

# Idea Behind the Project

The core idea is to provide a reliable and continuously updated price feed for the KALE token. Since KALE is a token where participants stake and perform work to earn rewards, knowing the current value of the token is essential. This script acts as a dedicated monitoring tool that fetches, records, and visualizes KALE's price, giving users valuable market insights that aren't readily available elsewhere.

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## Key Features

Your `KalePriceTracker` script is well-structured and includes several important features:

- **Multi-Source Data Fetching:** It attempts to get the price from the most reliable source first (the **Stellar network**) and has two fallback mechanisms: a local **CSV file** and a list of **hardcoded prices**. This makes the tracker highly resilient.
- **Persistent History:** The script saves the price history to a `price_history.json` file. This means you can stop and restart the tracker without losing previously collected data.
- **Data Visualization:** It uses `matplotlib` to generate a clear, color-coded line and scatter plot of the price history, making it easy to see trends.
- **Graceful Fallback:** If `matplotlib` is not installed, the script doesn't crash. Instead, it prints a simple but effective **text-based chart** in the console.
- **Statistical Analysis:** The tracker calculates and displays key statistics like the current price, 24-hour high/low, average price, and the most recent price change.
- **Continuous Monitoring:** It runs in an infinite loop, fetching new data at a user-defined interval (`update_interval`), providing a live feed of information.
- **Robust Logging:** All actions, warnings, and errors are logged to both the console and a file (`kale_price_log.txt`), which is great for debugging and auditing.

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## Relevance to the Hackathon

This project directly addresses the hackathon's challenge to **"build a new tool, feature, or integration that directly leverages or enhances KALE."**

1. **It's a New Tool:** The KALE ecosystem lacks a dedicated, real-time price tracker. This script fills that gap by providing a functional and useful tool specifically for KALE participants.
2. **It Leverages KALE:** The tracker's primary function is to query the Stellar testnet for trades involving the KALE asset. It directly interacts with the KALE token's on-chain activity.
3. **It Enhances KALE:** By providing price transparency and historical data, the tool enhances the experience for KALE "farmers." They can now easily track the value of their rewards, analyze market trends, and make more informed decisions about their participation in the proof-of-teamwork system.

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## Problem Addressed

The main problem this script solves is the **lack of accessible and real-time price information** for the KALE token. For any tokenized ecosystem to thrive, its participants need visibility into the asset's market value. Without a tool like this, KALE users would have to manually check blockchain explorers or trading interfaces, which is inefficient and doesn't provide historical context or trend analysis. This tracker centralizes that information and makes it easily digestible.

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## The Solution

The script provides a comprehensive solution by:

1. **Automating Price Discovery:** It automatically fetches the latest price from the Stellar DEX, eliminating the need for manual checks.
2. **Providing Data-Rich Visuals:** The generated plots and statistics offer immediate insights into the token's performance over time.
3. **Ensuring Reliability:** The fallback data sources ensure that the user always gets a price point, even if the Stellar network is slow or has no recent trades.
4. **Creating a Foundation:** This tracker can serve as the backend for more complex applications. The data it collects could be fed into a web dashboard, a trading bot, a mobile alert system, or other financial tools for the KALE community.