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Binance Trade Performance Analysis

1. Objective:

The goal of this analysis is to assess the trading performance of various Binance accounts over a 90-day period, using a weighted scoring system based on critical financial metrics. This allows for an objective ranking of accounts to identify top performers.

2. Dataset Overview:

- The dataset includes historical trade data for multiple Binance accounts.
- Each account is uniquely identified by `Port_ID`.
- The `Trade_History` column contains detailed trade information, including timestamp, asset, side (BUY/SELL), price, quantity, and realized profit.

3. Data Cleaning and Preparation:

- The `Trade_History` column, stored as a string, was parsed into structured lists using `ast.literal_eval()`.
- Malformed or incomplete entries were removed to ensure accuracy and reliability.
- After cleaning, 150 accounts remained for analysis.

4. Metrics Calculated:

The following key financial metrics were computed for each account:

- **ROI (Return on Investment)**: Measures the percentage return relative to the initial investment.
- **PnL (Profit and Loss)**: Total net profit or loss over the period.
- **Sharpe Ratio**: Indicates risk-adjusted returns (assuming a risk-free rate of 0).
- **MDD (Maximum Drawdown)**: Captures the largest peak-to-trough decline.
- **Win Rate**: Percentage of trades that ended in profit.
- **Win Positions**: Total number of profitable trades.
- **Total Positions**: Total trades executed.

5. Ranking Methodology:

Accounts were ranked using a weighted composite score with the following weights:

- ROI: 30%
- PnL: 25%
- Sharpe Ratio: 20%

- MDD: 15%
- Win Rate: 10%

Each metric was normalized for comparability, and the weighted sum determined the final score. Rankings were based on descending composite scores.

6. Top 20 Accounts:

The top 20 accounts were selected based on composite scores, representing the best overall performance across all metrics. Detailed metrics for these accounts are included in the accompanying CSV file (`top_20_accounts.csv`).

7. Key Findings:

- High-performing accounts excelled in ROI and PnL, with balanced Sharpe Ratios and low MDD.
- Accounts with consistently high Win Rates and numerous winning positions ranked higher.
- Accounts with high PnL but poor risk management (low Sharpe Ratio, high MDD) ranked lower due to increased volatility.

8. Assumptions and Limitations:

- A risk-free rate of 0 was assumed for Sharpe Ratio calculations.
- Metric weights were chosen based on common financial practices but can be adjusted.
- The analysis assumes cleaned data is complete and representative.

9. Deliverables:

- **CSV File**: `top_20_accounts.csv` containing full metrics and composite scores.
- **Report**: This document explains methodology, results, and assumptions.

10. Next Steps:

- Segment accounts by trading strategy or asset class for deeper insights.
- Refine metric weights based on business goals or stakeholder feedback.
- Add metrics like volatility, turnover ratio, or holding periods for richer analysis.