PREDICTING BITCOIN PRICES WITH LSTM MODELS
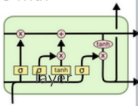
2022 - 2023

Project Overview

In this project, we aimed to develop LSTM (Long Short-Term Memory) models to predict the prices of Bitcoin, a popular cryptocurrency. By analyzing historical data and training the models, our objective was to accurately forecast future price movements and enhance understanding of LSTM behavior in cryptocurrency price prediction.

Key Objectives

- Build LSTM models to analyze and predict Bitcoin prices
- Evaluate model performance on different timeframes
- Implement statistical tools for numerical analysis of predictions

a.

- Integrate live data for real-time price prediction assessment
- Compare LSTM model performance with other AI models
- Investigate the impact of volatility on model accuracy
- Assess the effect of varying LSTM configurations

Methodology

1. Data Collection
2. Data Preprocessing
3. LSTM Model Architecture
4. Model Training
5. Model Evaluation

1. Live Data Integration
2. Performance Comparison
3. Volatility Analysis
4. Layer Configuration Experimentation

Expected Outcomes

- Trained LSTM models capable of accurately predicting Bitcoin prices
- Insights into the behavior and performance of LSTM models on various timeframes
- Numerical analysis of predictions using statistical tools to assess model accuracy
- Evaluation of real-time prediction capabilities through live data integration
- Comparison of LSTM model performance with other AI models for benchmarking purposes

1-minute time frames — 94%

9-15 minute time frames — 80%

120-minute time frames — 44%

CONCLUSION

By evaluating model performance, analyzing volatility impact, and comparing results with other AI models, we aim to enhance the accuracy and reliability of Bitcoin price forecasting