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Proposal for Predicting BitCoin Price

Domain Background:

Bitcoin is now what you call a cryptocurrency, what that mean is that its a digital asset designed to work as a medium exchange, that uses cryptography to controls its creation and management rather than a central authorities. Over the course of Bitcoin it had gone a rapid growth to a really significant currency both online and offline. It started to grow from 2011, but some companies started to accept bitcoin mid 2010. Rapper 50 cent had accepted Bitcoin on his last album which was Animal Ambition back in 2014 and made $7.7 million from just accepting Bitcoin.

I believe that this would be a good problem to look at because a lot of people have started to invest in cryptocurrency to try and make money. A lot of people who had invested on Bitcoin when it first came out made millions. I believe that this is another way for people to make money other than investing money into stock. Bitcoin is open 24/7 unlike the stock market, which is great since its alway active and that you can buy Bitcoin at any time.

Problem Statement:

The main goal for someone to invest in Bitcoin is to buy when the price it to buy and when the price is right to sell. Your trying to invest your money so that you can make more money in the future. The way to solve this problem is to predict the price of Bitcoin based on historic price, and over a time period using concept and technique in technical analysis and machine learning you would able to predict Bitcoin closing value across a given period of time in the future.

Datasets and Inputs:

I'll be using the daily prices of Bitcoin from January 2017 to December 207 which will be the a series of data points indexed in a time order. The goals is to predict the closing price for any date after training it. All the data will for this project will be gathered from Yahoo finance.

Solution Statement:

For this project I will be building a Bitcoin price indicator which will take its values over a given data ranges as input and it will output an estimates what the value would be in the near future. The project will include a start date, end date, opened at, closed at, low, high, adjusted closed and its volume. It will read the desired historical prices from the data source. This will be trained in a supervised learning model trained on historic data to predict a margin of error so that it can predict the future closing prices of Bitcoin. Having this type of knowledge you are in an advantage of when to buy and when to sell.

Benchmark Model:

The benchmark model will be composed from yahoo finance which will give me the detail of when it was open, when it was closed, the highs and the lows. It will also tell me the adjusted volume as well. From there I'll be using MinMax scaler, to Tensor flow so that I can use neural networks to try to get the data. I will also be using a train test split so that I can get train the data as well.

Evaluation Metrics:

I will be using using mean squared difference and between the predicted value add the actual value for Bitcoin at the adjusted prices and the delta between the performance of the benchmark model which will be linear regression and the primary model which will be from Deep Learning.

Project Design:

This project will be set up in multiple steps but it will be implemented through the use of Keras and Tensor Flow since I'm going to be using Neural Network. The following steps will go as follow :

Set Up:
- -Start with Python Notebook
- - Incorporate the Libraries

Dataset:
- -Incorporate the data
- -Process the Data
- -Develop the function for normalizing the data
- -Will be using in training test split

Benchmark Model:
- -Set up Linear Regression
- -Set the parameter

Neural Network Model:

-Set up basic model with eras utilizing parameter

Improve Model:

-Develop, document and compare the results

Document and Visualize:

-Plot the actual, benchmark predicted values, and neural network time series

-Analyze and describe for report.

This is what I believe my implementation for this project. There may be slight variation from it since I've not yet started on it, but it shouldn't be that big of a difference.