Project Report on

BITCON PRIZE PREDICTION

at

U. V. Patel College of Engineering

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Guide:

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Abstract:

Bitcoin is the first digital decentralized cryptocurrency that has shown a significant increase in market capitalization in recent years. Due to the difficulty of evaluating the exact nature of a Time Series (ARIMA) model, it is often very difficult to produce appropriate forecasts. Then we continue to implement Recurrent Neural Networks (RNN) with long short-term memory cells (LSTM). Thus, we analyzed the time series model prediction of bitcoin prices with greater efficiency using long short-term memory (LSTM) techniques and compared the predictability of bitcoin price and sentiment analysis of bitcoin tweets to the standard method

Problem Description:

Bitcoin price prediction has been an active area of research for a long time. Bitcoin, as a pioneer within the blockchain monetary renaissance, plays an overwhelming part in an entirety cryptocurrency market capitalization environment. Hence, it is the incredible interest of machine learning and data mining community to be able to: (I) predict Bitcoin price changes (II) grant experiences to get it what drives the Bitcoin instability and way better assess related dangers in cryptocurrency domain. Many researchers worked on machine learning algorithms and sentiment analysis from social media to find out the bitcoin stock market price prediction.

Objectives:

- The Bitcoin's price varies similarly to a stock albeit in another way. There are some algorithms used on stock market data for price prediction but the parameters affecting Bitcoin are distinctive.

- The price of Bitcoin does now not rely on at the business events or intervening government in contrast to the stock market. Hence, to expect the value we feel it is essential to leverage deep learning technology to expect the rate of Bitcoin.

Notebook used:

Colaboratory - Colaboratory, or "Colab" for short, is a product from Google Research. Colab allows anybody to write and execute arbitrary python code through the browser, and is especially well suited to machine learning, data analysis and education. More technically, Colab is a hosted Jupyter notebook service that requires no setup to use, while providing free access to computing resources including GPUs.

Tool, Technology and Library requirements:

Pandas:
pandas is a software library written for the Python programming language for data manipulation and analysis. In particular, it offers data structures and operations for manipulating numerical tables and time series.

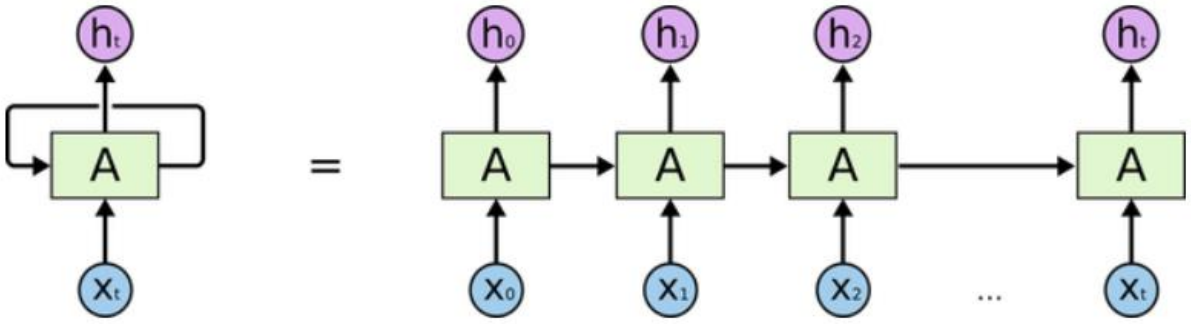
NumPy:
NumPy is a library for the Python programming language, adding support for large, multi-

dimensional arrays and matrices, along with a large collection of high-level mathematical functions to operate on these arrays.

Keras:
Keras is an open-source software library that provides a Python interface for artificial neural networks. Keras acts as an interface for the TensorFlow library.

Architecture of RNN:

The fundamental feature of a Recurrent Neural Network (RNN) is that the network contains at least one feed-back connection, so the activations can flow round in a loop. That enables the networks to do temporal processing and learn sequences, e.g., perform sequence recognition/reproduction or temporal association/prediction. Recurrent neural network architectures can have many different forms.



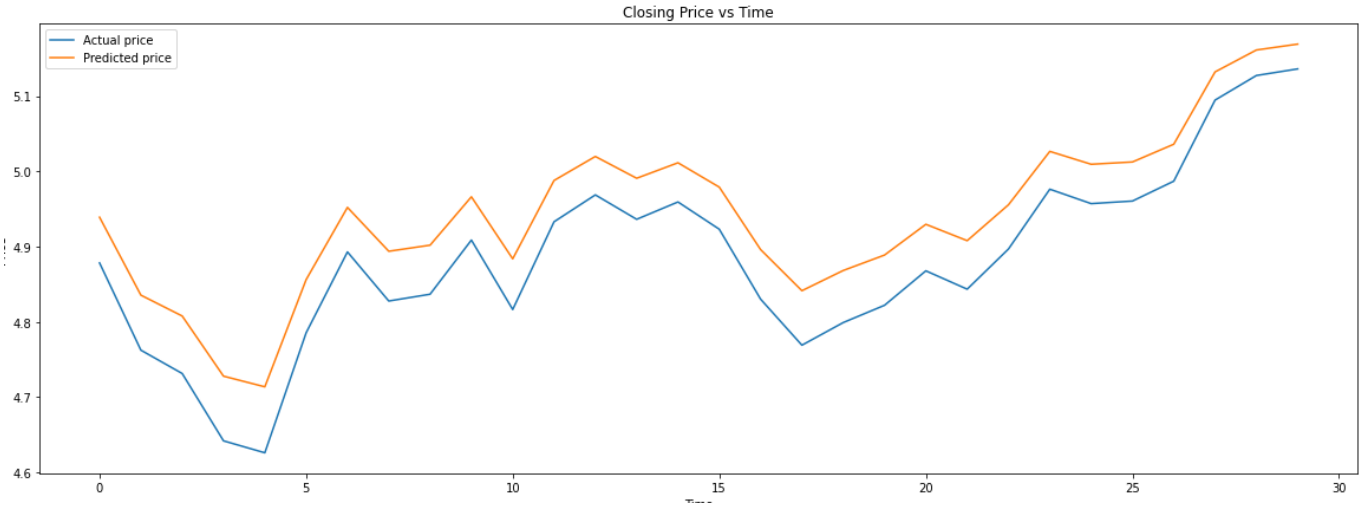
Because of their internal memory, RNN's can remember important things about the input they received, which allows them to be very precise in predicting what's coming next. This is why they're the preferred algorithm for sequential data like time series, speech, text, financial data, audio, video, weather and much more. Recurrent neural networks can form a much deeper understanding of a sequence and its context compared to other algorithms.

Work flow:

1. Import Library
2. Data Reading
3. Data Preparation
4. Making Line Plot graph
5. Importing the Keras libraries and packages
6. Initialising the RNN
7. Fitting the RNN to the Training set
8. Making the predications
9. Visualizing the results

Code: https://github.com/dbp712/Bitcoin-Price-Prediction-with-RNN

Output:



Dataset Name:

bitstampUSD_1-min_data_2012-01-01_to_2021-03-31.csv

Dataset location:

https://www.kaggle.com/mustiztemiz/bitcoin-price-prediction-with-rnn/data