

Algorithmic Trading with Angel Smart API: An Electronic Market Making Strategy

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Course Outline

1. Introduction
2. Stock Look Up Code & Trade Strategy Explanation
3. Basic Market Maker – Single Stock
4. Basic Market Maker – Multi Stock
5. Advanced Market Maker – Single Stock
6. Advanced Market Maker – Multi Stock
7. Saving Intraday Data for Back-Testing & Trade Simulation
8. Conclusion & Discussion

Introduction 1

What this course is:

- An Algorithmic Trading course of Intermediate to Advanced level difficulty using Angel SMART API.
- Suitable for individuals who already have a good understanding of python and basic knowledge of Angel SMART API.
- An Electronic Market Making Strategy for trading continuously in the order book. I.E Automated Bid and Ask Orders to capture the spread.

What this course is NOT:

- A quick and guaranteed way to make profits in the market.
- A perfect Algo that makes profit all the time.
- A support forum for Angel SMART API.

Introduction 2

What is Electronic Market Making:

- A trading strategy that offers continuous limit orders to buy and sell.
- Provides liquidity to the Order Book.
- We hope to gain the SPREAD as a profit. (SPREAD = ASK – BID)

Market Microstructure

Best Bid = 284.80

Best Ask = 284.90

Spread = 0.10

| Order Book | Intra-day Chart | Stock V/s Index Chart | Quarterly Charts |
|------------|-----------------|-----------------------|------------------|
| Buy Qty. | Buy Price | Sell Price | Sell Qty. |
| 3,195 | 284.80 | 284.90 | 162 |
| 2,176 | 284.75 | 284.95 | 165 |
| 2,881 | 284.70 | 285.00 | 1,222 |
| 512 | 284.65 | 285.05 | 577 |
| 1,692 | 284.60 | 285.10 | 3,036 |
| 10,20,000 | Total Quantity | | 15,50,000 |

Introduction 3

Risks of Electronic Market Making Strategies:

- Very sensitive to Brokerage & Costs. (Needs very low Brokerage to work)
- Algo has to maintain a balanced book. (Should not become directional)
- Performance needs to be monitored for malfunctions. (Doom Loop)
- Market conditions are different everyday. (Same Algo will not work on all days)

Ideal Features of Electronic Market Making Strategies:

- Trades are closed very quickly. Less than one minute usually.
- Trade sizes are small. Number of Trades are high.
- No Overnight positions. This is purely an Intraday Strategy.

Introduction 4

Outline of the Basic Trading Strategy:

- Check Last Traded Price (LTP)
- Send Buy and Sell orders – Below and Above the LTP respectively.
- Check for Trade Execution. Send Take Profit Order.
- Repeat above cycle every minute.

Variations of the Trading Strategy :

- Basic Strategy on one stock.
- Basic Strategy on multiple stocks.
- Advanced Strategy on one stock.
- Advanced Strategy on multiple stocks.

Introduction 5

Final Thoughts

- Do NOT under any circumstances blindly copy and start trading with this code.
- It can have very bad outcomes !!!
- Please understand the logic and try it out incrementally.
 - Use small trade quantities and trade for a few cycles / iterations / minutes.
 - Check the price and quantity of the sent orders and if the orders are sent as expected.
 - Then repeat again to double check for edge cases like partial execution.
 - After a turnover of 1 or 2 lakhs, stop and wait for the daily trade statement.
 - Check that the cost of trading is within expected margins.
 - If the costs are very high, you will need to change the trade parameters.
 - This algo will require a daily monitoring and tweaking. It is never optimal for long.