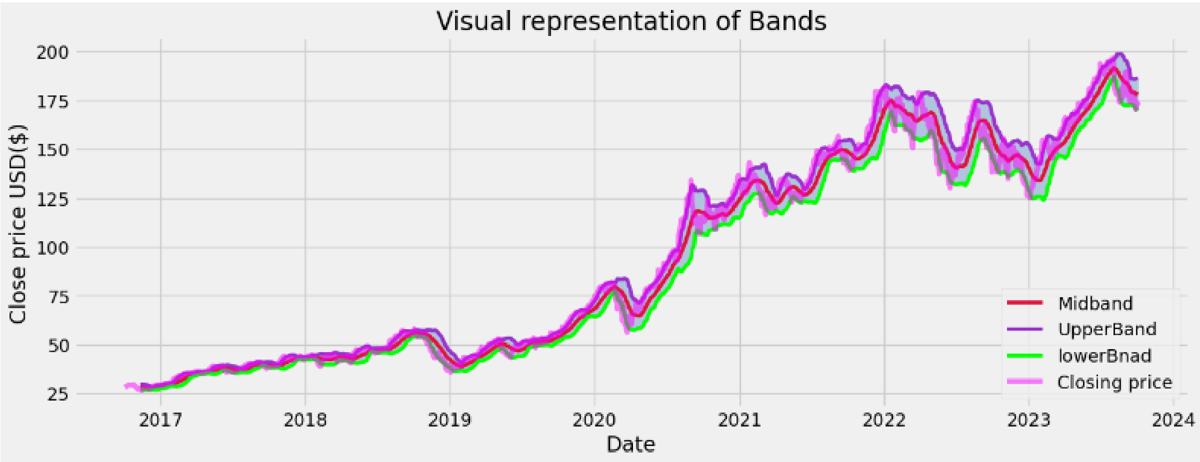
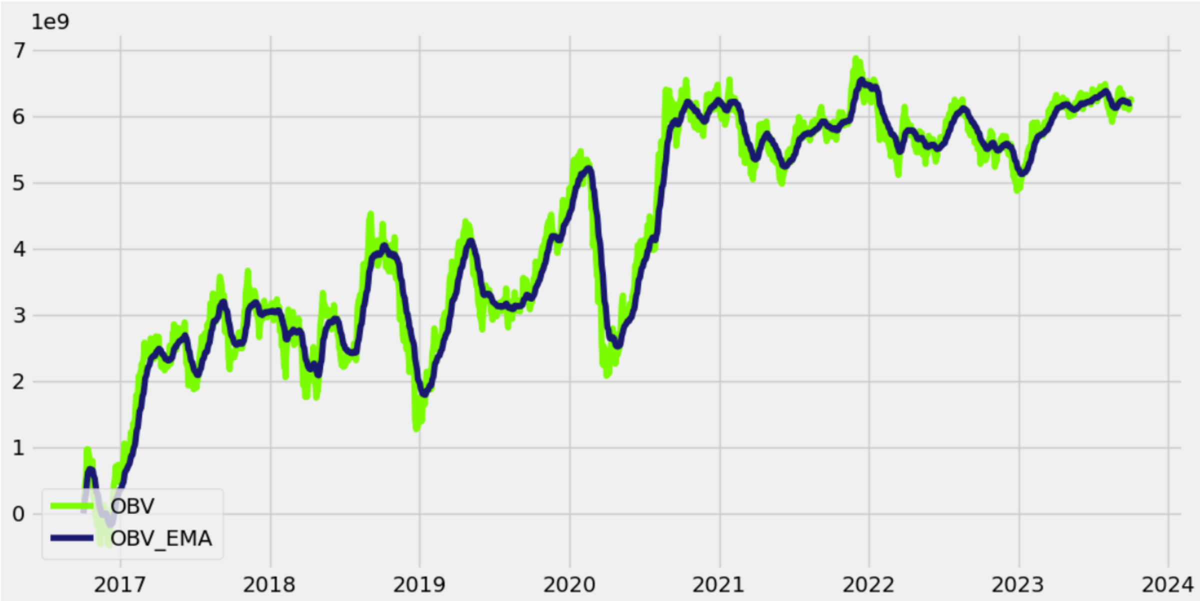
So, Here is the Idea for my strategy.

1) Firstly take 7 year historical data of Apple with a tick interval of 1d.
2) Secondly we will take an indicator known as Bollinger bands which is based on volatility.
    - For this indicator we will firstly find a midband which is nothing but 30 day Simple moving average of Close Price.
    - Then we find the moving standard deviation (in this strategy it is for 30 days.)
    - Then we will define two bands. (Upper and lower band)
    - ***Upper Band*= This is calculated when we add some number of std in the midband. (in my idea I added 1.5 times of std into midband)**
    - **Lower Band= This is calculated when we subtract some number of std from the midband.**
      (in my idea I subtracted 1.5 times of std from midband)
    - Overbought and Oversold condition- It usually help traders to identify the Overbought condition when the price is trading above the upper band and a Oversold condition when the price is trading below the lower band.



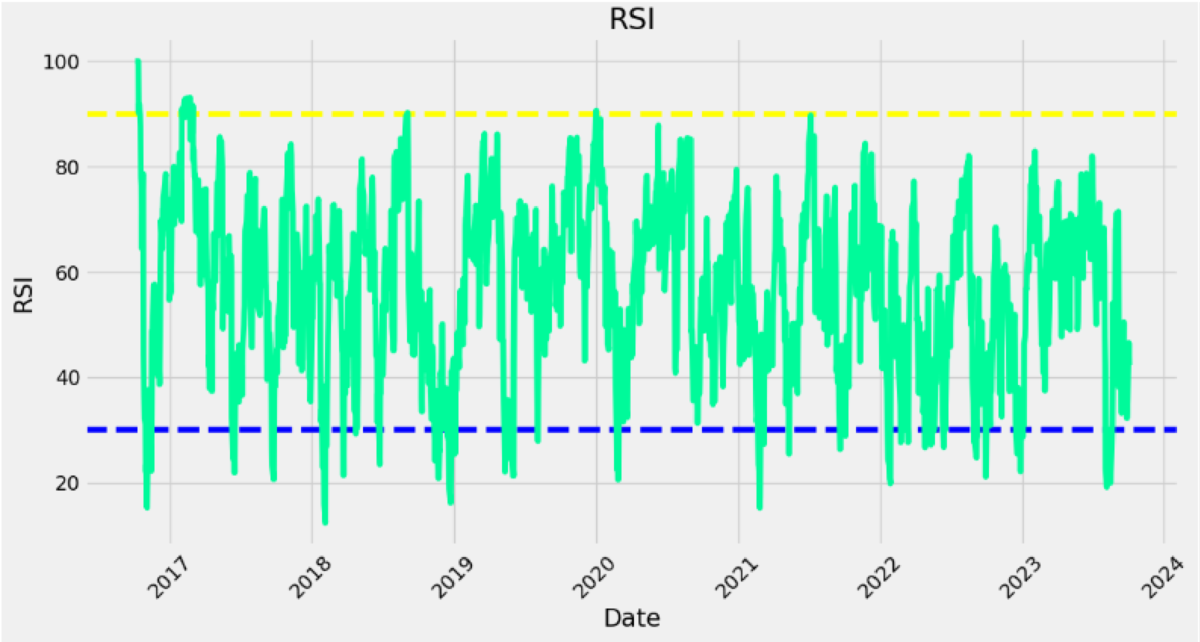
So, here we can see a clear picture of Bands and the positions where close price moves below the lower band and above the upper band.

3) Here we will use an OBV indicator which is based on Volume.
    - It help traders to identify the divergence between Volume and price.
    - Here we add the trading volume in the previous OBV when the price closes higher than the previous day and subtract it if the price closes lower than the previous day and if the closing price is unchanged , the OBV remains same.
    - Rising OBV suggests an uptrend, while falling OBV indicates downtrend.
    - Now, we find OBV exponential moving average of 20 days.
    - A buy signal can occur when the OBV crosses above its EMA. This crossover can be confirmation of bullish momentum.
    - A sell signal can occur when the OBV crosses below its EMA .This crossover can be a confirmation of bearish momentum.



So, here is how OBV and its EMA look like.

4) So, now we used RSI indicator which is based on momentum.
   - Firstly we find the pct change in close price for each day..
   - If a daily price change is positive then it will be a gain otherwise it will be a loss.
   - Calculate the avg_gain and avg_loss by taking the mean of exponential moving average over 16 day period of gain and loss respectively.
   - Now calculate Relative strength(RS) by using the formula RS= avg_gain/avg_loss.
   - Use the formula RSI(Relative Strength index)=(100-(100/(1+RS)))
   - Take the upper threshold as 90 and Lower as 30**.**
   - **Buy and sell conditions:-** When the RSI moves below the upper threshold, it indicates overbought condition. And if it moves above the lower threshold, it indicates an oversold condition.

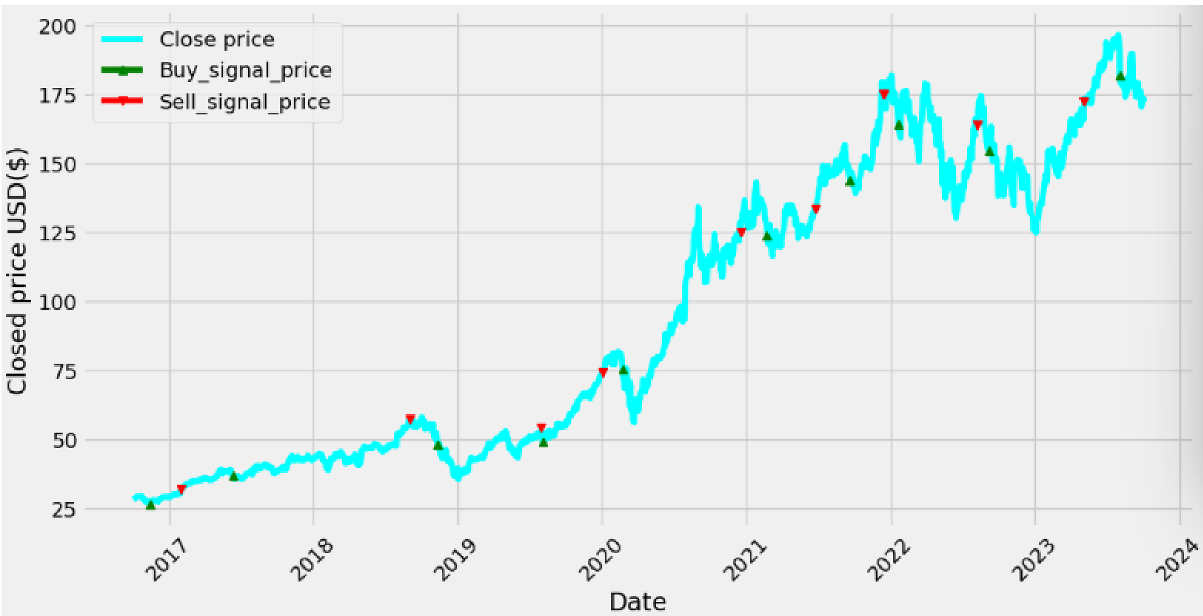


Above figure represents the RSI and the thresholds (90 and 30).

5) Now we will define a function for finding profits, buy , sell conditions, portfolio values and position.

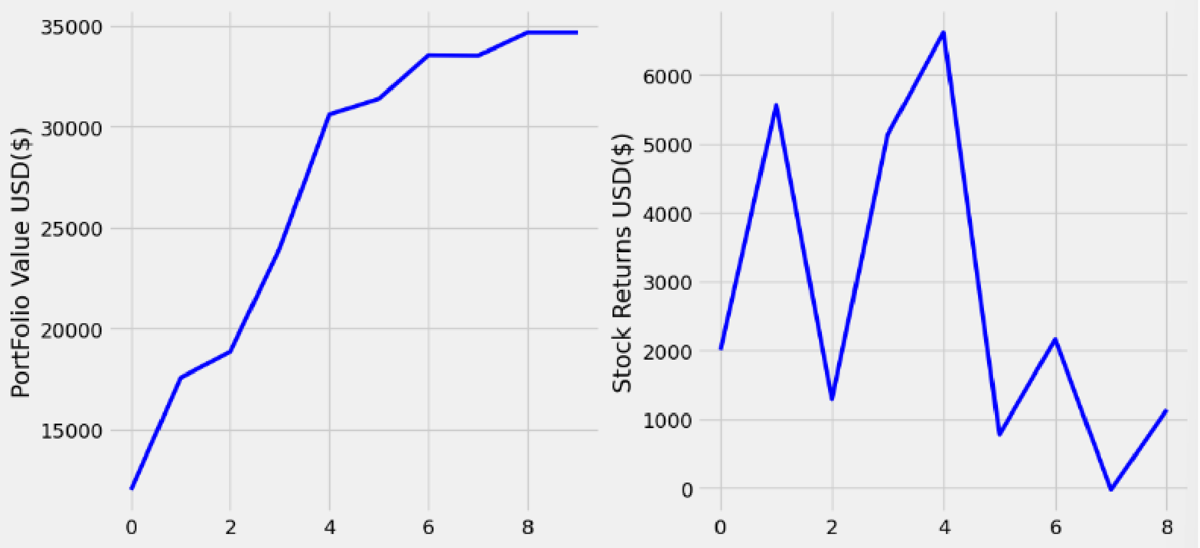
   (NOTE: Take initial portfolio value as 10000 and at the buying position we are buying all the shares such that they costs 10000 selling the same number of shares at selling position.)

6) Here , When two of the three indicators agree for Oversold condition and position is closed then we will buy the stock at the open price of next day and when two or three agree for Overbought condition and the position is open then we will sell the stock at the open price of next day. When no one agree or one agrees then we will remain in the same position.



Above is the graph indicating buying(Green) points and selling(red) points over the 7 years.

7) (a) (b)



Above graphs represents:

a) How portfolio value varies as the trades are happening.
b) How stock returns are varying as the trades are happening.

8)Trade Summary:-

1) The Net strategy return in 7 years is `24679.16488732528 USD($)`
2) The Annualised return is `19.44078843289292 %`
3) The Sharpe Ratio of the strategy is `1.1449190521549675`
4) The benchmark return is `7985.817944469425 USD($)`
5) The number of executed trades are 9.
6) The maximum drawdown is `-24.32756969582988.`
7) Win loss Ratio is 8.
8) The Loss making trades are :

    -24.327569695833517 ($)

9) The largest loss making trades is `-24.327569695833517`
10) The Profit making trades are (USD($)):

```
2009.008513035511
5560.614283412402
1293.6383997533503
5136.77334786744
6616.712619644215
779.7350807457606
2166.331516795588
1140.6786957668446
```

11) The largest profit making trade is: `6616.712619644215 ($)`

- **How can I further develop my strategy:-**

  a) I can include more technical indicators of different dataset than these three indicators so, that strategy get more optimized.

  b) Make a strategy in which we buy or sell the stock when all the three indicators agree or take the weighted sum of the indicators (giving more weight to that indicator which is giving more winning rates in the past) for the buying and selling the shares.

  c) Determine how much capital to allocate to each trade, where to place stop-loss orders.

  d) Testing the strategy using historical data to assess its performance in different market conditions to check the drawbacks of strategy.

  e) I can optimize the strategy by checking the returns for different variables(Thresholds ,moving average periods) after every interval in some range .(like taking 5,10,15,20,------50) and take the maximum returns for our strategy.

- **What insights I have gained :-**

  1) Different assets and different market conditions requires different strategies for analysis as they have different types of price movements in their past.
  2) There is no strategy which is always profitable, there is always a risk involved with it which we have to take into account.
  3) Knowledge about many technical indicators and their respective conditions of Oversold and Overbought and which indicator is suitable for your strategy.
  4) By Using technical indicators with distinct dataset we can increase our winning rate as when we use different dataset for buying/selling stocks then there will be less risk as compares to see only a single dataset for buying/selling.
  5) We have to adjust the variables/values like the thresholds and periods that we are using in the technical indicators according to our strategy.
  6) We have to be clear in live trading that the price movements may get change as compared to past , so we should not rely on a single strategy we have to make continuous changes in our strategy.