CHAPTER 3
RESEARCH METHODOLOGY

3.1.   Studying journal and literature

Journals and literature related to the topic were studied to get to know the method better. The journals and literature that were collected and studied amounted to 10. There were 5 journals each related to the Weighted Moving Average and Prophet methods. Journals and literature collected are used to enrich insights and provide different perspectives in conducting research.

3.2.   Data Collection

This study will predict the stock price of Bank Central Asia (BCA). BCA was chosen because it is a Go-Public company with the largest capitalization in Indonesia. The author took stock price data from yahoo.finance.com. This is stock price data from November 20, 2019 to February 16, 2021.The data used amounted to 300 data.

3.3.   Weighted Moving Average Implementation

The Weighted Moving Average works by calculating a moving average on the data and assigning a weight that is adjusted according to the order. The workflow is, first the program will determine the amount of load that will be given to the data. So for example there are three data, the first data will have a smaller weight than the second data weight. And the second data will have a smaller weight than the third data weight. The load is adjusted according to the order of the data, the newer the data the bigger the load. Then the data will be multiplied by the load and the result will be divided by the total of all existing loads.

3.4. Prophet Implementation

Prophet predicts future values by calculating trend values and seasonal values. To find trend values, change points are created. Changepoint is the time when the data is measured the amount of change. After making a changepoint, the existing data is calculated using a formula to find the trend value. After finding the trend value, the existing data is calculated with a formula to find the seasonal value. After finding the trend value and seasonal value, the two values are added to find the predicted result.

3.5. Result Analysis

At this stage the prediction results of the two algorithms will be tested for accuracy using the Mean Absolute Error Percentage method. Then the MAPE values of the two algorithms will be compared. The smaller the MAPE value, the higher the prediction accuracy.