

Dynamic Web Application for Real-Time Price Tracking and Predictive Analytics

1. Problem Statement

Investors and traders face challenges in monitoring real-time price movements and predicting future trends for stocks and cryptocurrencies. Existing solutions often lack seamless integration of real-time analytics with robust predictive models, making it difficult for users to make informed decisions.

2. Objectives

- **Real-Time Price Tracking:** Enable users to track live prices of selected stocks and cryptocurrencies.
 - **Predictive Analytics:** Provide future price trend forecasts powered by advanced deep learning models.
 - **User-Friendly Interface:** Develop an intuitive web application for easy navigation and interaction.
 - **Customizable Insights:** Allow users to select specific assets to view tailored real-time charts and predictions.
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3. Proposed Solution

We propose a **dynamic web application** that bridges the gap between real-time data tracking and predictive analytics using cutting-edge technologies.

Key Features:

1. **Live Price Charts:** Integrate APIs for real-time price updates and visualization.
2. **Deep Learning Models:** Deploy models like LSTM or Transformers to forecast price trends.
3. **Interactive Dashboard:** Offer a responsive interface for users to interact with live and predicted data.
4. **Cross-Platform Accessibility:** Ensure compatibility across devices for on-the-go insights.

Technology Stack:

- **Frontend:** React.js for dynamic and responsive UI.
 - **Backend:** Python (Flask/Django) for server-side processing.
 - **Data Handling:** APIs (e.g., Alpha Vantage, Binance) for fetching live data.
 - **Predictive Models:** PyTorch/TensorFlow for implementing deep learning.
 - **Deployment:** AWS/GCP for scalable hosting solutions.
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4. Expected Outcomes

- A functional web application that tracks real-time prices and forecasts trends with high accuracy.
 - Enhanced user decision-making through actionable insights.
 - Positive user engagement via a seamless and intuitive platform.
 - Demonstrated technical expertise in data engineering, deep learning, and web development.
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Evaluation Metrics

- **Model Performance:** Accuracy of price trend predictions (e.g., MAPE, RMSE).
- **User Experience:** Feedback from initial users during testing.
- **Reliability:** Latency of real-time price updates and prediction generation.