Intelligent Stock Forecasting Platform

A machine learning-powered web application that democratizes stock prediction for private investors through advanced algorithms and intuitive design.

The Challenge: Information Asymmetry in Markets

Limited Access

Professional-grade forecasting tools are expensive and complex, excluding retail investors from sophisticated analysis.

Data Overwhelm

Raw financial data requires expertise to interpret, leaving investors relying on outdated methods or gut instinct.
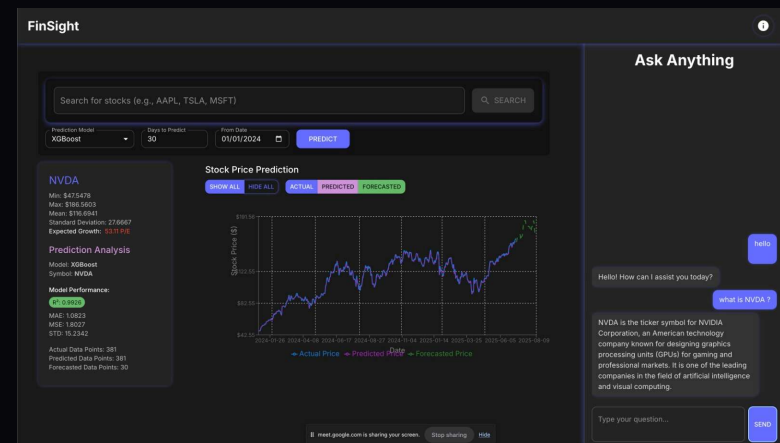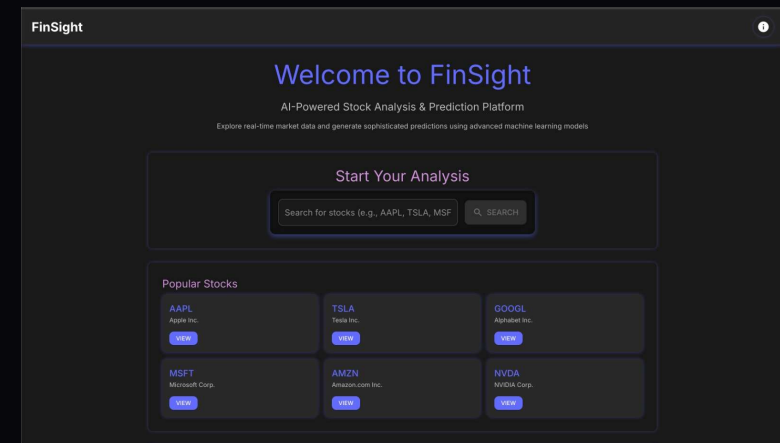
Model Complexity

Machine learning models for finance are technically challenging to implement and validate for individual use.

Solution: AI-Powered Stock Prediction Platform

Core Functionality

- Select any stock symbol for analysis

- View comprehensive historical data visualization

- Run three distinct ML models simultaneously

- Compare prediction results with interactive charts

- AI chatbot for market insights and explanations

Modern UI/UX Design Philosophy

Responsive React Interface

Clean, modern design that adapts seamlessly across devices with intuitive navigation and fast loading times.

Data-Driven Visualization

Clear presentation of complex financial data through interactive charts and comparative model outputs.

User-Centric Experience

Designed for both technical and non-technical users with progressive disclosure and contextual help.

Technology Stack & Architecture

React Frontend

Dynamic UI with component-based architecture for scalability and maintainability.

Flask Backend

Lightweight API serving ML models with efficient data processing and Yahoo Finance integration.

ML Models

XGBoost for gradient boosting, GRU for sequential patterns, LightGBM for high-performance predictions.

Future Roadmap & Expansion

Multi-Stock Portfolio

Enable simultaneous analysis of multiple securities with correlation insights and risk assessment.

Personalization

User behavior-based customization, saved preferences, and tailored investment recommendations.

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Advanced Analytics

Technical indicators integration, sentiment analysis, and Prophet/ARIMA model additions for comprehensive forecasting.