ARIMA integrates the difference factor with arma model and makes it arima,in the order of arima we specify how many times the series is transformed/differenced to make the series stationary.

The model is defined as:

Yt = c + dYt-d + Σ(πiYt-i) + Σ(θjεt-j)

Where Yt-d is the difference observation at time t, d is the order of integration, c is a constant, πi are the autoregressive coefficients, θj are the moving average coefficients, and εt-j are the forecast errors. The order of the model is determined by the number of autoregressive and moving average coefficients, as well as the order of integration.

The AR coefficients of the model were found by using PACF(Partial Auto-Correlation Function), PACF accounts correlation between present and t-k lag days. The lag was taken as 60 and the first significant cutoff obtained was seen at the 5th lag interval, so 5 was taken as the order of AR.The difference between the series taken was 1. So,d=1.

The MA coefficient of the model was found by using ACF( Auto-Correlation Function), ACF accounts for all observations for calculating correlation. The lag was taken as 60 and the first significant cutoff obtained was seen at the 0th lag interval, so 0 was taken as the order of MA.AIC(Akaike information criterion)=4956.474439805227

Residual testing:-Durbin-Watson is a test to find if there is autocorrelation between the remaining residuals in the fitted model. The p-value should be close to 2 indicating the absence of autocorrelation. Our p-value was 0.0006978847668506205, indicating the absence of autocorrelation.QQ-plot(Quantile-quantile plot) is used to see if the residuals are normally distributed. The Quantiles of residuals were close to the estimated line of normal distribution of the residuals.So the final equation of ARIMA.So the final equation of ARIMA (d=1, therefore Ydt=Yt-Yt-1)

Yt = 0.002950+ (Yt - Yt-1) +(-0.780267y1-0.654258y2-0.538277y3-0.321138y4-0.150854y5 +(0))