I have read Algorithmic Trading with Technical Indicators in R. The article begins with feature engineering that numerous experienced traders have already encountered. Even though The Efficient Market Hypothesis might be controversial, there are a few investors who beat the market no matter newbies or professionals. In this case, R is powerful with a long development history of finance libraries, like [Quantmod](https://cran.r-project.org/web/packages/quantmod/quantmod.pdf), [TTR](https://cran.r-project.org/web/packages/TTR/TTR.pdf), and [PerformanceAnalytics](https://cran.r-project.org/web/packages/PerformanceAnalytics/PerformanceAnalytics.pdf). The article shows the stock data transformation, clarifies the characteristics of stock returns, like Kurtosis, and technical indicators, such as MACD, RSI, Bollinger Bands, etc., and plots technical charts. Based on that, the article develops several trading strategies and signs, for example, buy or hold when MACD is less than signal, and RSI is less than 30.

On the other hand, During the feature engineering and exploratory data analysis, I utilized the daily website visitors dataset. I implemented several time series methods to detect anomaly detection, including a simple moving average, exponential smoothing, seasonal-trend decomposition, and the prophet module. A simple moving average (SMA) is easy arithmetic moving average to capture the time series calculated by adding recent numbers and then dividing by the number of time periods in the calculation average. It can identify the anomalies in the daily website visitors dataset by filtering out those outliers in a simple average function. Compared to the SMA which the past observations are weighted equally, exponential functions are used to assign exponentially decreasing weights over time. In other words, as time goes closer, the weight is heavier. It can identify the anomalies in the daily website visitors dataset by filtering out those outliers in exponential average function, a more advanced time series method relative to SMA. Seasonal-Trend decomposition using LOESS (STL) is a versatile and robust method for decomposing time series. The STL method uses locally fitted regression models to decompose a time series into trend, seasonal, and remainder components. It can identify the anomalies if the daily website visitors are seasonal. The Prophet module: Prophet is a procedure for forecasting time series data based on an additive model where non-linear trends are fit with yearly, weekly, and daily seasonality, plus holiday effects. It can identify the anomalies with General Additive Model (GAM) by filtering out those outliers, a more advanced time series method relative to STL.