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INVESTX
ASSIGNMENT-1

The parameters I used in my Python Code are:

- hp : Highest prices of the selected stock of each day
- lp : Lowest prices of the selected stock of each day
- cp : Closing prices of the selected stock of each day
- v : daily volumes
- l : total number of data points in our stock

Momentum Indicator: RoC

Rate of Change (RoC) is the percentage change in the the closing points of the stock with reference to the day we have started observing. So the formula for the datapoints is easily understood.

Volume Indicator: Negative Volume Index

>NVIs : array to collect data points of the Negative Volume Index

This indicator works a bit differently. It changes only when the volume of that particular day is less than the volume of the previous day and remains constant otherwise. The formula to calculate NVIs can be directly understood by the observing the formula written in my python code. The changes in NVI is the multiplication of the relative change in the closing point with reference to the previous day and the previous NVI.

Observing default values

As we decrease the EMA_len parameter, the gap between the indicator line and the Moving average decreases, thus giving a better idea to understand the actual relation between the indicator and the stock value.

Volatility Indicator: Parabolic SAR

- PSAR : array to collect the Parabolic SAR values of each day
- ep : extreme point used in the calculations of the points.
- af : acceleration factor used while calculation
- afstr : acceleration factor to be used when just the PSAR curve took a reverse turn
- afinc : increases in the acceleration factors if the previous direction is continued
- afmax : the value at which acceleration factor has to be restricted
- dir : direction of the trend either increasing or decreasing

We can consider starting values of the PSAR and the extreme point to be any close value as it is a moving indicator and will be adjusted according to its data points.

If at the time of calculation, the trend is going upwards. If lowest point of that day is less than the previous PSAR value, then trend reversal would take place. The PSAR will be allotted the extreme point value while the extreme point changes to the highest point of that day as PSAR curve now will be above the plot of the actual graph of the stock. But is the lowest point is more than the previous PSAR, current PSAR will be calculated by the formula and the extreme point will be the highest high.

If the trend is going downwards, if the highest point is more than that of the Previous PSAR, trend reversal occurs as originally every data point was below the PSAR. PSAR value will be equal to the extreme point and extreme point will be allotted the lowest point. If the highest point is less, then graph goes as usual, PSAR calculated as per the formula, extreme point allotted the lowest low and acceleration point increased.

Observing default values

The indicator starts becoming more relatable as we increase the start and increment values of the acceleration factor. As we do so, the indicator points will be framing the stock graph properly and following it the way we want. We want it follow the graph from upside when falling and downside while rising. I observed the best values at :

Start = 0.07, Increment = 0.05