VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI

A PROJECT REPORT ON
"BITCOIN PRICE PREDICTION USING MACHINE LEARNING AND SENTIMENT ANALYSIS"

Submitted in partial fulfillment for the award of Degree of,

BACHELOR OF ENGINEERING

IN

COMPUTER SCIENCE & ENGINEERING

By

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CERTIFICATE

This is to certify that the Project entitled "BITCOIN PRICE PREDICTION USING MACHINE LEARNING AND SENTIMENT ANALYSIS" has been successfully completed by

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The bonafede students of **DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING, ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY** of the **VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI** during the year 2022–2023. It is certified that all corrections/suggestions indicated for Internal Assessment have been incorporated in the report deposited in the departmental library. The project report has been approved as it satisfies the academic requirements in respect of Project work prescribed for the Bachelor of Engineering Degree.

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ABSTRACT

Bitcoin, the first and most widely adopted cryptocurrency, has gained significant attention from investors and traders due to its high volatility and potential for significant returns. Accurate price prediction of Bitcoin is crucial for making informed investment decisions. In recent years, deep learning models, which are a subset of machine learning techniques, have shown promising results in predicting financial time series data. In this study, we propose a deep learning-based approach for predicting the price of Bitcoin. It leverages historical Bitcoin price data, including historical price, volume, and other relevant features, to train our deep learning model. The utilization of a recurrent neural network (RNN) architecture, specifically long short-term memory (LSTM), which is well-suited for capturing sequential dependencies and patterns in time series data. Later to pre-process the data by normalizing it and splitting it into training and testing sets. Then train the LSTM model using the training set and optimize it using various hyperparameters, such as the number of LSTM layers, batch size, and learning rate. The performance of the model can be evaluated using various evaluation metrics. This experimental results show that our LSTM-based model achieves promising results in predicting Bitcoin prices. We compare our model with other traditional machine learning models, and our LSTM model outperforms them in terms of prediction accuracy. Our findings suggest that deep learning models, specifically LSTM, can effectively capture the complex patterns and trends in Bitcoin price data, leading to accurate price predictions. Overall, our study contributes to the growing body of literature on Bitcoin price prediction using deep learning models. The LSTM-based approach which has been implemented has the potential to assist investors and traders in making informed decisions in the dynamic and volatile cryptocurrency market. Further research can be conducted to explore other deep learning architectures, feature engineering techniques, and external factors that may impact Bitcoin price prediction accuracy.