Indian Institute of Information Technology Vadodara

Design Project

Analysis of Deep Learning Algorithms for Stock Market Prediction

Under the Guidance of Ravi Nahta

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"This project leverages deep learning, particularly LSTM models, to analyze historical stock data and predict future trends, aiding in smarter investment decisions."

Objective

- Predict stock prices using advanced LSTM models.
- Analyze stock trends using 100-day and 200-day moving averages for better insights.
- Evaluate the accuracy of predicted prices by comparing them with actual market data.
- Identify and visualize key patterns and trends in historical stock data.
- Build an accessible, scalable solution for real-time stock market forecasting.

Methodology

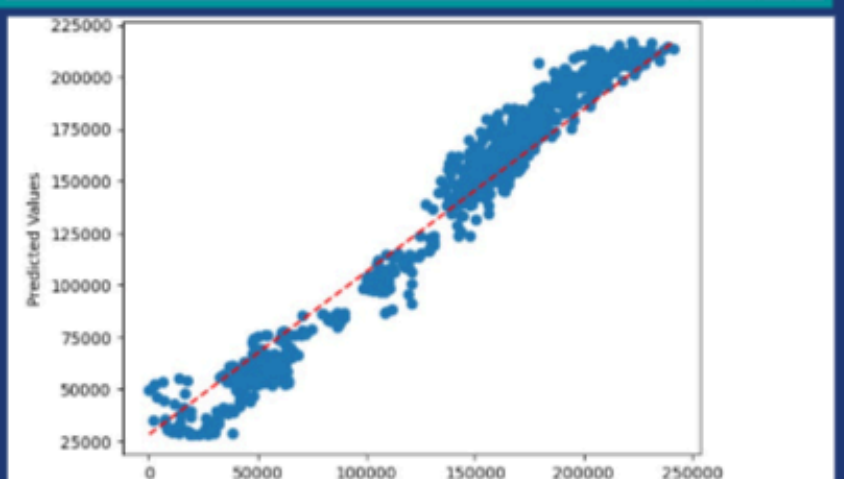
- Data Collection: Fetch historical stock data via Yahoo Finance API.
- Preprocessing: Scale and split data for training and testing.
- Model Building: Create a 4-layer LSTM model with dropout layers.
- Evaluation: Compare predictions with real stock prices using visualization

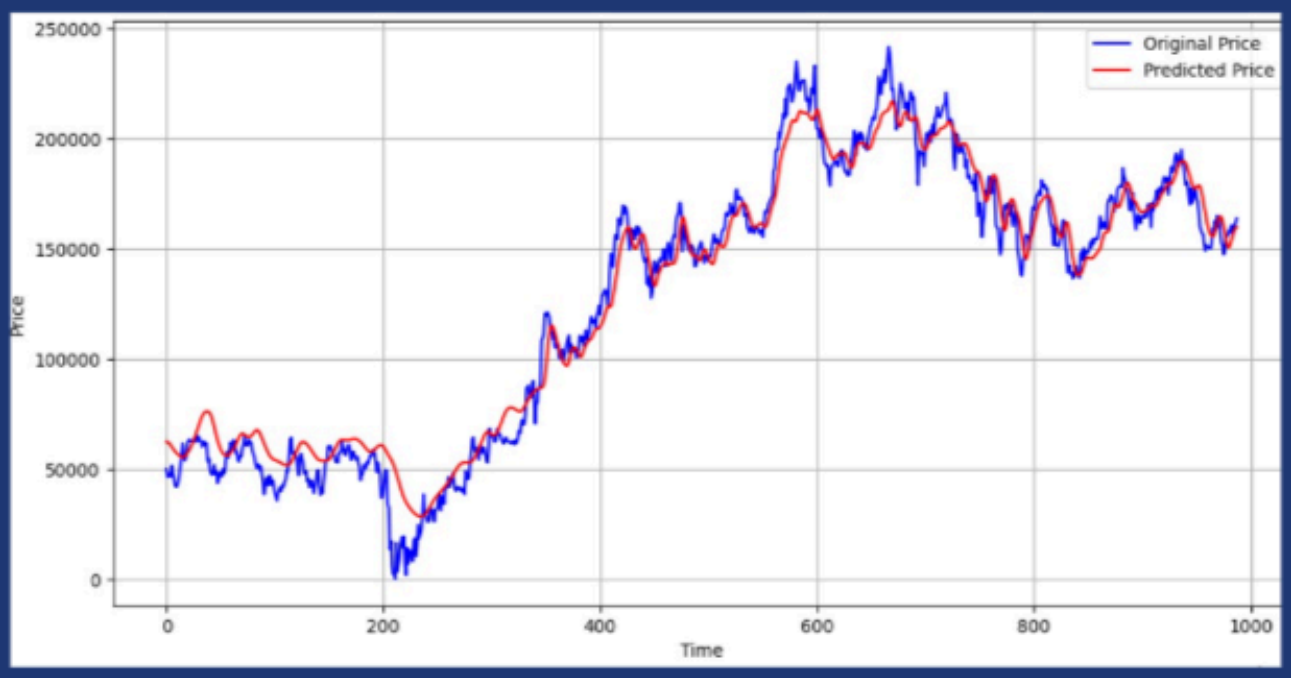
Results & Insights

- Stock Predictions: The LSTM model accurately predicts stock prices, particularly for TCS.
- Model Accuracy: Achieved a low Mean Absolute Error (MAE), showcasing prediction accuracy.
- Trend Visualization: The model visually tracks stock price trends, highlighting accurate predictions.

Future Scope

- Sentiment Analysis: Incorporate news sentiment to improve stock predictions.
- Hybrid Models: Combine LSTM with other models to enhance prediction accuracy.
- Real-Time Prediction: Develop a system for real-time stock predictions to aid traders.





1. Comparision Of 100 Days And 200 Days Moving Averages
2. Comparison of Original Price and Predicted Price
3. R2 Score