ASSIGNMENT 2

1) Summary

TOTAL NO. OF BUY SIGNALS	189
TOTAL NO. OF SELL SIGNALS	29
TOTAL NO. OF TRADES EXECUTED	218
TOTAL PROFIT OR LOSS BY ALGO	15234750
TOTAL PROFIT OR LOSS BY MARKET	4772850
TOTAL PERCENTAGE RETURNS BY ALGO	10.65%
TOTAL PERCENTAGE RETURNS BY MARKET	3.23%
WIN/LOSS RATIO FOR ENTIRE TESTING PERIOD	11.11
WIN/LOSS RATIO FOR DAY 25	11.67
WIN/LOSS RATIO FOR DAY 26	9.75
WIN/LOSS RATIO FOR DAY 27	11
WIN/LOSS RATIO FOR DAY 28	7.5
WIN/LOSS RATIO FOR DAY 29	37

2) Cleaning the data

In dataset.csv file, from timestamp 2019/01/27 3:30:02 PM to timestamp 2019/01/28 9:14:58 AM data is unavailable. So firstly, I removed the unavailable data timestamps. And data of 65 timestamps of trading time period is also missing. So, I used the ffill to fill the missing data.

3) Calculating RSI

RSI was calculated as the calculation given in below link with 14 periods.
https://bit.ly/2QqqlXD

4) Calculating Simple Moving Averages

Then, SMA with window of 7 periods and 14 periods, of RSI was calculated.
And the two SMAs were combinedly used with RSI to give trading Signals.

5) Strategy

Opening long position:
1. If SMA[7][i] > SMA[14][i] and SMA[14][i-1] > SMA[7][i-1] and RSI[i]<40:
   (logic here is Moving Average Crossovers and to prevent opening positions during sideways trend, I used RSI.)

   Also, Short Position is Closed, if it was opened due to signal reversal.

Opening Short Position:

1. If SMA[14][i]>SMA[7][i] and SMA[7][i-1]>SMA[14][i-1] and RSI[i]>80:
   (same logic as long position, here only difference is I take high RSI value, because volatility for taking short position is much high, so in order to neglect larger range of sideways market I used high RSI.
   One more reason can be, it is only 5 days data and maybe recently, institutional traders injects liquidity or maybe because of any favourable news increases its prices. Therefore, actually the prices of the instrument are upward trending with lots of fake short signals.)

   Here, I will not close my open long trade. Because here I used high RSI value to neglect false short signals.

Closing Short Position (If short position is opened):

1. Check stop loss, if price moved 5% up than minimum, then position is closed.
2. Signal Reversal, if long position opened, then it will automatically close short position as mentioned above.

Closing Long Position (If long position is opened):

1. Check stop loss, if price moved 5% less than maximum, then position is closed.
2. Signal Reversal, if SMA[14][i]>SMA[7][i] and SMA[7][i-1]>SMA[14][i-1] and RSI[i]>60 (!=80), then long position is closed. (since RSI[i]>60 is covers maximum of false signals during sideways trends)

Closing the Open Position at the day end:

1. At 15:30, if any position is opened then it will be closed

Opening the Same Open Position at the day start:

1. If, the position on previous day closed due to day end, then I again reopened the previous position at the start of the day. Since the position might be profitable with high chances.

Note:- I used the complete lot of 50 instruments in each trade. Since, a simple strategy giving this much nice results. So, I didn't want to complicate it.