



Developing a Forex Algo-Trader using MQL5

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Introduction

Basics of Forex

What is forex?

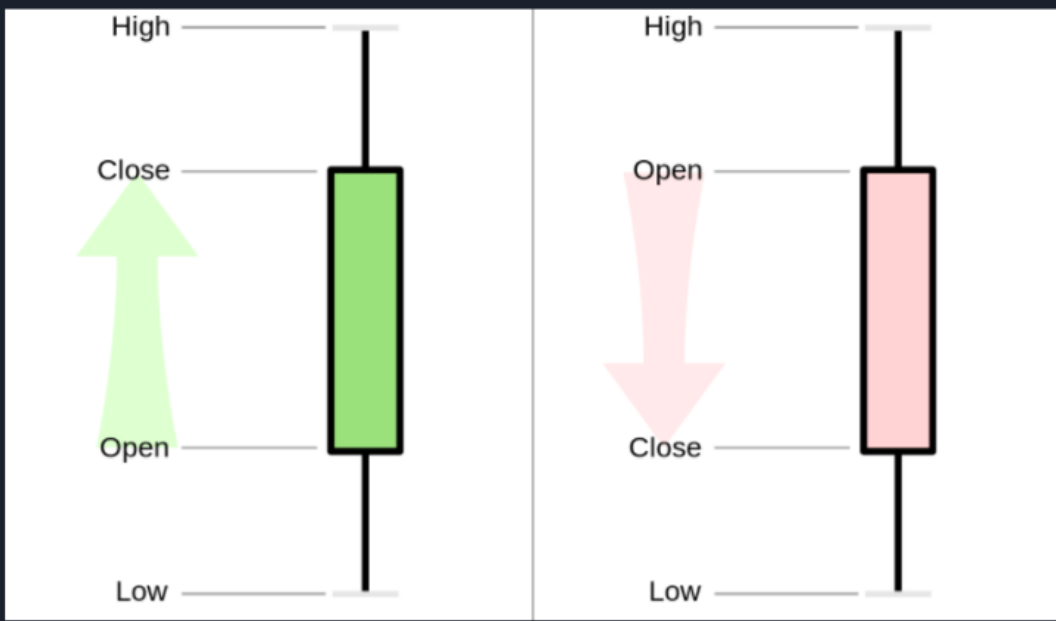
- "Foreign Exchange" = global market for currency trading
- High liquidity, 24/5 operation, and being influenced by global economic factors

What about Technical Analysis (TA)?

- Analysis of historical price to predict future market movements
- Use of technical indicators (MA, RSI, etc)

Expert Advisors (EAs)?

- Automated trading systems
- Predefined algorithms w/o manual intervention



Candlestick Charts?

- Financial chart used to describe price movements of a currency, stock, or derivative
- Each 'candle' in the chart provides visual information about opening, closing, high, and low prices

Purpose/Goals of the Project:

- Developing a Meta Quest Language 5 (MQL5)-based EA for efficient Forex trading within a simulated environment
- Utilize technical analysis to automate trading decisions
- Integrate moving average crossover and break-even analysis
- Enhanced trading accuracy and efficiency through automation

Problems Being Addressed:

- Cost reduction in trading operations
- Mitigation of challenges in the fast-paced Forex market
- Reduction of emotional and biased decision-making in trading

Optimization

What does optimization mean in forex?

- Fine-tuning EA parameters using technical benchmarks to enhance efficiency:
 - Examples: profit factor, drawdown percentage and Sharpe ratio
- Goal:
 - Optimize risk management and profit generation to ensure robust performance without overfitting to historical data

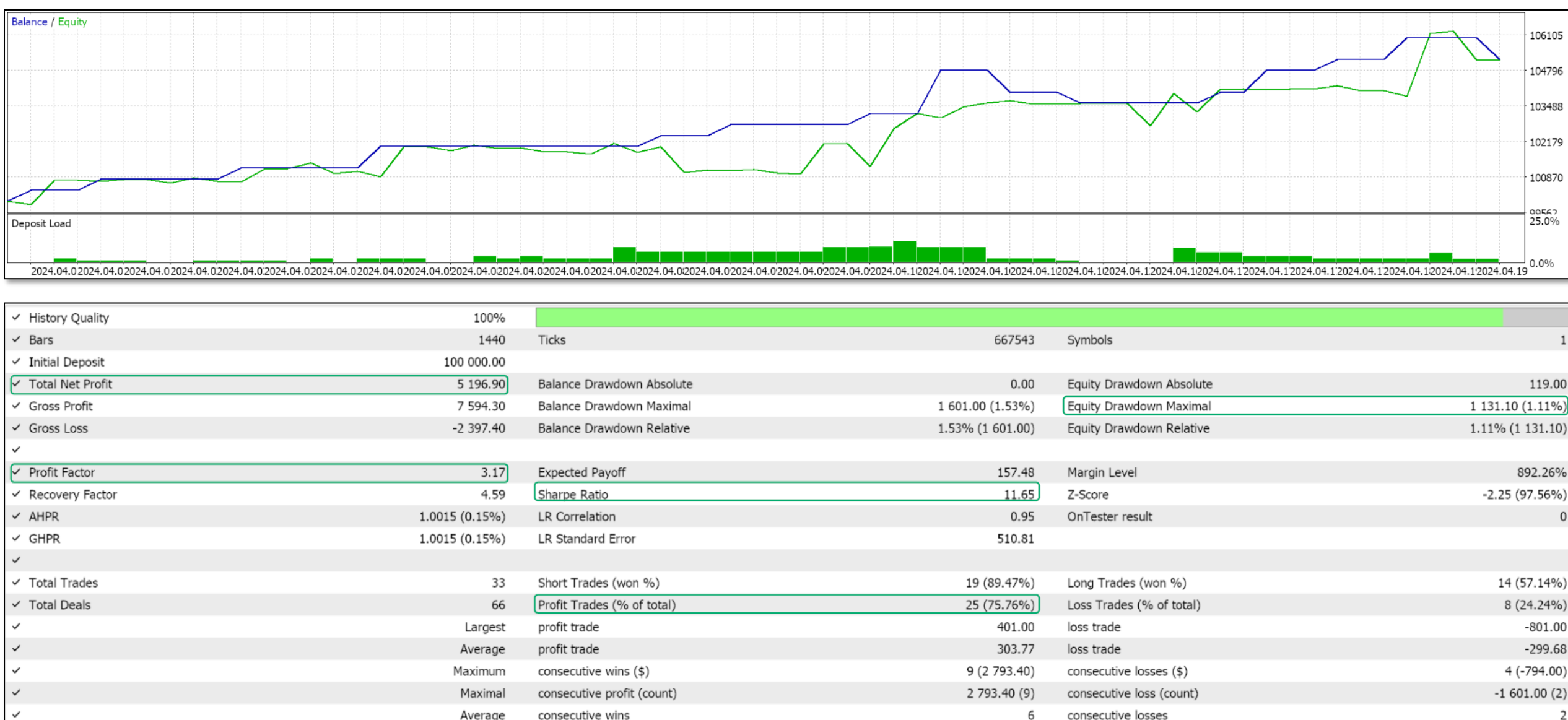


Fig. 3: Optimized result (EUR/USD) 1 month on M-15

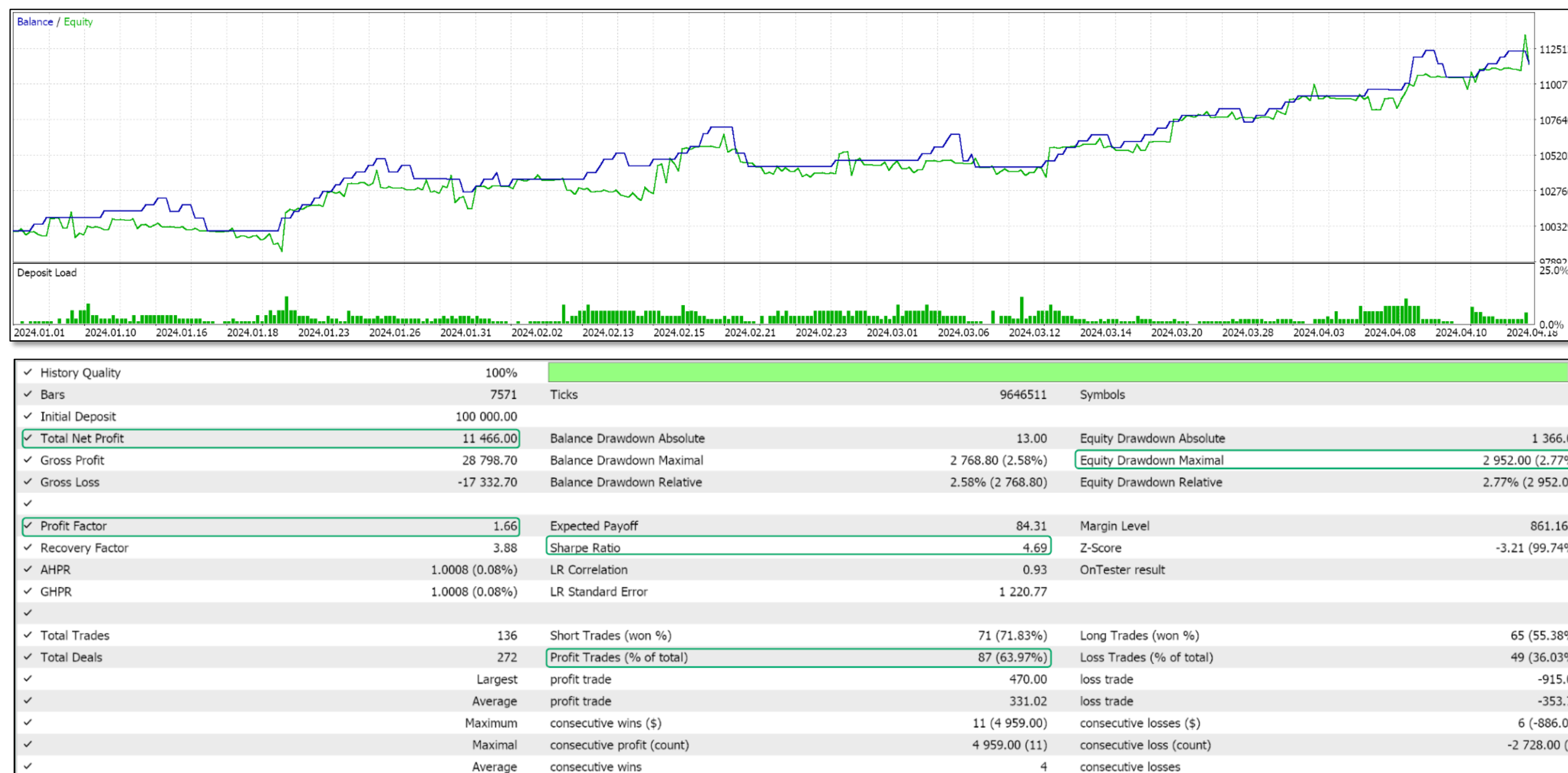


Fig. 4: Optimized result (EUR/USD) 1 year on M-15

Conclusions

My success criteria:

Profitability:

- Target: At least breakeven or have some profits

Win/Loss Ratio:

- Target: Minimum 0.6 (60% winning trades)

Back testing Consistency:

- Target: Steady performance across various market conditions

Results from last year

11.5%

ROI

64%

Win/Loss ratio

+4.69

Sharpe ratio

Results from last month

5.2%

ROI

76%

Win/Loss ratio

+11.69

Sharpe ratio

Future Work

- Optimize on different time frames and currencies
- Consider using another language like python
- Forward test it on live paper trading for longer timeframes
- Adding fundamental analysis by doing sentiment analysis
- Try to publish it on Meta Trader 5 platform

Acknowledgements

Forex requires years of experience to understand, and it was challenging to navigate through some hurdles, but I would like to thank Dr. Noah Aydin and Dr. James Skon for their advice, help, and support in this project.

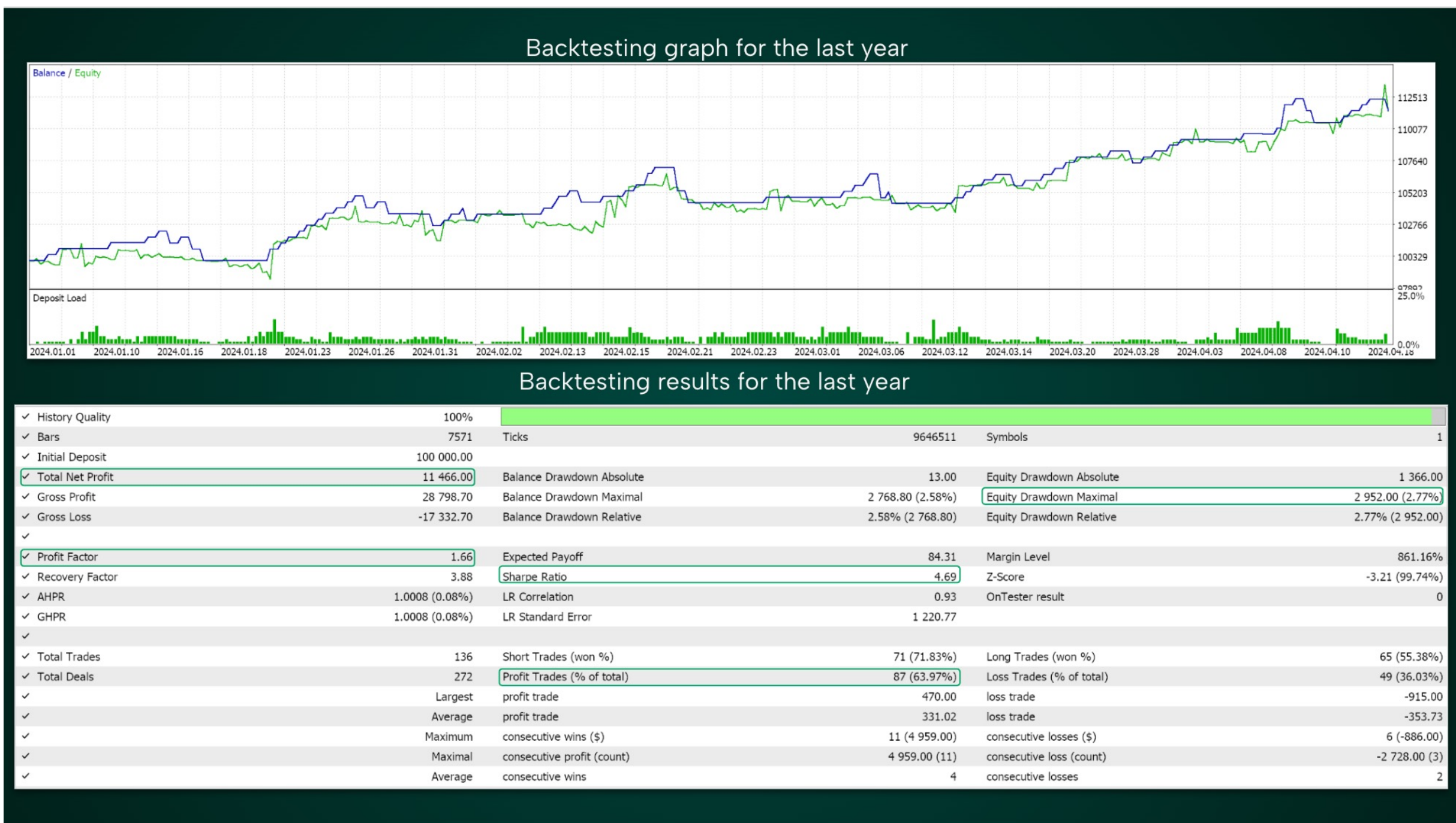
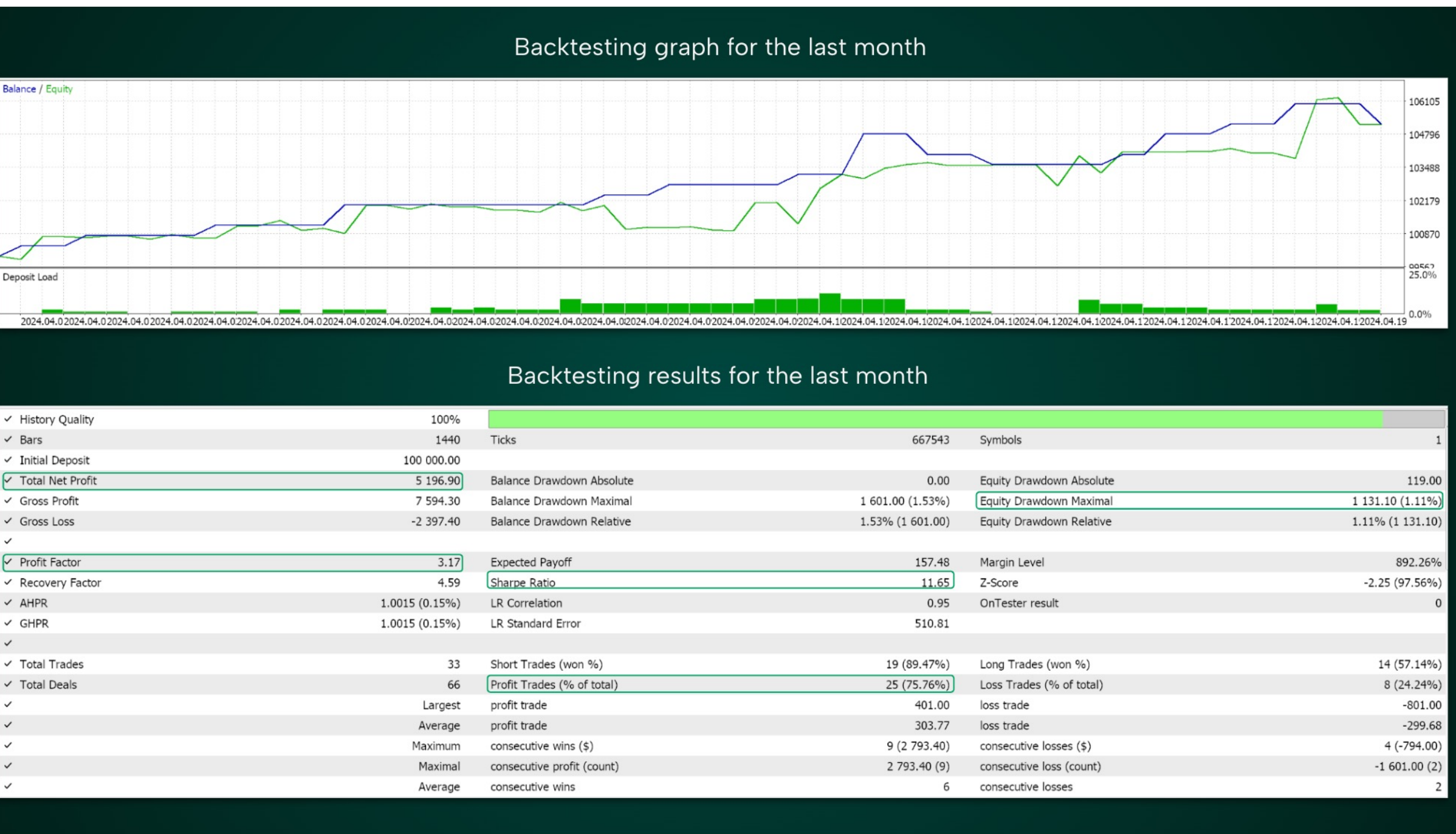


Fig. 1 & 2: Back-testing results with metrics of the demo account and the balance/equity graph