SWADHEENTA x HACKINFINITY'23

DeepMinds

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TOPIC

MACHINE LEARNING ALGORITHM TO PREDICT STOCK PRICES BASED ON HISTORICAL FINANCIAL DATA.

PROJECT DESCRIPTION

The project involves training an RNN model on historical stock price data to predict the price of the stock on the just next timestamp, after a small time interval and then after a relatively long time interval. We then deploy our model to predict stock price using live stock price data on a website which gives predictions on demand. As it was not feasible to obtain stock price data, we used Bitcoin price data as a substitute to train the model.

WORK DONE IN THE FIRST PHASE:

We outlined what we expected from ourselves.

We worked out what frameworks and tools we might need to implement the outline.

We tried out a prototype implementation using the Bitcoin data instead of the Stock price data as stock price data was not available freely.

Made a wireframe diagram for the web app to be made.

WORK DONE IN THE SECOND PHASE:

We started out to train ML models like RNN, LSTM, ARIMA and GRU to predict the prices.

We used StreamLit to build a simple web app.

We had implemented only the just next prediction of the price at this point of time.

WORK DONE AFTER THE SECOND PHASE:

Then we improved the ML model and brought its MSE down to 0.0003.

Then we worked on improving the UI of the web app.

We added the extra functionality to predict the prices of the stock for the next 5 minutes, next 10 minutes and the next 20 minutes.

We ran into a lot of obstacles but found a solution for all of them.

POSTSCRIPT:

We got frustrated at times, lost hope, scrounged for solutions, got disappointed but did not get bogged down, persevered a little more and then found the ultimate happiness from our struggles.

REFERENCES:

- Binance Documentation (for data)
- TensorFlow Documentation (for RNN)
- Psycopg2 Documentation (connect DB to python script)
- Python Documentation (for asyncio)