

Study on Algorithmic Intraday Trading Systems of Nifty-50

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ABSTRACT

One of the most successful application of the advanced IT solutions in finance has been the introduction of Algorithmic Trading Systems (ATS). Today ATSS perform all major trade functions such as trade identification, execution, money management and monitoring. Deployment of ATSS has lots of advantages but still it has not reached the hands of common/retail traders. Few of the reasons for this is the confusion caused by excess number of options, lack of specialized knowledge and complexities involved in informed decision making. This experimental research paper intends to offer a scientific solution obtained through rigorous Back-Testing of numerous ATSS of Nifty-50 index over a period of 3 years. All the strategies were clubbed into two major classes, namely Momentum based and Reversal based and several simulations were executed on certain pre-defined parameters. The results show that RSI & Bollinger-Band reversal ATS topped the charts by offering 71% accuracy in short term 68% in medium-long term. This ATS is really effective for traders who are looking for small but consistent returns as this system operates on fixed Target (TGT) and Stop-Loss

(SL) with a Risk/Reward ratio of 1:1.5. However, Super-Trend crossover momentum ATS is for risk takers as it offers an accuracy of 49% in short term and 53% in medium to long term, but has the potential to make big bucks as it functions on Trailing TGT/SL theory and has a better Risk/Reward ratio of 1:2.

Key Words:ATS, MTS, Back-Testing, Momentum ATS, Reversal ATS, Risk/Reward

INTRODUCTION

Stock market has always provided a strong source of secondary income to Indian household. People invest their savings in the stock market with an intention to make a quick buck and fulfill their financial goals. Over the years, the objective with which people invest has shifted from long term capital appreciation to short term gains that can help them is supplementing their primary source of income. Owing to this, stock market trading (short term) has gained an edge over long term investments. Millennials, today, are more interested in trading over a shorter time period and capitalizing upon money making opportunities as and when they come, rather than investing in a stock for decades and waiting for

it to hatch. This is lead to certain changes in the stock market operations as stock market trading (intraday & short-term delivery) has grown in leaps and bounds both inter terms if infrastructure and market participation. One of the major strides in this fields was the successful integration of artificial intelligence in stock market trading. Unlike the early days a trader is no longer required to sit in front of the screen and dedicate his entire day to make some money out of trading. One can avail the help of machine trading systems wherein all the trading processes are taken care by the machine. All one needs to do is define the criteria for buying & selling (algorithm) and the machine will do the rest.

Algorithmic trading (Algo trading) is, relatively, a new concept but has picked up pace and is now being appreciated by a huge category of traders. This reason for this is that it has certain advantages over manual trading. Algo trading successfully certain fundamental problem of stock trading that is next to impossible for a human to achieve i.e. keeping emotions aside, ensuring proper money management, taking decision based on data rather than gut feeling and a lot more. Owing to this Algo trading has become the buzz word and is now being pursued by a large number of traders. In addition to this, extensive researches have been conducted in this field related to risk-reward, money management, profit trailing etc., which has kept the ball rolling. Few of the works in the field of stock market trading, IT integration with financial markets and Algo trading are as follows: -

Correlation between Economic Growth & Volatility

Yadav (2017) demonstrated a positive correlation between economic growth and stock market volatility, thereby highlighting upon the healthy impact it has on the aforementioned. Suvanam & Trivedi (2017) investigated the impact of structured equity products on stock market using variables such as volatility and demand-supply. Suvanam & Trivedi (2017) concluded that its existence contributes towards creating an efficient market. Reddy & Narayan (2017) investigated the impact of systematic and un-systematic risk on stock market returns. Reddy & Narayan (2017) analysed the impact using macro-economic factors such as inflation and volatility. Masoud (2015) attempted to accentuate upon causal relationship between stock market and economic development and discovered it to be true. Srivastava & Ugrasen (2017) advocated the usage of stock market performance as a parameter to measure economic growth.

Divya V & Sharon (2017) emphasis upon the aftermath the demonetization process on the stock prices of IT companies from the Indian stock exchange. Divya V & Sharon (2017) deployed time series analysis to establish relationship between index and share prices of individual IT companies. Paramati & Gupta (2011) aimed at investigating the correlation between stock market growth and economic growth of the country through causality testing, thereby, proving a bidirectional association

between the variables. Bhowmik (2013) argues that stock market volatility has a negative nexus with the growth rate. Bhowmik (2013) suggested that the aforementioned variables have a causal relationship as volatility brings economic crisis.

Correlation between Indian Stock Market & Global Indices

Mukherjee (2007) emphasised upon the collation between the Indian stock markets with the other global exchanges to establish reactional impersonation among them. Joshi (2010) explored the dynamics of co-movement of stock markets across the globe with an intention to analyse the pace at which the market coefficient adjust through the Johansen and Juselius multivariate cointegration approach.

Stock Price Forecasting & IT

Thomas (2014) highlighted the implication of technical analysis in India. Stock market and argues upon the edge it offers in comparison to fundamental analysis. Srivastava & Ugrasen (2017) proposed the inculcation of advanced IT solutions in stock market operations to attract investors and traders. Rajput & Bobde (2016) examined the contribution of sentiments and emotions towards forecasting stock prices. Rajput & Bobde (2016) deployed sentimental analysis techniques to conclude that stock prediction is a highly complex activity and involves behavioural variables.

Algorithmic Trading

Lakshmi & Shailaja (2017) argued that under algorithmic trading (AT), high frequency trading is being conducted to the highest degree,

globally. Lakshmi & Shailaja (2017) also concluded that AT is still in its evolutionary stage in India and found no empirical evidence that AT hurts the stock market in any possible way. Agarwal & Thomas (2014) aimed at establishing a relationship between market quality and algorithmic trading through regression model. Agarwal & Thomas (2014) discovered that lower liquidity costs is associated with stocks that are traded algorithmically, thereby bringing down the liquidity risk as well. Hendershott (2009) scrutinized the role of Algo trading in price discovery and inferred that AT contributes immensely in balancing demand supply thereby leading toward price efficiency in stock markets.

The aforementioned literatures show that rigorous theoretical work has been conducted in this field, however, the implementation has not been that good so-far. Even after countless advantages over manual trading, algorithmic trading still remains in the hands of few. Even today, retail investor across the globe have not adopted algo trading as their go-to option. This stems out from the fact that since this field of study is relatively new, a lot is yet to be discovered. There are a lot of grey areas which create a lot of perplexity for retail traders. Lack of specialized financial knowledge is yet another prominent reason that puts the marginal traders on a backfoot. Algo trading is a precise business and requires utmost dedication and skill, which most of the traders fail to show. In addition to this, Algo trading requires traders to take

calculated risks which may be beyond the risk appetite of an average trader. This research study has been conducted with an objective to develop a potent solution to the aforementioned problems by coming up with a scientifically backed Algo trading system that understands the financial goals of the trader, considers his/her risk capacity, is simple to comprehend, is cost effective and offers accurate results coupled with reduced complexity and accurate decision making reinforced with tangible statistical proof. In addition to the aforementioned, this field of study promises a vast scope of further research such as, the impact of this study can be enhanced by applying it on specific sectors or on individual stocks to highlight peculiar stock behavior. Also, a similar kind of cross segment study can be conducted for Forex and Commodity market. Finally, technical analysis talks about over 30 original indicators. A segmented study can be conducted using other indicators.

RESEARCH METHODOLOGY

Problem Statement

1. Lack of dedicated financial knowledge coupled with a plethora of options in equity investment avenues causes a lot of confusion in selection of a financially fit ATS.
2. Absence of tangible statistical evidence that can assist the trader in informed decision making.

Research Objectives

1. To help intraday traders in overcoming the mental block by narrowing down the potent and practical options suitable to his/her need.
2. Offer the traders statistical proof on the performance of the every ATS to facilitate an informed and calculated decision

Research Design

The current study is an amalgamation of Empirical and Experimental research approaches. It is because the study draws encouragement from the observations of the author, and these observations were then subjected to a series of back-testing to check their effectiveness.

Sample Size

The current study focuses only of Nifty-50 spot price. Nifty-50 index is the weighted average of top 50 stocks representing all major sectors, thereby, taking the effective sample size to 50 stocks, which on the face of it appears to be just one.

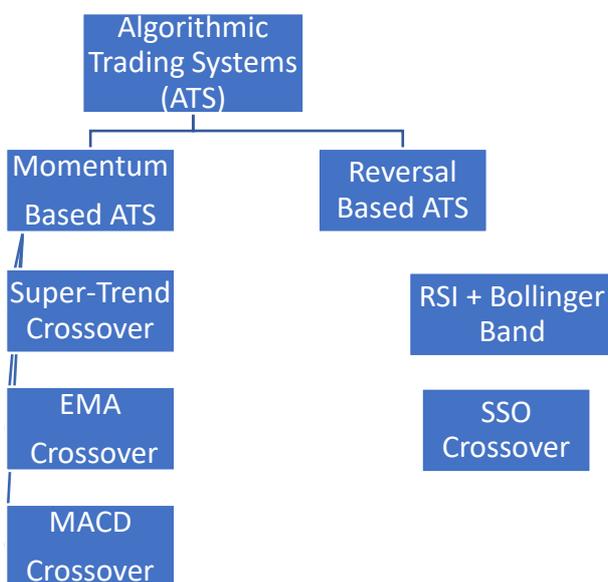
Source of Data

The data (charts, price levels, etc.) for the purpose of this project was collected from the web-based software offered by Zerodha Broking Pvt. Ltd. (nationalized broker).

ANALYSIS

Be it any trading strategy or system in the world, the basic ideology behind its operations is either momentum driven or reversal based. Momentum based strategies talk about picking up stocks that have gathered strength overtime and are not ready to take a leap. The reversal-based systems on the other hand, represent stocks that have already take a stride and have started showing signs of fatigue, thereby ready to show a marginal price correction for the then levels.

Flow-Chart – 1 (Types of ATS)

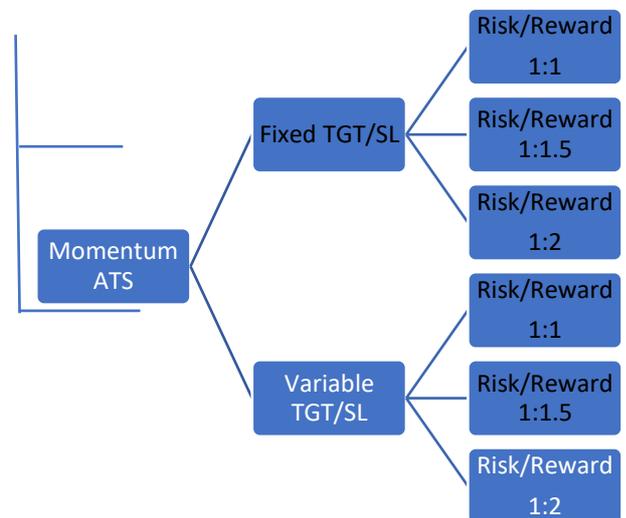


The aforementioned flow chart it can be observed that three momentum-based systems and two reversal based ATSs were back-tested over a period of 3 years. The criteria for testing

were pre-defined and the results showed that Super-Trend Crossover ATS offered the best results in the Momentum based ATS category, whereas, RSI + Bollinger Band Strategy gave the most promising results in the class of Reversal based ATS. Various combinations of these strategies were the tried to optimize the results offered by them by twerking the variables such as Risk/Reward ratio and fixed v/s trailing TGT/SL. The result of this was that the momentum ATS worked the best with a trailing TGT/SL approach and a risk/reward ratio of 1:2. The reversal ATS was the most profitable when operated on fixed TGT/SL and with a risk/reward ratio of 1:1.5 at all times.

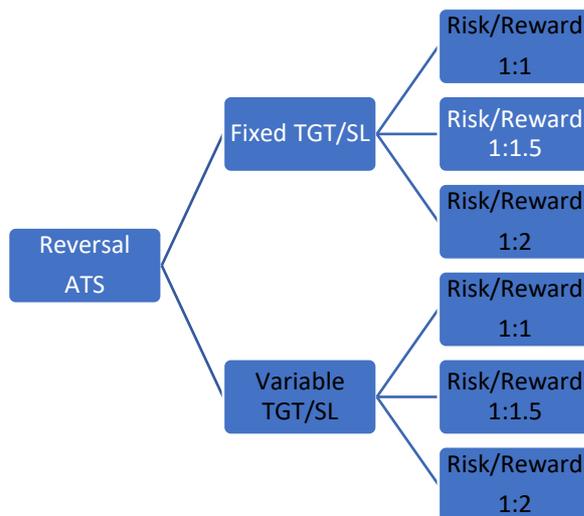
Flow-Chart – 2 (Combinations of Momentum ATS)

(Momentum ATS → Variable TGT/SL → Risk/Reward 1:2)



Flow-Chart – 2 (Combinations of Reversal ATS)

(Reversal ATS → Fixed TGT/SL → Risk/Reward 1:1.5)



moving averages. Trade identification and execution was done on a simple logic of crossover i.e. whenever prices showed positive break above the super-trend line, a “BUY” call was generated and whenever there was a break below the super-trend line a “SELL” call was generated. The idea seems simple but has proven to be effective, which is quite evident from the following short term and well as medium to long term result summary.

Momentum ATS Specifications

This trading system incorporates Super-Trend 14/2 indicator which owes its existence to

Table – 1 (Short Term Result of Momentum ATS)

Strategy Type	Momentum Trading (Intraday)
Indicator(s) Used	Super-Trend (14-2)
Time Period	Feb, 2019 – Mar, 2019
Trade Time Interval	5 Min
Chart Type	Candlestick Chart
Target Type	Variable
Target Points	20 pts. (min)
Stop Loss Type	Trailing
Stop Loss Points (Initial)	10 pts.
Stop Loss Points (Trailing)	10 pts.
Risk/Reward Ratio	1:2
Total Trades	92
Positive Trades	45
Negative Trades	47
Positive Trade %	48.91%
Negative Trades %	51.09%
Maximum Profit	72 pts.
Maximum Loss	(-10) pts.
Average Profit	27 pts.
Average Loss	(-10) pts.

Table – 2 (Long Term Result of Momentum ATS)

Strategy Type	Momentum Trading (Intraday)
Indicator(s) Used	Super-Trend (14-2)
Time Period	April, 2016 – Mar, 2019
Trade Time Interval	5 Min

Chart Type	Candlestick Chart
Target Type	Variable
Target Points	20 pts. (min)
Stop Loss Type	Trailing
Stop Loss Points (Initial)	10 pts.
Stop Loss Points (Trailing)	10 pts.
Risk/Reward Ratio	1:2
Total Trades	1522
Positive Trades	810
Negative Trades	712
Positive Trade %	53.22%
Negative Trades %	46.78%
Maximum Profit	106 pts.
Maximum Loss	(-10) pts.
Average Profit	20.75 pts.
Average Loss	(-10) pts.

From the aforementioned summary, it can be observed that this ATS is not for the faint hearted. It offers a below satisfactory level of accuracy of merely 49% on short term basis and shows a slight improvement on medium to long term basis by providing 53% positive results. Also, the number of trades generated on these criteria is too much. However, all is not lost as this trading system houses the capacity to generate overwhelming returns owing to the fact that it operates on a trailing TGT/SL theory. There is no limit to the amount of profit that one may generate out of this ATS. Thus, the only mantra to make money out of this strategy is to cut the losses quickly and hold on to the winning trades for as long as possible. Only the traders who have a capacity to digest loss and patiently wait for the winning opportunity must try it out.

The trades details have been attached in Annexure-1.

Reversal ATS Specifications

This ATS functions on two indicators, namely RSI and Bollinger Bands. The objective of this system is to try and capture levels once the prices have risen or fallen heavily and from where a possible bounce back may be expected. The system generates a “BUY” call once the RSI reaches a level less or equal to 30 and the current 5-min candle closes below the lower Bollinger band. A “SELL” trade is initiated when RSI peaks above 75 and the current 5-min candle offers a close above the upper Bollinger band. The short term as well as the medium to long term results are as follows: -

Table – 3 (Short Term Result of Reversal ATS)

Strategy Type	Reversal Trading (Intraday)
Indicator(s) Used	RSI + Bollinger Bands
Time Period	Feb, 2019 – Mar, 2019
Trade Time Interval	5 Min
Chart Type	Candlestick Chart
Target Type	Fixed
Target Points	20 pts. (min)
Stop Loss Type	Trailing
Stop Loss Points (Initial)	10 pts.
Stop Loss Points (Trailing)	10 pts.
Risk/Reward Ratio	1:1.5
Total Trades	52
Positive Trades	37
Negative Trades	15
Positive Trade %	71.15%
Negative Trades %	28.85%
Maximum Profit	15 pts.
Maximum Loss	(-10) pts.
Average Profit	15 pts.
Average Loss	(-10) pts.

Table – 4 (Long Term Result of Reversal ATS)

Strategy Type	Reversal Trading (Intraday)
Indicator(s) Used	RSI + Bollinger Bands
Time Period	Apr, 2016 – Mar, 2019
Trade Time Interval	5 Min
Chart Type	Candlestick Chart
Target Type	Fixed
Target Points	20 pts. (min)
Stop Loss Type	Trailing
Stop Loss Points (Initial)	10 pts.
Stop Loss Points (Trailing)	10 pts.
Risk/Reward Ratio	1:1.5
Total Trades	963
Positive Trades	655
Negative Trades	308
Positive Trade %	68.02%
Negative Trades %	31.98%
Maximum Profit	15 pts.
Maximum Loss	(-10) pts.
Average Profit	15 pts.
Average Loss	(-10) pts.

From the aforementioned results it can be inferred that this ATs is for traders who are looking for a low-risk low-reward setup. This system offers an excellent accuracy of over 71% in shorter time and manages to hold it down to 68% even on medium to long term basis. As this strategy operates on fixed TGT/SL, no major drawdown is expected in a single day. The number of trades required to achieve the expected goal is also within controlling limits, thereby, the cost of brokerage and taxes will not be exorbitant. One has to live by the code of honoring the TGT and SL as and when they appear as no exceptions can be made if one wants to succeed through this route. The trades details have been attached in Annexure-2.

FINDINGS & CONCLUSION

Algorithmic Trading System have become a necessity in the intraday trading world. National level brokerage houses, research firms, wealth management firms etc. have been in a constant pursuit of developing ATs that may cater to the financial needs of one ad all. Unknowingly they have increased the complexity by bring in too many options to choose from. The current research shows that most of the commonly used ATs (not including proprietary tools) can be categorized into two major classes, namely Momentum based and Reversal based. Further, depending upon the financial desires of the individual an appropriate ATs can be selected

on the basis of risk appetite the individual can cope with. Through the result of this experimental research, it can be concluded that any individual who is looking for reliable and steady returns must opt for a Reversal ATs, whereas, a risk taker who has the capacity to experience the ups and downs must definitely choose the Momentum ATs, thereby boosting the chances of overwhelming profits exponentially.

LIMITATIONS OF STUDY

1. The study was conducted only on Nifty-50 index futures and not on individual stocks. Thus, universal application of the aforementioned concept has not be established.
2. Even though the concept of technical analysis is universal, the present study takes into consideration only the Indian Equity markets.
3. The study talks about 2-3 indicators, which may impact the effectiveness of the study to some extent.
4. The study has been carried out over a span on 3 years. Thus, the data used may not represent all phases of the stock market.

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ANNEXURES

ANNEXURE – 1

March, 2019						
DATE	TRADE TYPE	ENTRY TIME	ENTRY PRICE	EXIT TIME	EXIT PRICE	PROFIT / LOSS
02/04/19	Buy	3:05:00 PM	11698	3:20:00 PM	11720	22
02/04/19	Sell	2:15:00 PM	11676	2:30:00 PM	11686	-10
02/04/19	Sell	12:55:00 PM	11689	1:15:00 PM	11700	-11
01/04/19	Sell	2:45:00 PM	11715	3:20:00 PM	11670	45
01/04/19	Buy	11:45:00 AM	11700	2:45:00 PM	11728	28
29/03/19	Buy	2:30:00 PM	11618	2:45:00 PM	11608	-10
29/03/19	Buy	12:50:00 AM	11597	2:00:00 PM	11587	-10
29/03/19	Sell	9:40:00 AM	11582	10:00:00 AM	11592	-10
27/03/19	Buy	2:35:00 PM	11480	2:45:00 PM	11470	-10
27/03/19	Sell	1:40:00 PM	11500	1:50:00 PM	11480	20
27/03/19	Buy	12:25:00 PM	11540	12:30:00 PM	11530	-10
27/03/19	Sell	11:30:00 AM	11525	11:45:00 AM	11515	10
26/03/19	Buy	1:20:00 PM	11390	2:50:00 PM	11462	72
26/03/19	Sell	10:50:00 AM	11373	11:10:00 AM	11383	-10
25/03/19	Buy	2:55:00 AM	11336	3:15:00 PM	11354	18
22/03/19	Sell	1:50:00 PM	11506	2:25:00 PM	11456	50
22/03/19	Buy	1:00:00 PM	11510	1:50:00 PM	11500	-10
22/03/19	Sell	11:45:00 AM	11510	11:50:00 AM	11500	-10
22/03/19	Sell	10:30:00 AM	11543	10:45:00 AM	11507	36
20/03/19	Buy	12:55:00 PM	11525	1:45:00 AM	11515	-10
20/03/19	Sell	12:05:00 PM	11530	12:30:00 PM	11513	17
20/03/19	Sell	9:35:00 AM	11515	9:40:00 PM	11505	-10
19/03/19	Buy	1:30:00 PM	11482	2:05:00 PM	11502	20
19/03/19	Sell	12:35:00 PM	11470	12:40:00 PM	11480	-10
18/03/19	Sell	2:15:00 PM	11428	2:35:00 PM	11440	-12
18/03/19	Sell	10:25:00 AM	11490	10:50:00 AM	11452	38
15/03/19	Buy	12:05:00 PM	11420	2:25:00 PM	11471	51
15/03/19	Sell	11:50:00 AM	11404	12:05:00 PM	11415	-11
13/03/19	Sell	1:15:00 PM	11315	2:00:00 PM	11339	24
13/03/19	Sell	12:30:00 PM	11303	12:45:00 PM	11313	-10
13/03/19	Buy	11:40:00 AM	11319	12:05:00 PM	11309	-10
13/03/19	Buy	9:35:00 AM	11319	9:50:00 AM	11332	13
12/03/19	Buy	2:25:00 PM	11290	2:50:00 PM	11301	11
12/03/19	Sell	11:55:00 AM	11277	1:15:00 PM	11287	-10
11/03/19	Buy	2:25:00 PM	11160	3:20:00 PM	11174	14
08/03/19	Buy	2:15:00 PM	11027	3:20:00 PM	11038	11
08/03/19	Sell	12:00:00 PM	11032	12:15:00 PM	11042	-10
08/03/19	Buy	11:25:00 AM	11038	12:05:00 PM	11028	-10
07/03/19	Buy	1:35:00 PM	11050	1:50:00 PM	11064	14
07/03/19	Sell	12:20:00 PM	11044	1:40:00 PM	11034	10
07/03/19	Sell	11:05:00 AM	11050	1:40:00 PM	11060	-10
05/03/19	Buy	10:20:00 AM	10867	1:40:00 PM	10922	55
01/03/19	Buy	2:00:00 PM	10836	2:55:00 PM	10854	18
01/03/19	Buy	1:10:00 PM	10836	1:40:00 PM	10826	-10
01/03/19	Sell	11:05:00 AM	10838	11:25:00 PM	10848	-10

ANNEXURE – 2

February - March, 2019						
DATE	TRADE TYPE	ENTRY TIME	ENTRY PRICE	EXIT TIME	EXIT PRICE	PROFIT / LOSS
01/04/19	Sell	10:15:00 AM	11709	10:35:00 AM	11692	17
01/04/19	Sell	9:25:00 AM	11698	9:35:00 AM	11682	16
29/03/19	Sell	9:20:00 AM	11619	9:35:00 AM	11602	17
27/03/19	Buy	1:50:00 PM	11438	1:55:00 PM	11425	-13
27/03/19	Sell	9:20:00 AM	11536	9:40:00 AM	11517	19
26/03/19	Sell	2:45:00 PM	11468	2:55:00 PM	11480	-12
26/03/19	Sell	9:50:00 AM	11400	10:00:00 AM	11385	15
25/03/19	Buy	2:30:00 PM	11312	2:40:00 PM	11331	19
25/03/19	Buy	9:20:00 AM	11355	9:30:00 AM	11370	15
22/03/19	Buy	2:10:00 PM	11478	2:15:00 PM	11465	-13
20/03/19	Buy	12:30:00 PM	11507	12:50:00 PM	11525	18
20/03/19	Sell	9:20:00 AM	11530	9:35:00 AM	11515	15
19/03/19	Sell	1:55:00 PM	11498	2:05:00 PM	11510	-12
15/03/19	Sell	2:30:00 PM	11477	2:40:00 PM	11463	14
15/03/19	Sell	9:20:00 AM	11403	9:40:00 AM	11415	-12
14/03/19	Sell	2:30:00 PM	11448	2:40:00 PM	11430	18
13/03/19	Sell	9:55:00 AM	11412	10:05:00 AM	11395	17
3/12/2019	Sell	3:05:00 PM	11400	3:20:00 PM	11385	15
12/03/19	Sell	9:20:00 AM	11318	9:40:00 AM	11330	-12
11/03/19	Sell	1:40:00 PM	11250	1:50:00 PM	11232	18
11/03/19	Sell	9:20:00 AM	11177	9:35:00 AM	11188	-11
08/03/19	Sell	11:30:00 AM	11122	12:40:00 PM	11108	14
07/03/19	Sell	2:35:00 PM	11172	2:55:00 PM	11155	17
03/03/19	Sell	2:45:00 PM	11065	3:05:00 PM	11076	-11
01/03/19	Sell	3:05:00 PM	10874	3:20:00 PM	10860	14
28/02/19	Sell	2:10:00 PM	10842	2:20:00 PM	10825	17
28/02/19	Sell	9:20:00 AM	10845	9:30:00 AM	10827	18
27/02/19	Buy	12:05:00 PM	10784	12:10:00 PM	10773	-11
27/02/19	Sell	11:00:00 AM	10935	11:20:00 AM	10918	17
26/02/19	Sell	2:40:00 PM	10877	2:55:00 PM	10860	17
26/02/19	Buy	10:05:00 AM	10735	10:15:00 AM	10750	15
25/02/19	Sell	3:10:00 PM	10878	3:15:00 PM	10888	-10
25/02/19	Sell	9:20:00 AM	10823	9:30:00 AM	10807	16
21/02/19	Sell	2:25:00 PM	10804	2:40:00 PM	10788	16
21/02/19	Sell	11:40:00 AM	10775	12:20:00 PM	10760	15
20/02/19	Buy	2:15:00 PM	10648	2:20:00 PM	10662	14
19/02/19	Buy	2:45:00 PM	10620	2:55:00 PM	10635	15
19/02/19	Sell	1:10:00 PM	10720	1:35:00 PM	10705	15
15/02/19	Sell	1:40:00 PM	10665	1:50:00 PM	10675	-10
15/02/19	Buy	11:05:00 AM	10650	11:40:00 AM	10668	18
14/02/19	Sell	2:10:00 PM	10776	2:25:00 PM	10760	16
14/02/19	Buy	9:25:00 AM	10759	9:35:00 AM	10775	16
13/02/19	Buy	1:45:00 PM	10836	1:50:00 PM	10825	-11
12/02/19	Buy	2:55:00 PM	10829	3:05:00 PM	10842	13
11/02/19	Buy	9:20:00 AM	10900	9:25:00 AM	10888	-12
08/02/19	Buy	1:05:00 PM	10955	1:15:00 PM	10971	16
07/02/19	Buy	12:50:00 PM	11045	12:55:00 PM	11058	13
07/02/19	Sell	9:30:00 AM	11100	9:50:00 AM	11085	15
06/02/19	Sell	9:25:00 AM	11010	10:15:00 AM	10993	17
04/02/19	Sell	2:45:00 PM	10910	2:50:00 AM	10920	-10
04/02/19	Buy	1:05:00 PM	10821	1:15:00 PM	10835	14
01/02/19	Sell	12:35:00 PM	10940	12:40:00 PM	10952	-12