



GRADIENT AI

TEAM:

THE HACKSTREET BOYS

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Problem Statement:

The Goal of this project is to predict the future closing price of the stock based on data from past 14 years using Machine learning techniques specifically Longshort-Term memory (LSTM) networks, the prject will analyse the past trends and patterns in the stock market to forcast future prices.

Relevance of the Project: Stock Price Prediction using LSTM

- Financial Forecasting: Provides investors and businesses with predictive insights to make data-driven decisions.
- Risk Mitigation: Assists in identifying potential risks and planning effective investment strategies.
- Real-World Impact: Helps develop automated trading systems, improving efficiency in financial markets.
- Enhances Investment Strategies: Supports portfolio management by anticipating stock movements.
- Use of Advanced AI Models: LSTM models efficiently capture time-series dependencies, offering better predictions.
- Scalability: similar approach can be targeted for other financial assets like cryptocurrencies, commodities, or market indices.



Uniqueness:

Integration with Real Market Data: Utilizes Yahoo Finance's API to fetch real-world stock data, ensuring up-to-date and practical analysis.

Visualization of Predictions: Offers side-by-side visual comparison of actual vs. predicted stock prices, making insights easier to understand and analyze.

Scalability for Future Assets: The approach can be extended to predict prices of other financial instruments, ensuring versatility in various market scenarios.

Leverages LSTM networks, which excel in capturing complex temporal patterns and dependencies, unlike traditional machine learning models.

Scalability:

The LSTM-based stock price prediction model is designed to be highly scalable and adaptable to various financial markets and datasets.

By changing the input ticker symbol, the model can predict prices for different stocks, indices, or even cryptocurrencies using the same framework. Additionally, the integration with Yahoo Finance ensures access to a broad range of financial data, enabling seamless scalability across multiple assets.

The modular preprocessing pipeline and configurable model parameters allow easy adjustments for larger datasets or more complex patterns. This flexibility makes the project suitable for real-world applications, including portfolio management, market trend analysis, and risk forecasting across diverse industries.



Conclusion:

This project highlights the effectiveness of leveraging LSTM networks for stock price prediction, providing valuable insights for better investment decisions.

Its flexible integration across multiple platforms—such as CLI, web interfaces, and APIs—ensures accessibility for diverse user groups. With the capability to analyze historical market data and forecast trends, the model serves as a reliable tool for navigating financial markets.

Moreover, its scalability allows it to expand beyond stock prediction, supporting various financial assets and adapting to evolving market needs.

THANK YOU!