

AI-Assisted Market Making Framework for Solana Memecoin

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1 Introduction

In an era where decentralized finance (DeFi) and cryptocurrency trading are reshaping financial landscapes, intelligent systems must adapt to a rapidly changing environment. **Kaira**, an AI-driven model, has been developed to provide robust decision-making for memecoin ecosystems on the Solana blockchain. This whitepaper outlines Kaira's innovative approach to training data creation, decision tree modeling, and the reasoning behind its design.

2 Background

Memecoins exhibit extreme volatility, unpredictable market behavior, and short-lived trends. Traders often face challenges in identifying meaningful metrics to guide decision-making. Existing tools are either overly generic or lack the nuance required to address the unique dynamics of memecoins. **Kaira** bridges this gap by leveraging structured training data and a decision tree framework tailored for specific memecoin market parameters.

3 Training Data Design

3.1 Objectives

The training data was designed to:

- Reflect real-world memecoin trading scenarios.
- Enable nuanced decision-making by categorizing tokens based on their age, market cap, and trading volume.
- Provide actionable recommendations for liquidity management and trading strategies.
- Ensure balanced and consistent results across configurations.

3.2 Data Parameters

To structure the training data, three critical parameters were identified:

- **Token Age:** A measure of how long a token has been active, reflecting its maturity and trading momentum.
 - *Very New:* Under 1 day.
 - *New:* 1 to under 3 days.
 - *Moderate:* 3 to 7 days.
 - *Old:* More than 7 days.
- **Market Cap:** A categorization of token size to assess its liquidity and influence on market trends.
 - *Super Small:* Market cap under \$150K.
 - *Small:* Market cap \$150K to \$500K.
 - *Medium-Small:* Market cap \$500K to \$1M.
 - *Medium:* Market cap \$1M to \$5M.
 - *Big:* Market cap \$5M to \$10M.
- **24-Hour Volume:** A percentage-based activity level indicating market engagement.
 - *Not That Active:* Volume under 20% of market cap.
 - *Warm:* Volume 20% to 50% of market cap.
 - *Hot:* Volume 50% to 100% of market cap.
 - *Super Hot:* Volume exceeding 100% of market cap.

3.3 Additional Data Parameters for Future Versions

Several other critical data parameters need to be considered for effective decision-making but are not included in this version of the training data:

- **Limit Orders Heatmap:** A visualization of buy and sell orders at different price levels.
- **DCA Inflow and Outflow:** Tracking dollar-cost averaging (DCA) inflows and outflows to assess market trends.
- **Trading Hours Volume Pattern:** Analyzing volume fluctuations based on trading hours to identify peak activity periods.
- **Overall Volume of the Token Category:** Evaluating how the total trading volume of the token's category influences its performance.

3.4 Structuring Recommendations

The training data now incorporates:

- **Dynamic Configurations:** Recommendations vary in time frames and durations but ensure the same total target volume.
- **Common Durations:** Recommendations prioritize durations such as 1 hour, 3 hours, 6 hours, and 1 day to align with market behaviors.
- **Consistency Across Answers:** Each configuration is balanced to meet the target volume over its specified timeframe.

4 Decision Tree Framework

4.1 Purpose

The decision tree model simplifies complex market conditions into actionable insights. By breaking down the parameters, it ensures that each recommendation aligns with both market dynamics and trader goals.

4.2 Logic and Flow

The decision tree is constructed as follows:

- **Token Age:**
 - *Very New:* Prioritize shorter durations (1 to 6 hours) to capitalize on initial momentum.
 - *New:* Balance between short-term and mid-term strategies (3 to 12 hours).
 - *Moderate:* Focus on sustained engagement (6 hours to 1 day).
 - *Old:* Opt for longer durations (1 to 2 days) to maintain relevance.
- **Market Cap:**
 - *Super Small and Small:* Higher volume targets to boost visibility and engagement.
 - *Medium-Small:* Moderate volume targets to balance liquidity and activity.
 - *Medium and Big:* Lower volume targets to maintain stability and avoid over-saturation.
- **24-Hour Volume:**
 - *Not That Active:* Emphasize higher volumes to move into the "Warm" or "Hot" category.
 - *Warm:* Moderate volumes to sustain upward momentum.
 - *Hot:* Smaller additional volumes to maintain activity.
 - *Super Hot:* Minimal adjustments to sustain peak visibility.

Token CA: 3X6WNs7SoqhqrChKmyxTaXTcRS4km1z3ARJHS32pump

5 Definitions and Classifications

The following table summarizes the key classifications used in the decision tree:

Category	Classification	Definition
Token Age	Very New	Under 1 day
	New	1 to under 3 days
	Moderate	3 to 7 days
	Old	More than 7 days
Market Cap	Super Small	Market cap under \$150K
	Small	Market cap \$150K to \$500K
	Medium-Small	Market cap \$500K to \$1M
	Medium	Market cap \$1M to \$5M
	Big	Market cap over \$5M
24-Hour Volume	Not That Active	Volume under 20% of market cap
	Warm	Volume 20% to 50% of market cap
	Hot	Volume 50% to 100% of market cap
	Super Hot	Volume over 100% of market cap

6 Use Cases

6.1 Very New Token with Low Activity

Scenario: Token is less than 1 day old, market cap \$100K, volume activity <20%. **Recommendation:** Target "Hot" activity: **Volume:** 10 SOL, **Time Frame:** 5 minutes, **How Long:** 3 hours.

6.2 Moderate Token with Warm Activity

Scenario: Token is 5 days old, market cap \$800K, volume activity 30%. **Recommendation:** Target "Hot" activity with mid-range configurations: **Volume:** 20 SOL, **Time Frame:** 10 minutes, **How Long:** 3 hours.

7 Modeling Kaira's Decision Process

7.1 LLM-Based Decision Flow

Kaira leverages a large language model (LLM) to analyze the inputs and derive its recommendations. The process follows these steps:

1. **Input Parsing:** User inputs such as token age, market cap, and 24-hour volume are parsed and categorized based on the predefined classifications.
2. **Contextual Understanding:** The LLM matches input conditions against its training data to identify the most relevant scenarios.

Token CA: 3X6WNs7SoqhqrChKmyxTaXTcRS4km1z3ARJHS32pump

3. **Reasoning:** The model applies the decision tree logic to evaluate possible strategies:

- Shorter durations for newer tokens with high volume.
- Longer durations for older tokens with low activity.

Weights are assigned to each parameter to balance engagement, liquidity, and market visibility.

4. **Output Generation:** The AI generates structured recommendations, including:

- Balanced configurations.
- Target volumes, time frames, and durations.

8 Conclusion

Kaira's training data and decision tree modeling exemplify a rigorous and systematic approach to navigating the volatile world of Solana memecoins. While this version (0.1) focuses on token age, market cap, and trading volume, future iterations will incorporate additional parameters such as limit orders heatmaps, DCA flows, trading hours volume patterns, and overall category volume. By leveraging precise classifications, actionable recommendations, and LLM-driven decision-making, Kaira empowers traders with strategies tailored to specific market conditions. This framework not only enhances decision-making but also fosters a deeper understanding of memecoin dynamics, paving the way for more intelligent and informed trading ecosystems.