1. **moving strategy**

**Description:**

Base on different use case draw two moving average line on the stock price:Short term moving average (eg: 20 days) and long term moving average(Eg: 60days)

Definition :

golden cross(when the short line cross the long term line from below) is the time to buy dead cross(when the long term line cross the short term line from top) is the time to sell

**Virtues:**

1. it is the simplest technical analysis indicator to use and works well in most cases
2. the average line can help to avoid the short-term fluctuations

**Shortcomings:**

1. react late for the short-term fluctuation and sudden change
2. may show the false result when the market doesn’t have the clear trend and the data become consolidating
3. golden/dead cross depend on the term period we choose, if the time period we choose is inappropriate, it may give the wrong cross point.
4. **Bollinger Bands**

**Description:**

Bollinger bands consist as the moving average plus a higher line representing the moving average plus a set number of standard deviations from average price and a lower line that is the moving average minus the same number of standard deviations. (the average price used the same time period of moving average usually 20days).

The hypothesis: the price of the stock is not likely to cross the Bollinger bands.

So, the strategy we use normally is that we sell when the stock price cross the upper Bollinger bands and buy when it cross the lower Bollinger band.

**Virtues:**

1. it can expand or contract by the of the stock price thus can help the investor understand the fluctuation

2. the break out strategy is useful

3. work well with other indicators

**Shortcomings:**

1. even when the price breaks the bond, then it could come back to the middle that create the wrong signal.

2. it not sensitive to the strong trend the price may always in the bonds during the strong trend of increasing and decreasing.

3. it have the risk of overfitting mean that the prediction may rely on the historical data too much.

1. **Momentum Oscillators**

**Description:** It use the formula of momentum Oscillator value that using last closing price devide the closing price x days ago (x usually take 10) and multiple the result by 100: M = (V/Vx)\*100 , this create a momentum line and when the current price is above the 100 then buy and sell when the price is lower than 100

**Virtues:**

1. The Momentum Oscillator can identify the overbought and oversold situation
2. When the real price and the momentum oscillators have the obvious divergence may show the reversal in the future
3. It can help to confirm the direction and the strength of the trend.

**Shortcomings:**

1. It is too sensitive on the low volume market
2. The momentum Oscillator also have the lagging issue because the oscillator is based on the historical price
3. It may give the false signal of overbought and oversold on some market
4. **Relative strength index**

**Description:** for this indicator, is to list the up changes and the down changes in one table we calculate the RS rate by using sum(Up changes)/ sum(abs(down changes)) and compute the RSI by 100 – 100/(1+RS), When RSI is above 70, is conclude as the overbought and when the RSI is lower than 30 concluded as the oversold.

**Virtues:**

1. First the RSI is really simply and direct indicator to compute
2. As another oscillator, it also share the same advantage with momentum oscillator. And RSI is the most commonly used indicator
3. When the RSI is remain 50 or above this probabily means the trend will go on

**Shortcoming:**

1. Lagging
2. It can tell you the potential trend and reversal but it can’t really tell you the specific point to buy or sell.
3. Is not worked well on the long-term forecasting
4. **Fibonacci**

**Description：**

Base on the Fibonacci number, it create the support line that assume that the stock will remine on the certain support line and once price cross the line then the next support line will be found by Fibonacci series which are 23.6% 38.2%,  61.8% etc.

**Virtues:**

1. It can Identify the support and potential Resistance level
2. Group behavior: as more and more people believe there are some support happened on the Fibonacci line, they will have the certain bought/sold behavior which will make the support more and more reliable.

**Shortcoming:**

1. The idea of Fibonacci is kind of abstract and metaphysics, the start of the idea is base on the Fibonacci series that commonly exist in the nature. So the result of the Fibonacci may show the great mistake compare to other more rigorous TA methods
2. Level of Fibonacci can be so hard to determine
3. **Identify and plot the Swing Low/High Points**

**Description：**

A swing point is a price point from which a minor or major trend reversal happens. It is a price action term that shows turning price points on the candlestick chart. Swing points act as key levels where price may reverse.

**Virtues:**

1. The Swing point can identify the trend of the stock
2. Swing show the potential support and resistance line

**Shortcoming:**

1. Lagging: since the Swing points need to be determined by the future data. So it may not sensitive to the instant change in market
2. Not always accurate and need to combine with other TA methods
3. **Trendlines (Uptrend and Downtrend)**

**Description:**

The trendlines is usually drawn by different TA methods. In this project I will combine swing H/L, Fibonacci, RSI and MACD etc, methods to create the trendlines.