



CSCI 5575-Cyber-Physical System

Project Title- COCACOLA STOCK PREDICTION

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Abstract

I attempt to use a machine learning approach to predict stock prices in this research. To predict stock values, machine learning is used efficiently. The goal is to predict stock prices so that investors may make better informed and precise investing decisions. To improve stock prediction accuracy and issue lucrative trades, we present a stock price prediction system that blends mathematical functions, machine learning, and other external aspects.

Introduction

To try to estimate the future price of the stock, we use both numerical and textual analysis on the stocks and news information in this study. We will undertake numerical analysis by treating the stock trend as a time series and attempting to predict future values by looking at the prices over the previous days. We use textual analysis to analyze the emotion of news stories and discover how news affects stock prices. Finally, the results of these two models will be fed into a unified model, which will generate final forecasts.

COCA COLA's projected yearly earnings growth rate of 5.45 percent is expected to fall short of the US Beverages - Non-Alcoholic industry's average predicted earnings growth rate of 5.82 percent, as well as the US market's average anticipated profits growth rate of 16.6 percent.

This section will define machine learning and discuss common techniques that have been utilized by past academics to predict stock values. This will also provide you some information on the technology we'll be using in this study.

Machine Learning is a branch of computer science that allows machines to learn.

A machine learning model is trained by supplying an algorithm and data so that the model can learn its parameters from the training data.

Implementation

The main methodology used in the stock predictions are Rolling Mean, Rolling Standard Deviation, Decomposition of multiplicative time series. Also used ACF&PACF graphs to visualize AR&MA components and Stock analysis chart.

A moving average is a statistical technique that analyzes data points by calculating the averages of different subsets of the entire data set. It is a sort of finite impulse response filter that is also known as a moving mean or rolling mean. Simple, cumulative, and weighted forms are examples of variations.

A statistical indicator of market volatility is the Moving Standard Deviation. It does not offer market predictions, but it can be used as a confirmation signal. The research calculates the standard deviation of prices from the moving average of the prices once you indicate the number of periods to utilize.

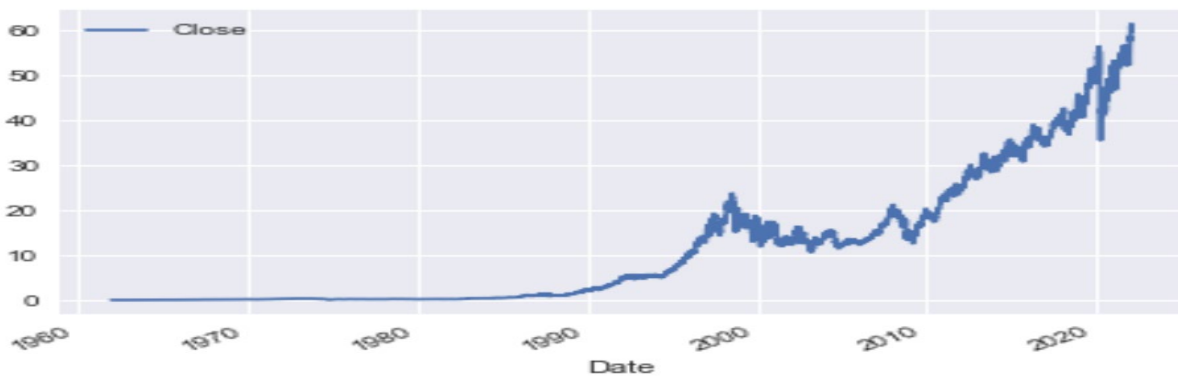
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Used the data set from past five year of the company which have Data, Open price, Low price, Closed price, Volume, Dividends, Stock Split.

Determine if a time series is additive or multiplicative based on its variation. The series is multiplicative if the magnitude of the seasonal component changes with time.

Evaluation

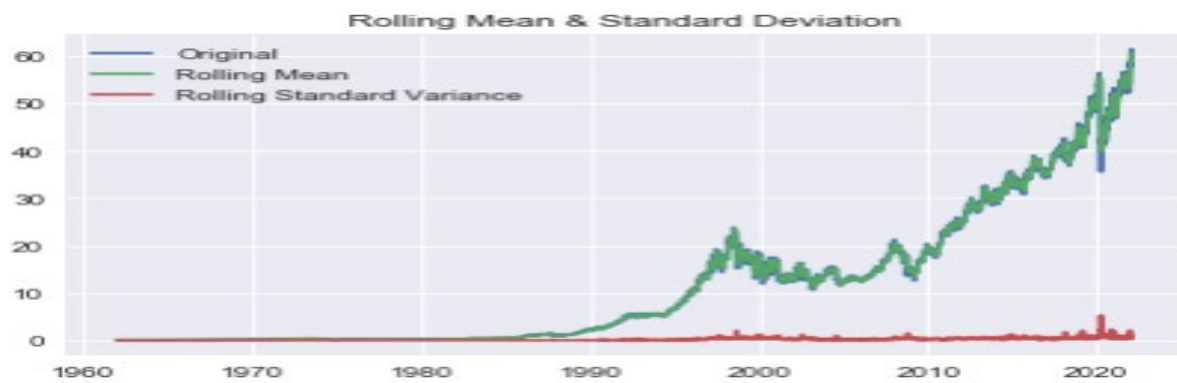
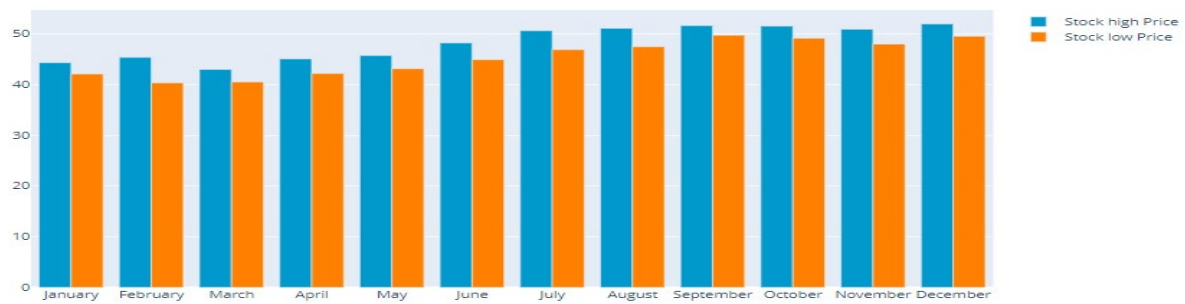
Graphs, Charts, Result



Monthwise High and Low stock price



Monthwise High and Low stock price



Results of Dickey-Fuller Test:

Test Statistic 2.673150

p-value 0.999085

#Lags Used 43.000000

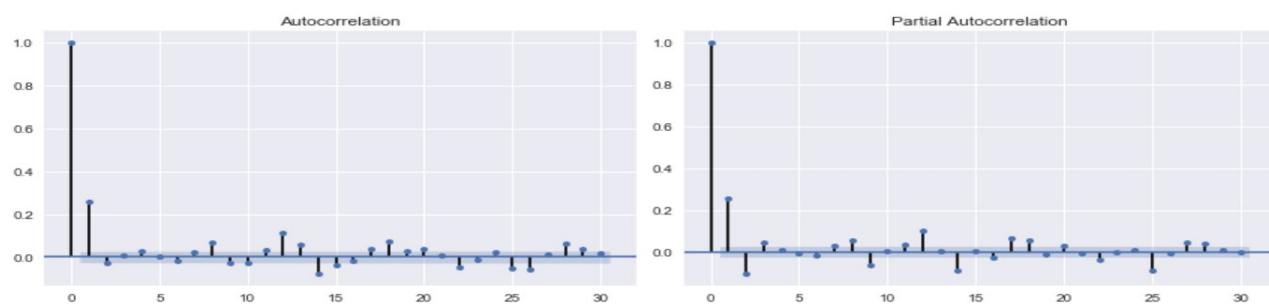
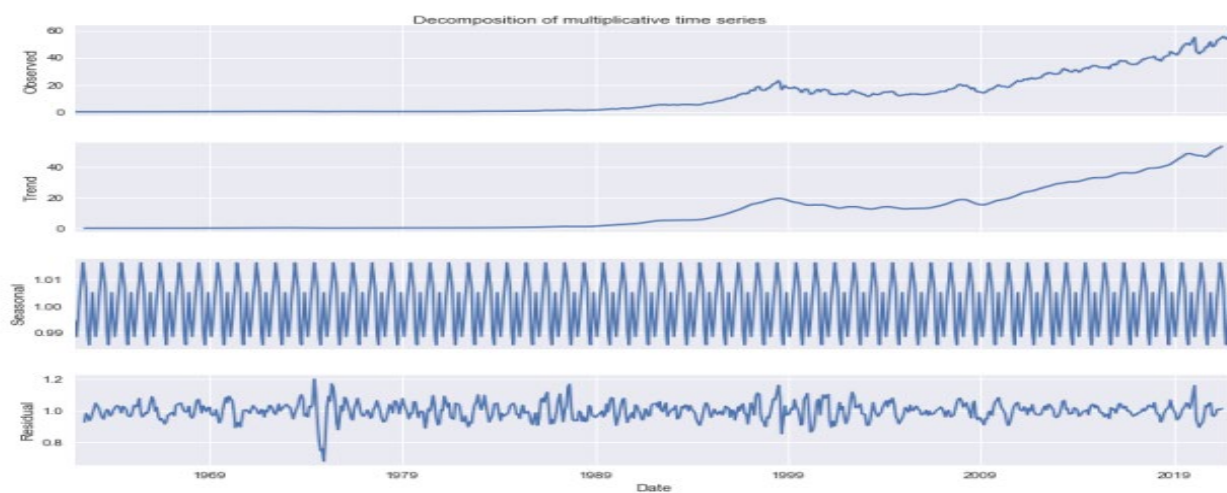
Number of Observations Used 15078.000000

Critical Value (1%) -3.430784

Critical Value (5%) -2.861732

Critical Value (10%) -2.566872

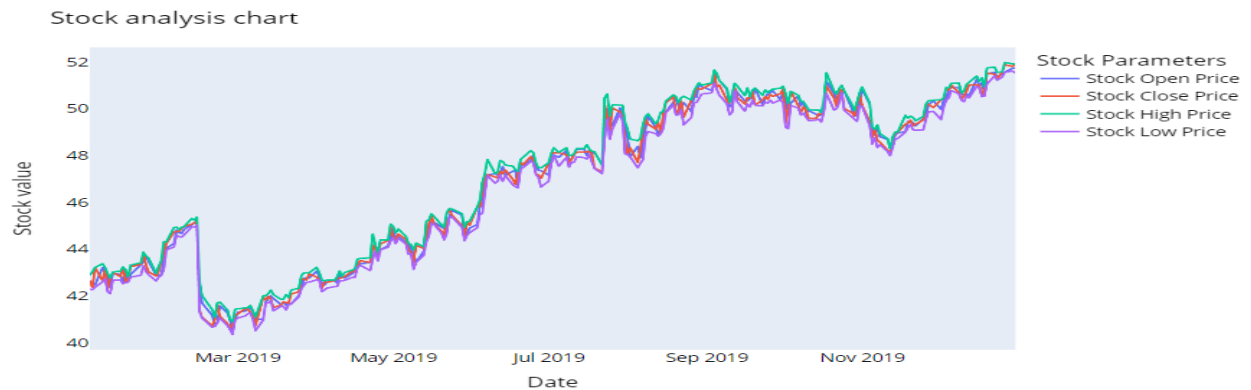
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Date	Open	Close
January	42.966756	43.026029
February	42.893159	42.858729
March	41.792093	41.842978
April	43.233611	43.276818
May	44.648260	44.698668
June	47.073952	47.102808
July	48.485287	48.455898
August	49.574361	49.621384
September	50.640148	50.609428
October	50.211819	50.147095

November 49.337853 49.228426

December 50.987485 51.039262



Conclusion

The increased prices of coca cola and the financial incapability of the customers to buy them, used their sales are on a global increase. So that's how Machine Learning can help us anticipate stock values. I used Python to predict stock prices using machine learning the proposed system will help to determine the accurate price of stock of the company