

PATTERN AND INDICATOR MASTERY

INDICATORS USED:

ASCENDING TRIANGLE and DESCENDING TRIANGLE
RELATIVE STRENGTH INDEX

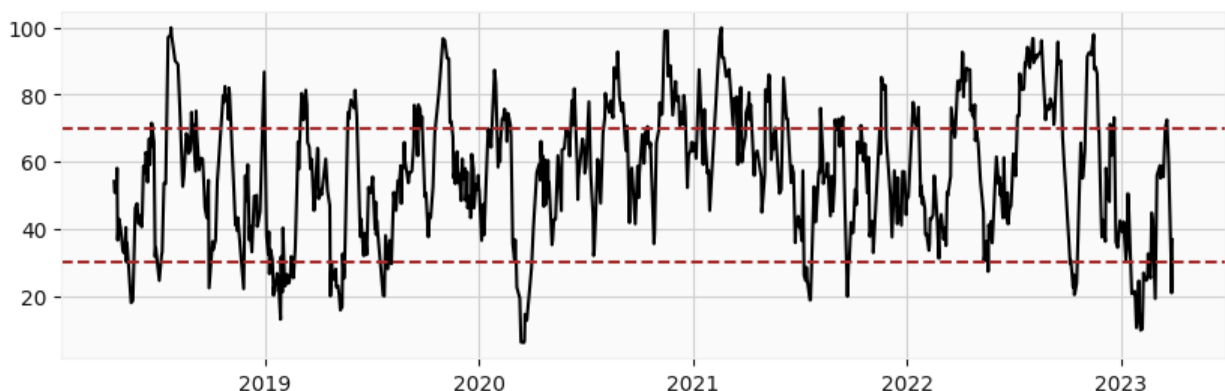
STOCK: ADANI ENTERPRISES LIMITED.

LIBRARIES AND DOWNLOAD OF DATA

First, I imported the essential libraries that I later used in my code. The libraries are numpy, pandas, matplotlib, yfinance and mplfinance. Then, I downloaded the data of the stock from the timeframe 2018-04-01 to 2023-03-31 using yf.download. Then, I plotted the candlestick pattern for the stock for last 100 days as an example.

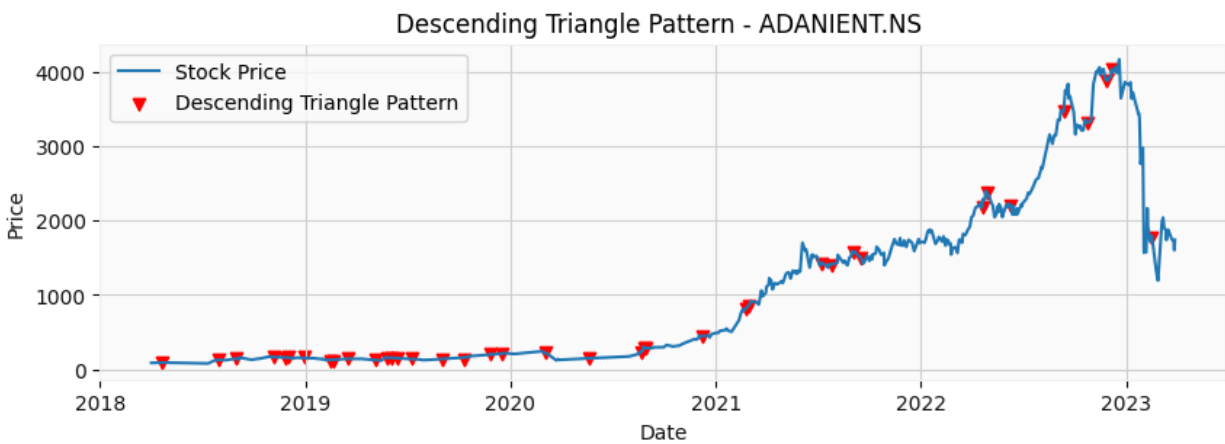
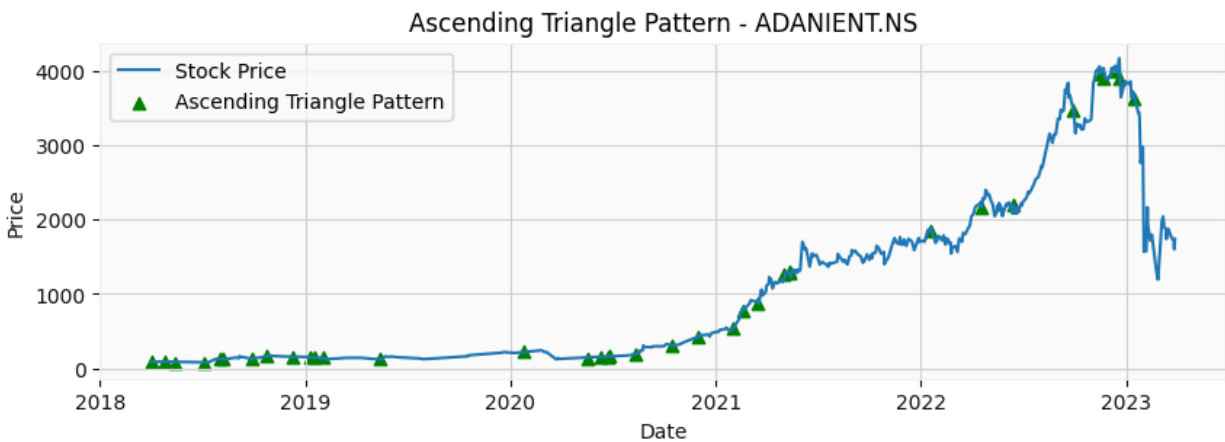
CODING INDICATORS

First, I calculated RSI values for each index of the dataframe. I did so by first calculating average gain/average loss. The plot for RSI values is given below.



Then, I found the points which showed the nature of ascending triangles and descending triangles respectively. This was done by calculating resistance and support line for both the cases respectively.

The plots showing the points of ascending and descending triangles are given below.



SIGNAL GENERATION AND BACKTESTING

The conditions I used while generating buy/sell signals in case of analyzing candlestick patterns, relative strength index and in case of combined is as follows:

1. In case of candlestick patterns, we sell the stock on ascending triangles, and buy it on descending triangles.
2. In case of relative strength index, we sell when rsi value is greater than 70, and buy when rsi value is less than 30.
3. In the case of combined strategy, we sell when both the strategies individually give sell, and buy when both the strategies individually give buy. Hence, we buy when the point shows features of the ascending triangle, and the rsi value is less than 30. On the other hand, we sell when the point shows features of descending triangle, and the rsi value is greater than 70.

RETURNS

STRATEGY	RETURNS
Ascending triangles/ Descending triangles	163.50 %
Relative strength index	10.98 %
Combined trading strategy	77.95 %

NOTE

One thing worth mentioning is that while generating signals, I ensured the fact that once a 'BUY' or 'SELL' signal is generated, the loop would ignore all the signals of the same type until a signal of the opposite type is generated. This thing reduces the number of signals drastically. To solve this problem, one alternate method that can be used is the 70% method. In this method, we would use only 70% of the total money present with us at each action. In this way, after one BUY signal, we can still buy the stocks with 70% of the remaining amount, and hence maybe increase our returns.