

Development of an API-Based Automated Trading Tool for Enhanced Financial Market Participation

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Abstract: *Digital finance has witnessed a rise in recent times that has triggered intensified growth of algorithmic trading software. The article here reports the design and development of an API-based automated trading software that communicates with brokerage websites for making real-time transactions. Our solution utilizes RESTful APIs, Python programming, and data analysis libraries to build a customizable and scalable platform for traders. Strategy backtesting, risk management, and logging functionalities are supported by the system. We also identify important security issues and compliance considerations. Simulations yield better trade execution speed and fewer errors manually, highlighting the promise of API-based trading systems in making financial markets more accessible to all.*

Keywords: Algorithmic Trading, API Integration, Financial Technology, Automated Trading System, Python Trading Bots

I. INTRODUCTION

Automated trading, or algorithmic trading, has revolutionized the way financial markets function.

II. BACKGROUND AND MOTIVATION

A. Financial Democratization

The widespread availability of open APIs.

III. SYSTEM ARCHITECTURE

A. Core Components

1. Broker API Integration.

B. Workflow

1. User authenticates.

C. Security Measures.

IV. IMPLEMENTATION

A. APIs Used

We integrated Kite Connect v3.

B. Trading Strategies.

C. Backtesting Module.



V. RESULTS AND EVALUATION

- Automated trading performed better.
- Backtested momentum strategy returned.
- Alerting system made available.

VI. CHALLENGES AND LIMITATIONS

- API Rate Limits.
- Market Volatility.
- Security and Compliance.

VII. CONCLUSION AND FUTURE WORK

This work proves the feasibility.

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