MA ALGORITHM

1. Data collection: The first step in the methodology is to collect a suitable dataset or analysis. The dataset should be time series data that exhibit characteristics such as trend and seasonality. We are using the API of Yahoo finance for collecting data.
2. Data preprocessing: Once the dataset is collected, the next step is to preprocess the data. This includes cleaning the data, checking the null values, statistical description (number of sample data, mean, standard deviation, check of quantiles), and transforming the data into a format that is suitable for modeling. The value to be predicted is the ‘Close’ value of the stock price, we are removing it from the dataset to make a 1d data frame of close values.
3. Stationarity/Seasonality check: Time series data needs to be a stationary forearm model to work. we will check for the stationarity of the data using ADF(Augmented Dickey–Fuller test) and KPSS(Kwiatkowski–Phillips–Schmidt–Shin). If the data is not stationary/ Seasonality, we will differentiate the data to make it stationary/ Seasonality.
4. Test/Train:- we are splitting the data into two parts i.e test and train. On train data, we are applying the ARMA model to obtain the best-fit line and on test data, we are trying to predict the remaining values of the dataset.
5. Parameter q :- The parameter q represents the order of the moving average component.We are using ACF(Auto-Correlation Function) and PACF (Partial Auto-Correlation Function) to find the respective p and q values.·
6. Model evaluation: We will use various metrics like Mean Squared Error (MSE) and R2 Scoreto evaluate the performance of the model.
7. Conclusion: Summarize the findings and discuss the results, and limitations of the study.