ARMA combines AR and MA components together to form the ARMA model.AR component makes predictions on the basis of previous values of the time series and MA takes the error/residuals value of the time series caused by random events, both linear models put together make the ARMA model.

The model is defined as:

Yt = c + Σ(πiYt-i) + Σ(θjεt-j)

Where Yt is the observation at time t, c is a constant, πi are the autoregressive coefficients, θj are the moving average coefficients, and εt-j are the forecast/random errors.

The order of the model is determined by the number of autoregressive and moving average coefficients.The AR coefficient of the model was found out 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 from the threshold was seen at 9th lag interval, so 9 was taken as order of AR.The MA coefficient of the model was found out by using ACF( Auto-Correlation Function) , ACF accounts all observation for calculating correlation .The lag was taken as 60 and the first significant cutoff was obtained was seen at 3rd lag interval,so 3 was taken sa order of ARMA.

AIC(Akaike information criterion)=4869.936974381399

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 2.4891065208976215e-07,indicating 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 line of estimated line of normal distribution of the residuals.

So the final equation of ARMA:

Yt = 0.395438+(-0.557807\*y1-0.557807\*y2+0.857910\*y3-0.020423\*y4+0.106704\*y5+0.019452\*y6-0.059471\*y7+0.015155\*y8+0.000957\*y9) +(0.622644\*E1-0.622644\*E2-0.999671\*E3)