the length of the cryptocurrency price is limited to just 3000 hours, so if we can obtain more data points, it might improve our predictive score of the model.  Second, this type of model will come with the limitation since we design this project to use time-series regression. Time-series analysis needs the lag of every feature which leads to a limited step of prediction. This can be the biggest hole in the project.