

# NIFTY Option and Tick Data Analysis

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## 1 Findings

### 1.1 Task 1: Statistical Summary

Statistic	Strike Price	Volume	Open Interest
Max	27000.00	5266350.00	65013350.00
Min	11500.00	1.00	0.00
Mean	21702.77	3808.12	2799008.26
Median	21750.00	400.00	1479750.00

Table 1: Statistical Summary for Strike Price, Volume, and Open Interest

Statistic	Open	Close	Volume
Max	22565.00	22545.45	12611901.00
Min	19199.30	19260.00	24051.00
Mean	21594.62	21604.22	2375395.31
Median	21844.88	21841.40	456751.00

Table 2: Statistical Summary for Open, Close, and Volume

### 1.2 Task 2: Option Volume Analysis

- Total volume of call options: 144436998689.
- Total volume of put options: 136752187532.

### 1.3 Task 5: Data Filtering

The following table shows the first 5 rows of the filtered data.

expire_date	strike_price	option_type	date	time	tick_price	volume	open_interest
2025-01-24	21500	Put	2024-01-10	13:40:17	207.70	1800	3262700
2025-01-24	21500	Put	2024-01-10	13:40:31	207.55	1100	3262700
2025-01-24	21500	Put	2024-01-10	13:41:44	209.20	7100	3262700
2025-01-24	21500	Put	2024-01-10	13:42:23	208.40	1800	3258300
2025-01-24	21500	Put	2024-01-10	13:42:48	209.10	1350	3258300

## 1.4 Task 6: Time-Series Plot of LTP

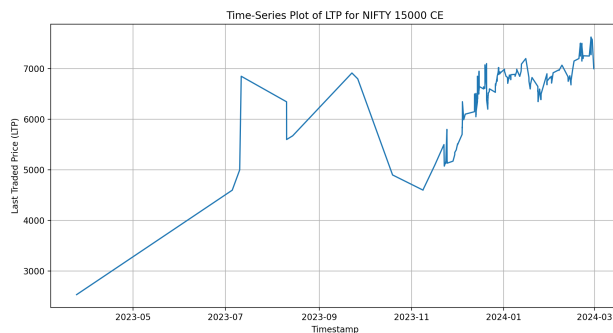


Figure 1: Time-Series Plot of Last Traded Price for NIFTY 15000 CE.

## 1.5 Task 7: Open Interest Trends

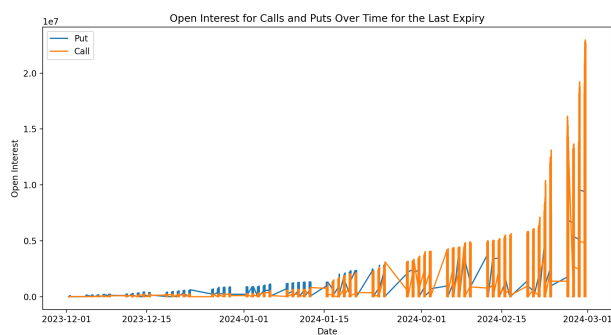


Figure 2: Open Interest Trends for Calls and Puts.

## 1.6 Task 9: Backtesting Results

The backtesting strategy resulted in a total profit of -1550208.55.

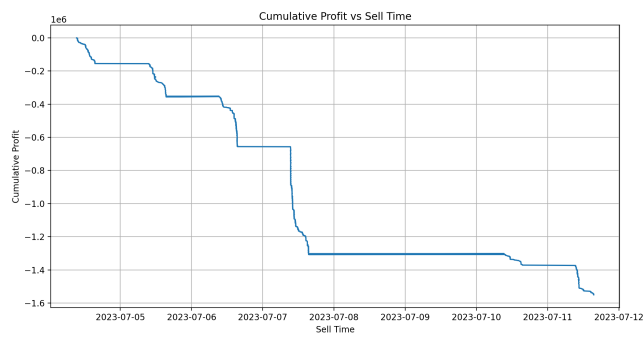


Figure 3: Cumulative Profit Over Time from Backtesting.