

STQA6014 PROJECT REPORT

LQ45 is an index of stock market for Indonesia Stock Exchange (IDX) that formerly known as Jakarta Stock Exchange. LQ45 is used to measure the price performance of stocks that have high liquidity and large market capitalization and are supported by good company fundamentals. There are 45 stocks in the LQ45 stock index that are selected every 6 months. The criteria to determine the LQ45 stocks list of include:

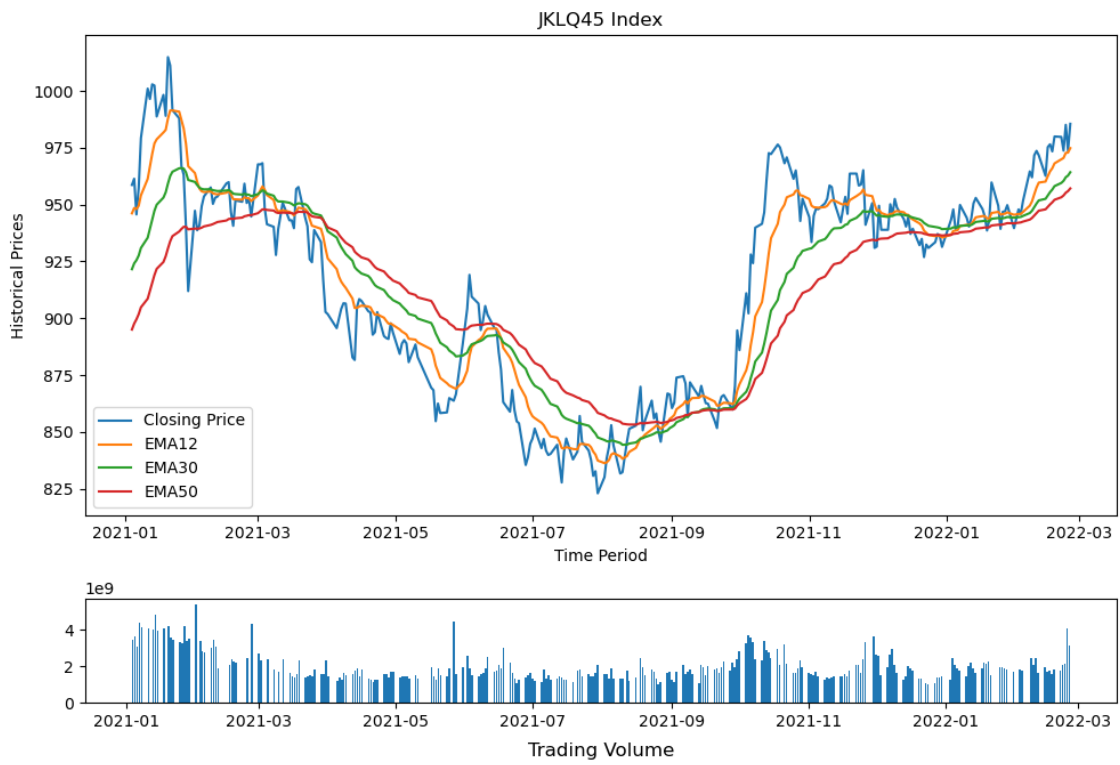
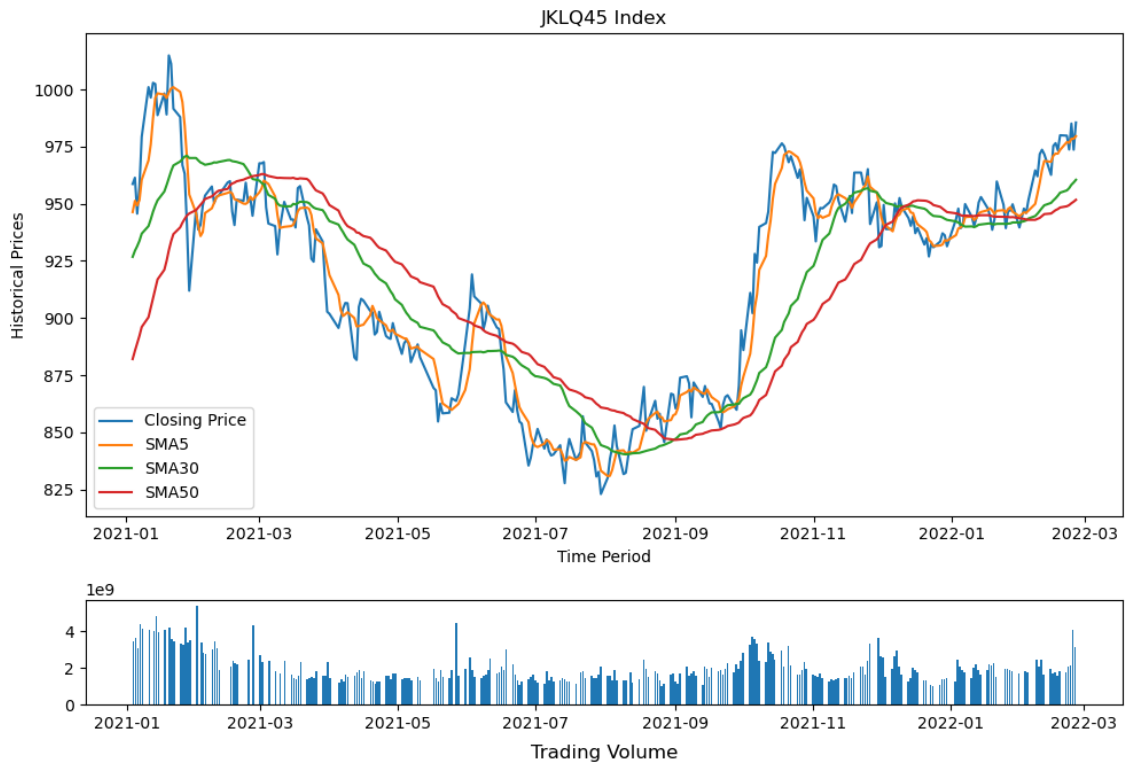
1. Have been included in the top 60 companies with the highest market capitalization in the last 12 months
2. Have been included in the top 60 companies with the highest transaction value in a regular market in the last 12 months
3. Have been listed in the IDX Exchange for at least 3 months
4. Have good financial conditions, prospect of growth, high transaction value and frequency
5. It is calculated semi-annually by the research and development division of the IDX.

Data was taken from financeyahoo.com from early of pandemic, 1 January 2020 until 28 February 2022. Below is the visualisation of closing price and volume data.



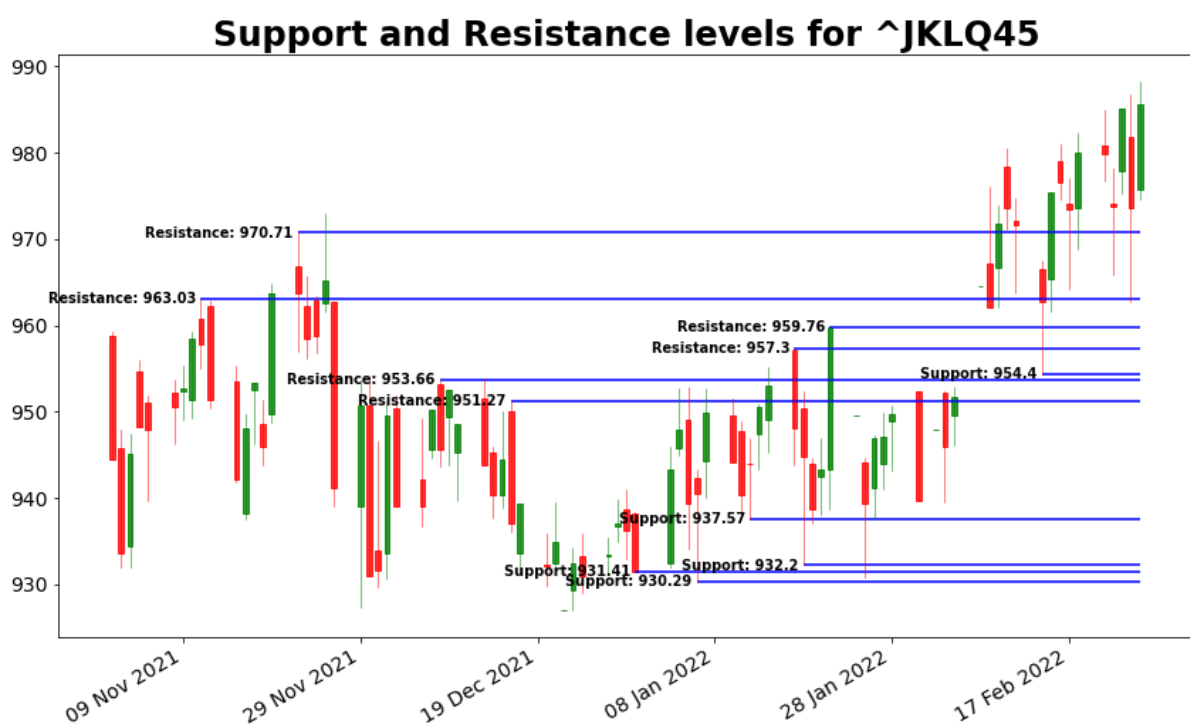
Moving average (MA) is chosen as tool for technical analysis. Common types of MA that are popular among traders and investors are Simple Moving Average (SMA) and Exponential Moving Average (EMA). SMA and EMA can be calculated as follows:

$$SMA_N = \frac{\sum_{t=N-h+1}^N P_t}{h}$$
$$EMA_N = \left(\frac{2}{h+1}\right)p_{t-1} + \left(1 + \left(\frac{2}{h+1}\right)\right)EMA_{N-1}$$



SMA is usually used to identify trend direction, but it can also be used to generate potential trading signals. SMA is very smooth and at its strongest as a long-term indicator. EMAs give more weight to the most recent periods. This makes them more reliable than SMAs as they are comparatively better representation of the recent performance of the asset. Therefore, making it better suited for short-term trading. The previous figures represent SMA lines and EMA lines, respectively. The duration the graphs used is from 1 January 2021 to 28 February 2022. Each tool uses different periods (N). For SMA, Ns are 5 (short-term), 30 (intermediate) and 50 (long-term). Crossover between SMA5 and SMA50 generate favourite trade signals for many traders. On the other hand, for EMA, Ns are 12 (short-term), 30 (intermediate) and 50 (long-term). Crossover between EMA12 and EMA50 is popular signal trade for traders. It can be noticed that both tools show same trend during the given time period. If we inspect SMA50 and EMA50 (red line in both graphs), it can be seen that in the earlier of 2021 the line detecting uptrend for a while before going bearish until August 2021. The trend started bullish slowly in September 2021 until the end of given time period.

Supports and resistances are price levels at which the stock price has inverted its trend. If the price rises and then inverts its trend moving down, the highest point it has reached is called resistance. If the price has gone down and then starts rising, the lowest price value is called support. These price levels identify supply and demand zones, at which traders have increased their operation volume and have shown some interest. Below is the graph showing the support and resistance levels from November 2021 to February 2022.



The next graphs give trading signals of buy and sell using crossover SMA5 vs SMA50 and EMA12 vs EMA50, respectively.

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