

# Slot Machine 3 - Simulation Analysis

## Simulation Overview

This report presents the results of the simulation titled 'Slot Machine 3 - Simulation Analysis', run on 2024-08-11 14:14:51.

The simulation was conducted using the following slot machine configuration:

Slot Machine Payout Probabilities:

Line 1: [0.13069894701689735, 0.2101163457018818, 0.6289373354172464, 0.03024737186397443]

Line 2: [0.3690823081355605, 0.09365864612769158, 0.34345084069453147, 0.19380820504221646]

Line 3: [0.29586782635219994, 0.20637439835855728, 0.004146445761479274, 0.4936113295277635]

Rewards: [0, 2, 5, 10]

Number of Trials: 100

Number of Strategies: 5

# Summary Statistics

## Strategy: FixedBetStrategy

Description: Fixed bet strategy: always bet the same amount.

Win Rate (Mean): 100.00%

Average Number of Spins: 48.80

Final Stake (Mean): 523.82

Final Stake (Median): 514.00

Final Stake (Standard Deviation): 24.80

## Strategy: KellyCriterionStrategy

Description: Kelly criterion strategy: calculates the optimal bet size based on the probability of winning and the payout ratio.

Win Rate (Mean): 100.00%

Average Number of Spins: 10708.86

Final Stake (Mean): 5053.20

Final Stake (Median): 5041.00

Final Stake (Standard Deviation): 33.24

**Strategy: MartingaleStrategy**

Description: Martingale strategy: double the bet after each loss, reset to initial bet after each win.

Win Rate (Mean): 0.00%

Average Number of Spins: 67.64

Final Stake (Mean): 0.00

Final Stake (Median): 0.00

Final Stake (Standard Deviation): 0.00

**Strategy: ReverseMartingaleStrategy**

Description: Reverse Martingale strategy: double the bet after each win, reset to initial bet after each loss.

Win Rate (Mean): 2.00%

Average Number of Spins: 81.86

Final Stake (Mean): 100.35

Final Stake (Median): 0.00

Final Stake (Standard Deviation): 705.99

**Strategy: FibonacciStrategy**

Description: Fibonacci strategy: bet according to the Fibonacci sequence.

Win Rate (Mean): 0.00%

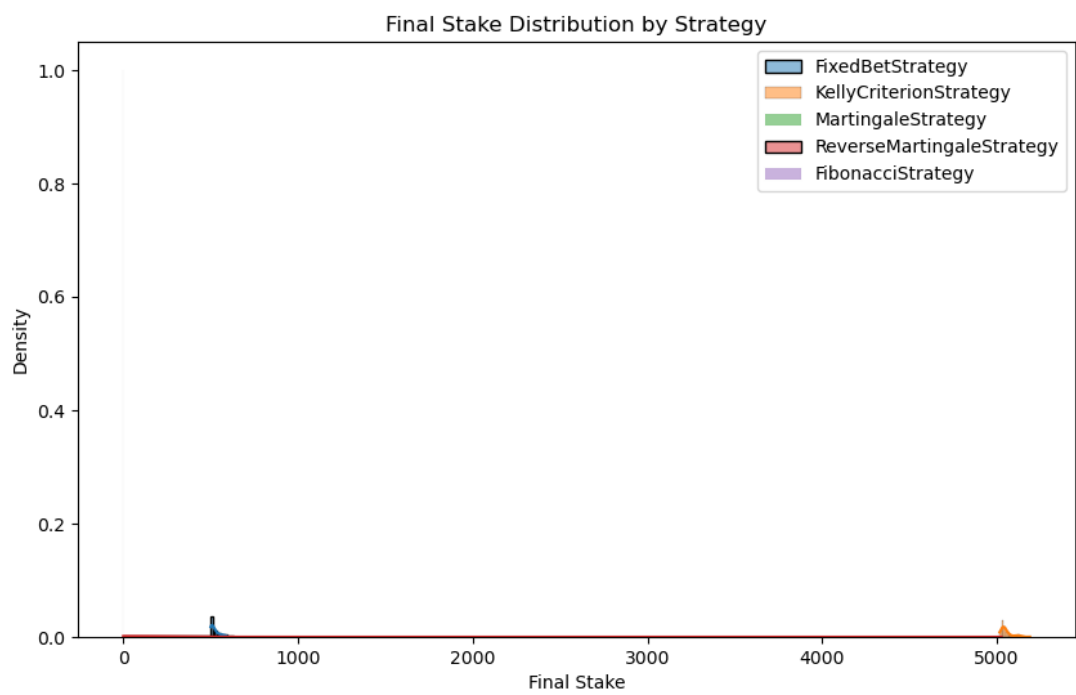
Average Number of Spins: 84.33

Final Stake (Mean): 0.00

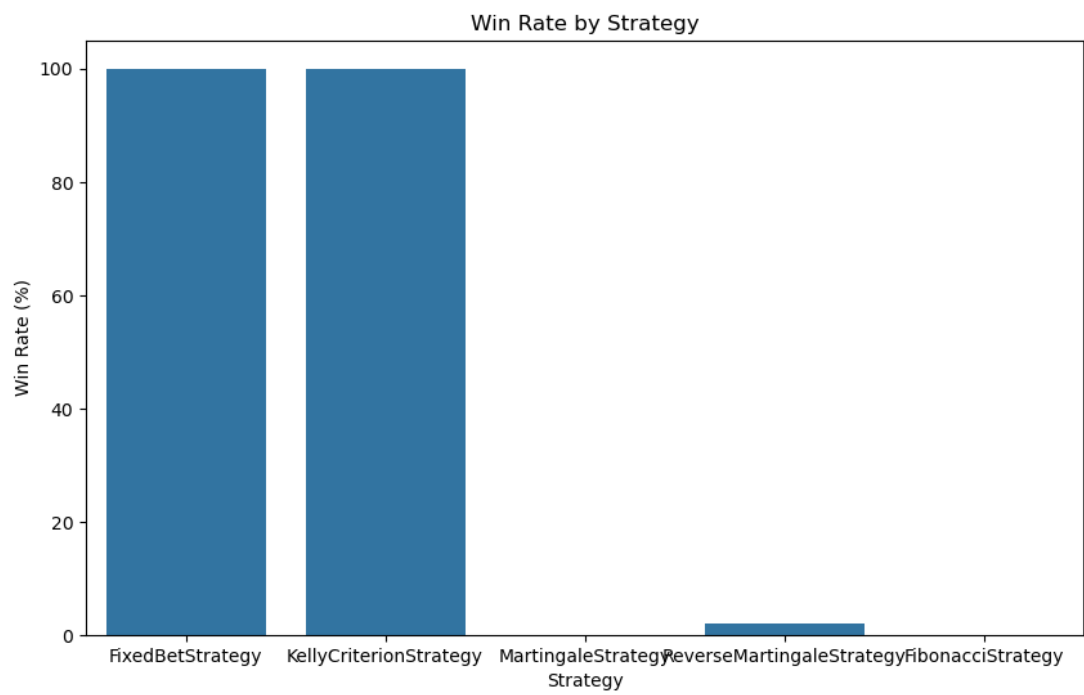
Final Stake (Median): 0.00

Final Stake (Standard Deviation): 0.00

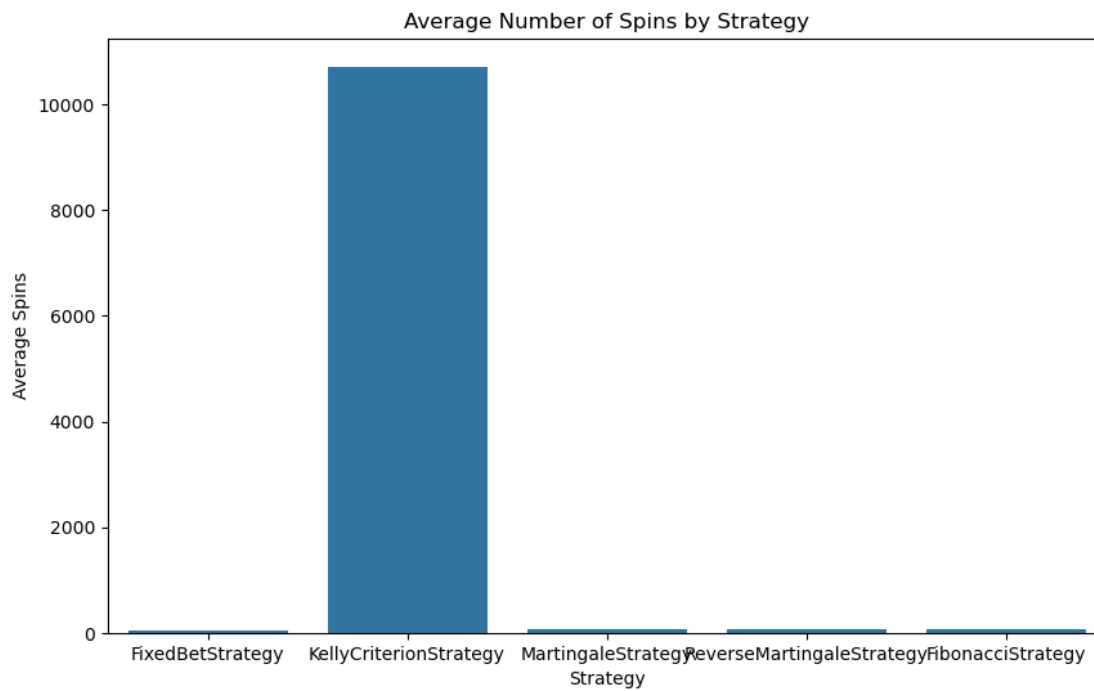
# Visualizations



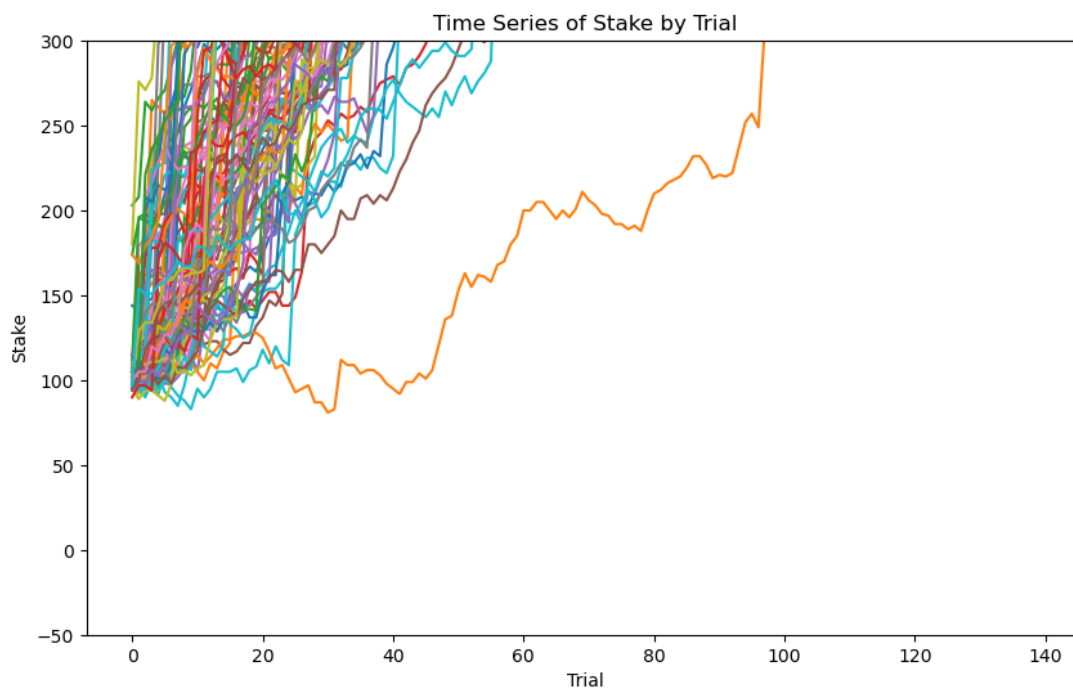
Distribution of final stakes for each trial - Strategy: FibonacciStrategy



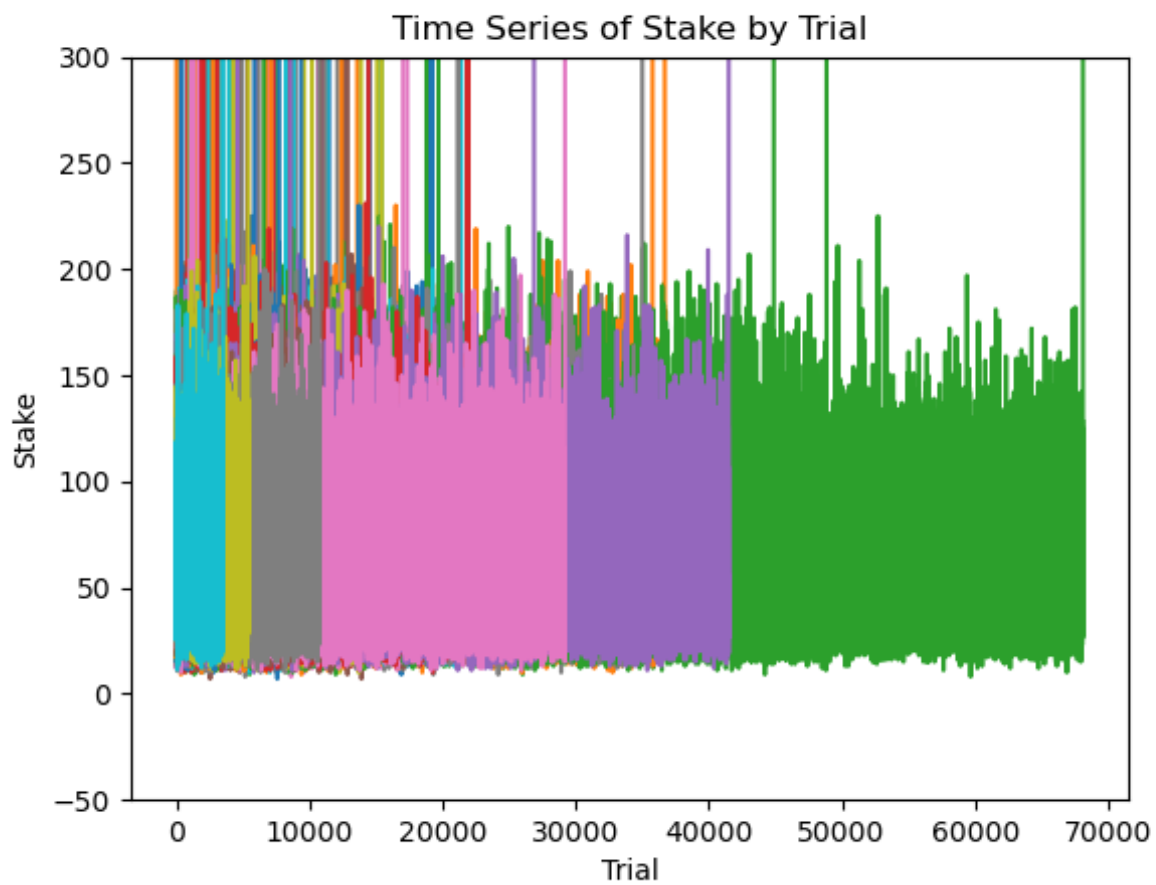
Win rate for each trial - Strategy: FibonacciStrategy



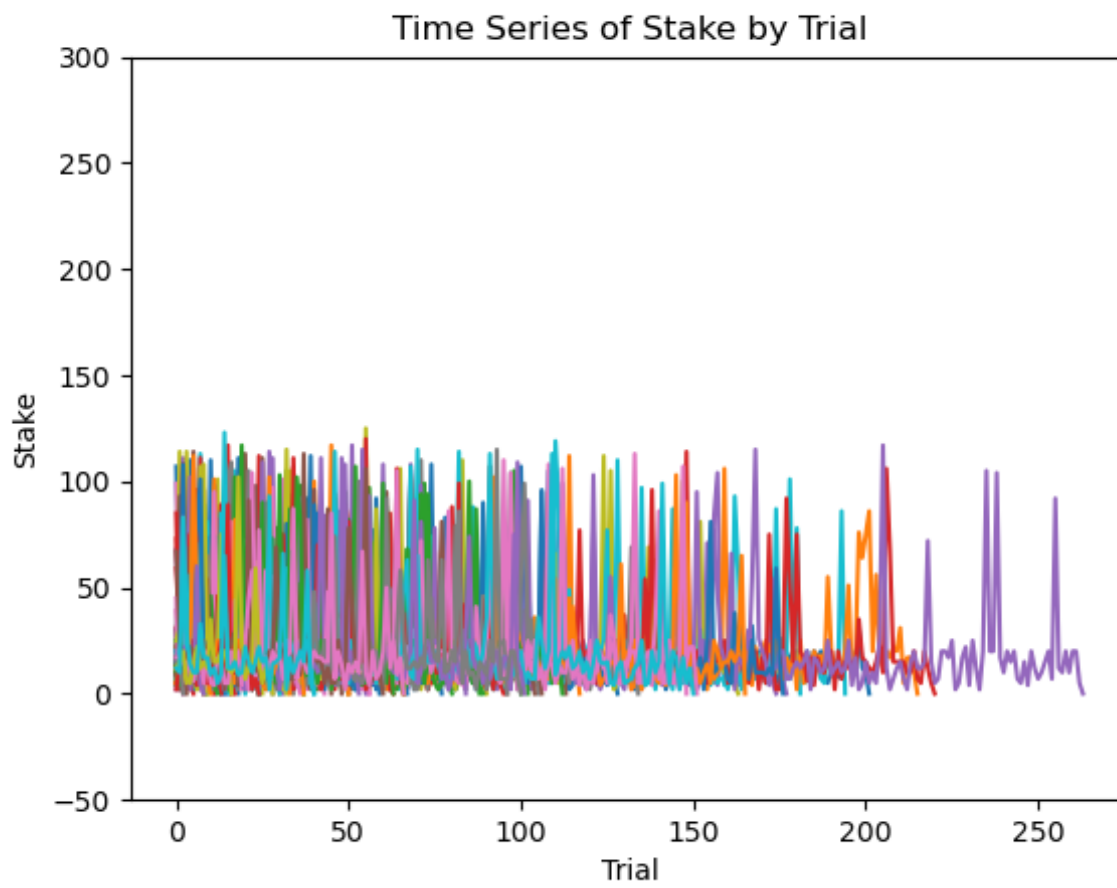
Average number of spins for each trial - Strategy: FibonacciStrategy



Time series of gain for Fixed Bet Strategy - Strategy: FibonacciStrategy

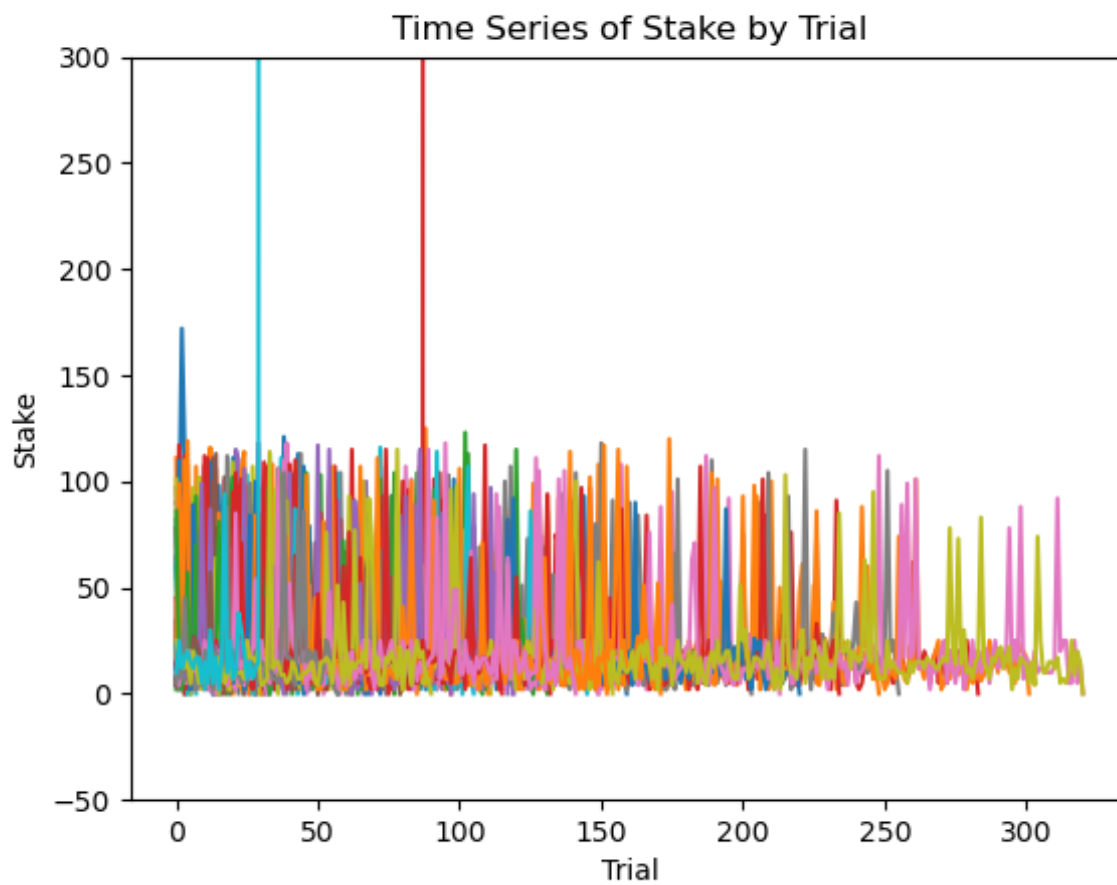


Time series of gain for Kelly Criterion Strategy - Strategy: FibonacciStrategy

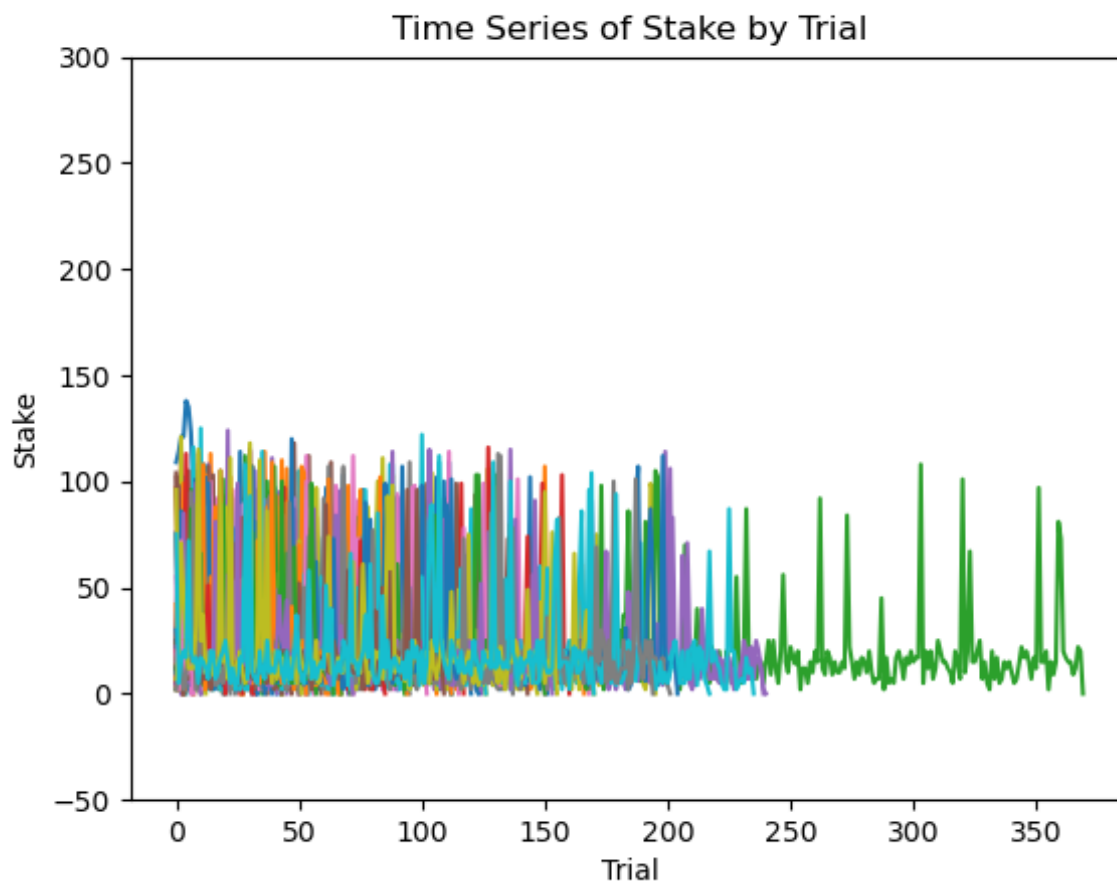


Time series of gain for Martingale Strategy - Strategy: FibonacciStrategy





Time series of gain for Reverse Martingale Strategy - Strategy: FibonacciStrategy



Time series of gain for Fibonacci Strategy - Strategy: FibonacciStrategy