Airline Forecasting.

Problem Description: We aim to forecast monthly footfalls for given airlines data. We identify the top 4 Quarter passenger footfalls in 1986 as follows:

|  |  |
| --- | --- |
| Given Quarter of Year | Passenger |
| Q1\_86 | 1734.827 |
| Q2\_86 | 2244.961 |
| Q3\_86 | 2533.805 |
| Q4\_86 | 2154.963 |

#As we can See 4 quarters data are given So we will create 4 dummy variable.

Dumm\_var <- data.frame(outer(rep(c("Q1","Q2","Q3","Q4"),length = 42),c("Q1","Q2","Q3","Q4"),"==") + 0 )



Trend = Up Trend, Sesonality = additive sesonality

Model Building

All Model RMSE.

|  |  |
| --- | --- |
| Model Name | RMSE |
| LINEAR | 636.5073 |
| Exponential | 493.3486 |
| Quadratic | 511.8117 |
| Additive Seasonality linear | 559.6934 |
| Additive Seasonality quad | 309.4641 |

Least RMSE better accuracy

Note : as we can see Additive seasonality with quadratic trend RMSE is lowest so our final mode will be Additive seasonality with quadratic.

1. ACF Plot with Lag=10. #As we can see graph most of lag value cros +2 so we will build arima model. P=2,Q=2

 

1. Final plot with predicted value.

