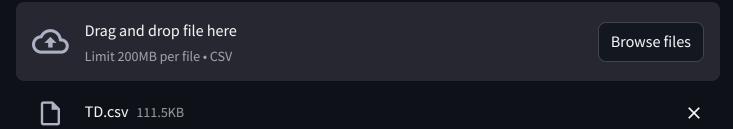
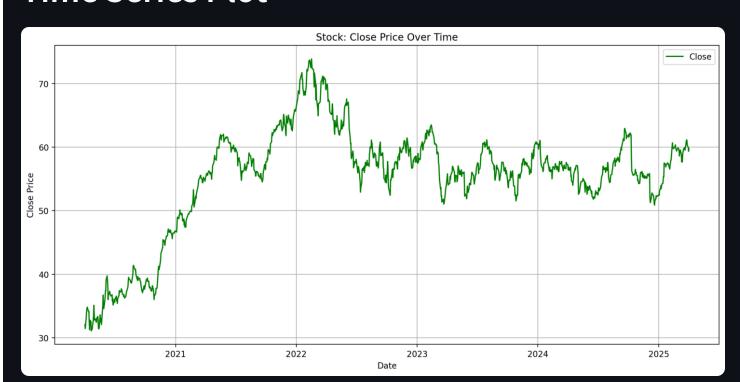
# Stock Price Decomposition, Diagnostics & Forecasting

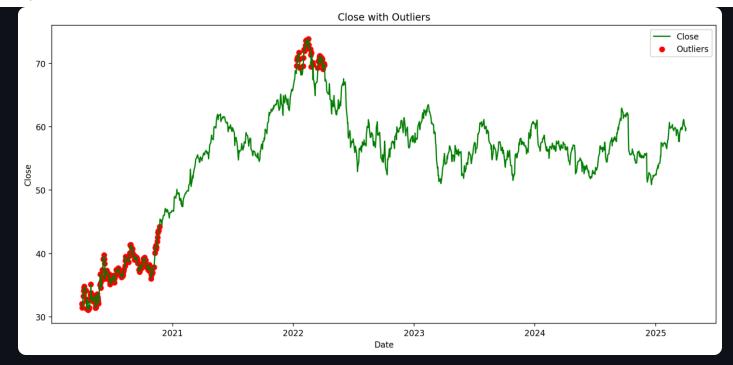
Upload a CSV file



#### **Time Series Plot**



#### **Outlier Detection**

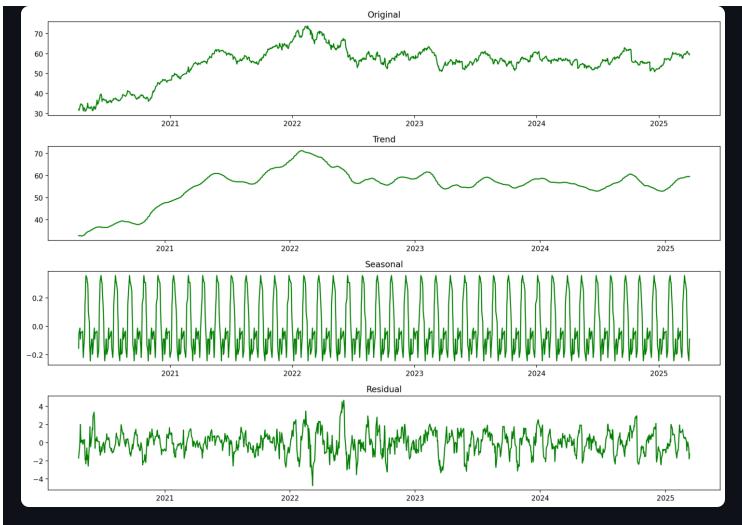


|   | Date                | Close   | High    | Low     | Open    | Volume  |
|---|---------------------|---------|---------|---------|---------|---------|
| 0 | 2020-04-02 00:00:00 | 32.0437 | 32.9048 | 31.4776 | 31.8125 | 2871600 |
| 1 | 2020-04-03 00:00:00 | 31.4457 | 32.2829 | 31.1108 | 32.0038 | 2213500 |
| 2 | 2020-04-06 00:00:00 | 33.2715 | 33.3832 | 32.259  | 32.5699 | 4587500 |
| 3 | 2020-04-07 00:00:00 | 34.0928 | 35.3047 | 33.8615 | 34.7226 | 3449300 |
| 4 | 2020-04-08 00:00:00 | 34.5978 | 34.7351 | 33.5959 | 34.1776 | 2532300 |

## **Time Series Decomposition**

**Choose Decomposition Method** 

Additive



#### Stationarity Test (ADF) on Original Series

ADF Statistic: -2.7900583288277625

p-value: 0.05970795771823254

# Lags Used: 1

## **Observations Used: 1255**

X The series is non-stationary (fail to reject null hypothesis)

### First Order Differencing & ACF Plot

ADF Test on the first differenced series:

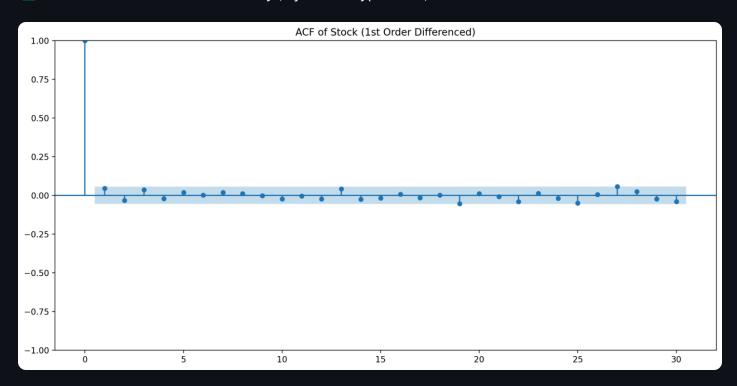
ADF Statistic: -33.85596589293972

p-value: 0.0

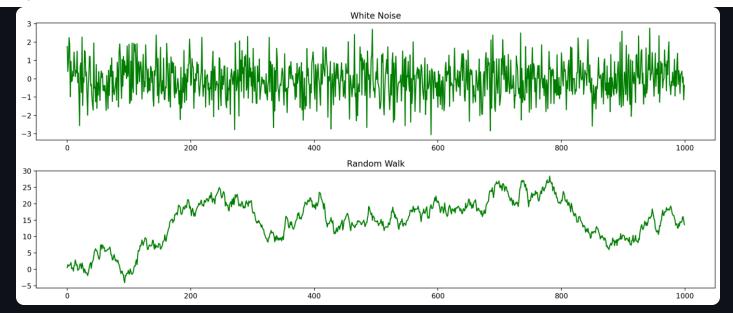
## Lags Used: 0

#### **Observations Used: 1255**

✓ The differenced series is stationary (reject null hypothesis)



Simulated Series Analysis: White Noise vs Random Walk



## **Forecasting Evaluation**

Monthly aggregated Close prices (sample):

| Date                | Close   |
|---------------------|---------|
| 2020-04-30 00:00:00 | 33.7494 |
| 2020-05-31 00:00:00 | 34.5816 |
| 2020-06-30 00:00:00 | 36.044  |
| 2020-07-31 00:00:00 | 36.2526 |
| 2020-08-31 00:00:00 | 40.821  |

Select Forecasting Model Details to Display

ARIMA ~

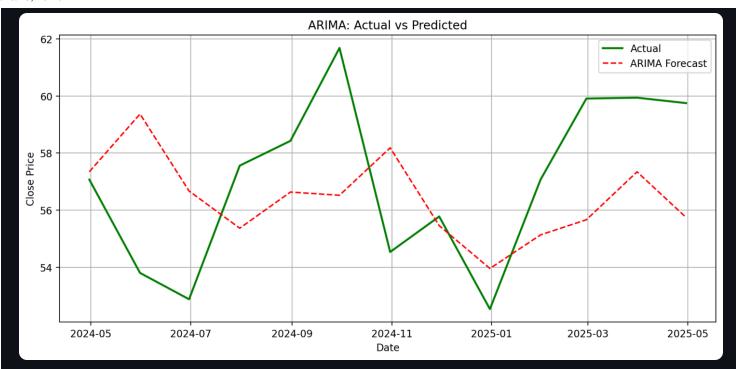
#### Forecast Evaluation Metrics (ARIMA)

```
"RMSE": 3.285364929684396

"MAE": 2.845211545217798

"MAPE": 4.983920547497673

"MSE": 10.793622721200157
```



# **Forecasting Metrics Comparison**

|         | RMSE | MAE  | MAPE | MSE   |
|---------|------|------|------|-------|
| ARIMA   | 3.29 | 2.85 | 4.98 | 10.79 |
| ETS     | 2.84 | 2.38 | 4.22 | 8.08  |
| Prophet | 5.8  | 4.77 | 8.15 | 33.65 |
| LSTM    | 3.24 | 2.66 | 4.79 | 10.53 |

Select Metric to Display

RMSE ~

