Time Series Forecasting using different Approaches with R

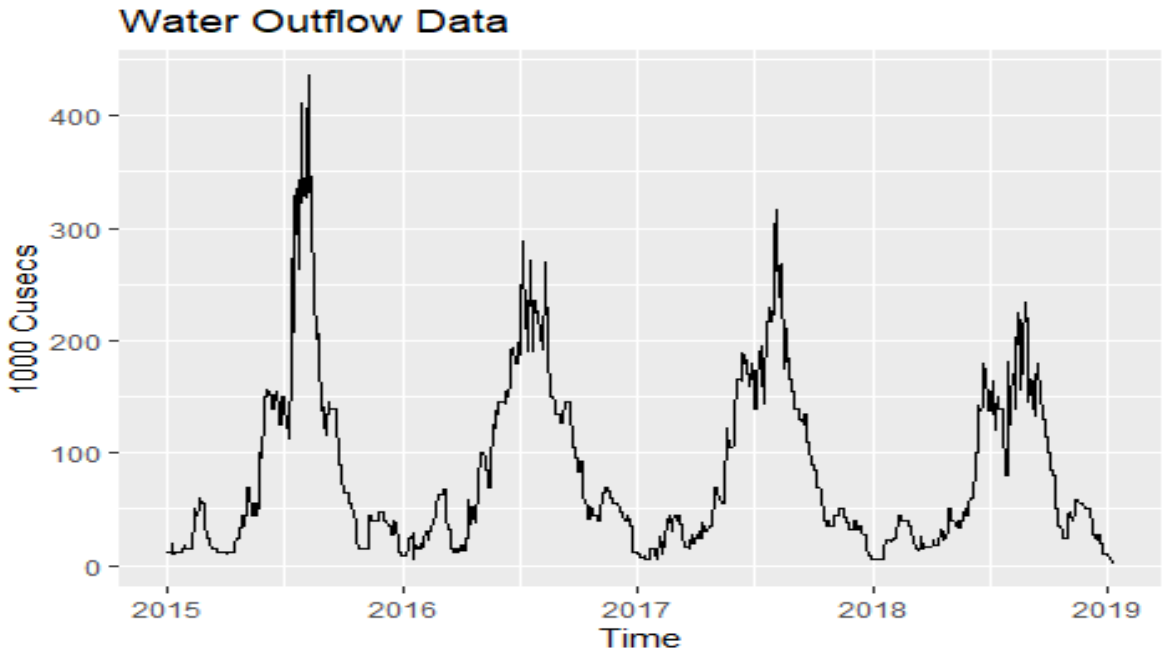


Table 4.1 Candidate SARIMA Models

Model	AIC	Model	AIC
ARIMA(0,1,0)(0,1,0)	8828.187	**ARIMA(1,1,4)(0,1,0)**	**8756.504**
ARIMA(0,1,1)(0,1,0)	8795.579	ARIMA(2,1,0)(0,1,0)	8790.907
ARIMA(0,1,2)(0,1,0)	8792.474	ARIMA(2,1,1)(0,1,0)	8770.703
ARIMA(0,1,3)(0,1,0)	8791.784	ARIMA(3,1,0)(0,1,0)	8787.185
ARIMA(0,1,4)(0,1,0)	8756.738	ARIMA(3,1,1)(0,1,0)	8772.593
ARIMA(0,1,5)(0,1,0)	8757.509	ARIMA(4,1,0)(0,1,0)	8774.229
ARIMA(1,1,0)(0,1,0)	8800.982	ARIMA(4,1,1)(0,1,0)	8765.531
ARIMA(1,1,1)(0,1,0)	8789.731	ARIMA(5,1,0)(0,1,0)	8773.098

Table 4.10 Mean Square Error of Artificial Neural Network

Method	MSE
ANN fit with (10,5) hidden nodes	3.4394

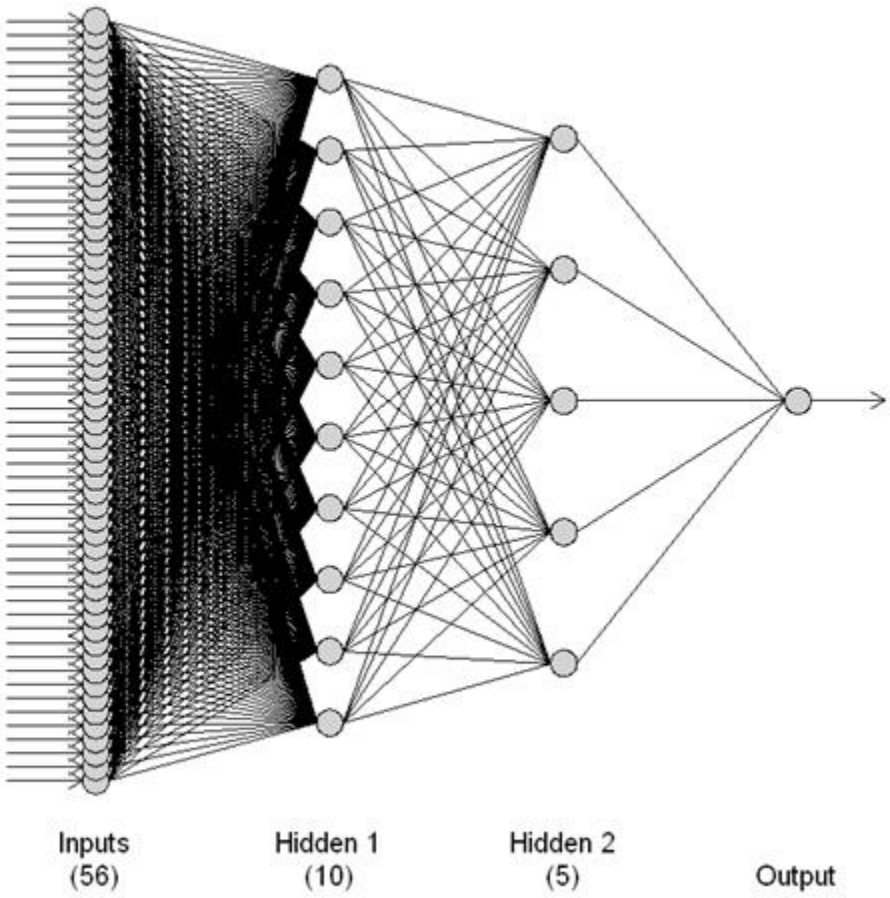


Figure 4.10:- Graphical presentation of Artificial Neural Network

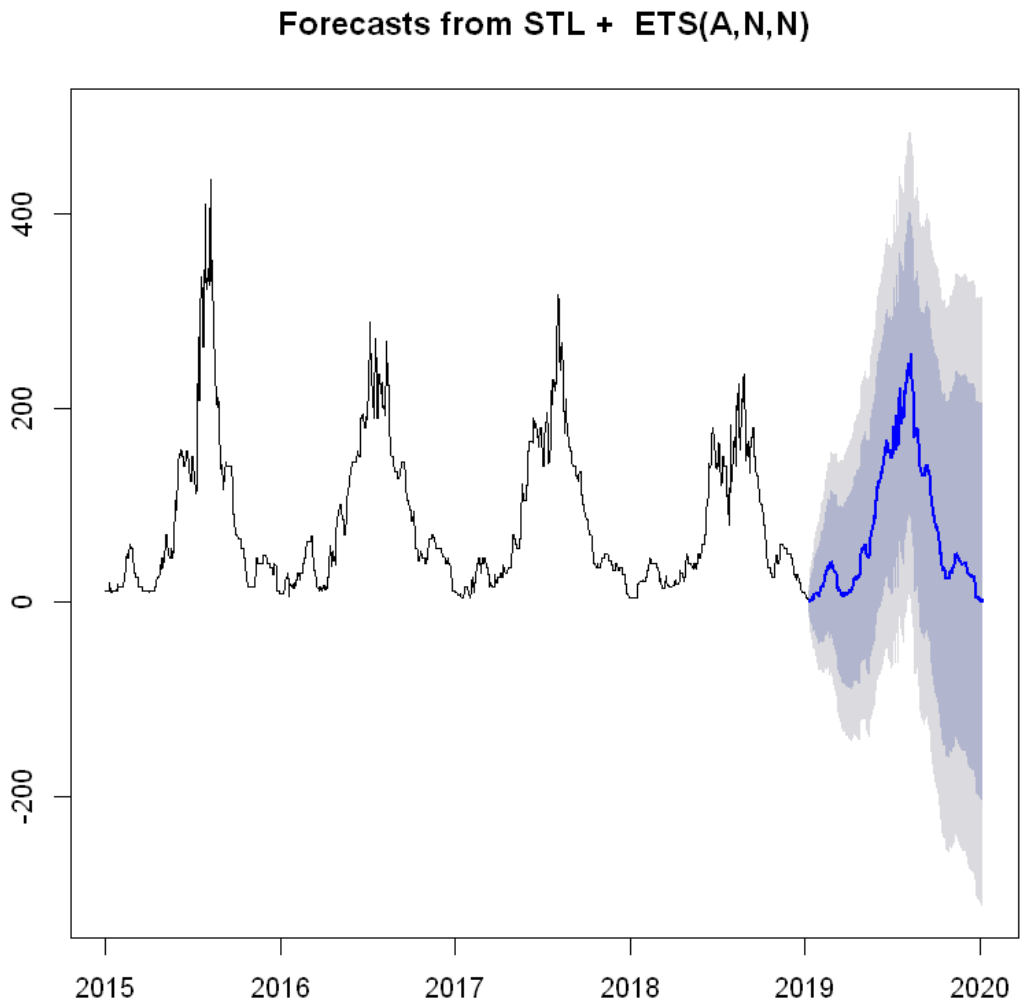
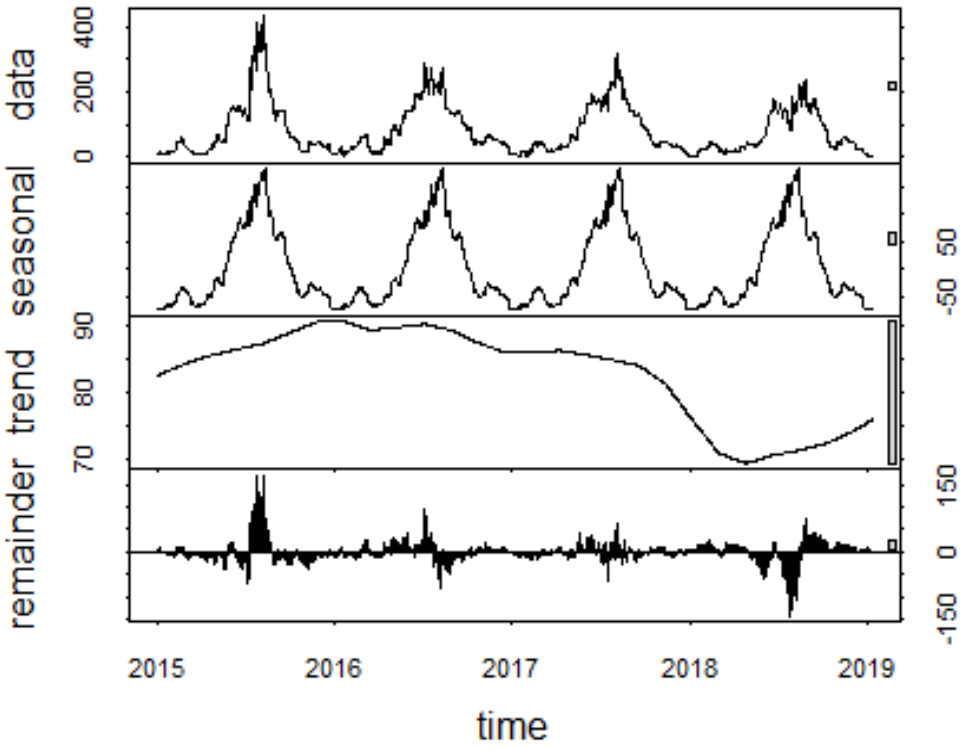


Figure 4.16:- Graph of Forecast using Artificial Neural Network

Forecasting using Non-parametric Technique 4.2


data
seasonal
trend
remainder
400
200
0
50
-50
90
80
70
150
0
-150
2015
2016
2017
2018
2019
time

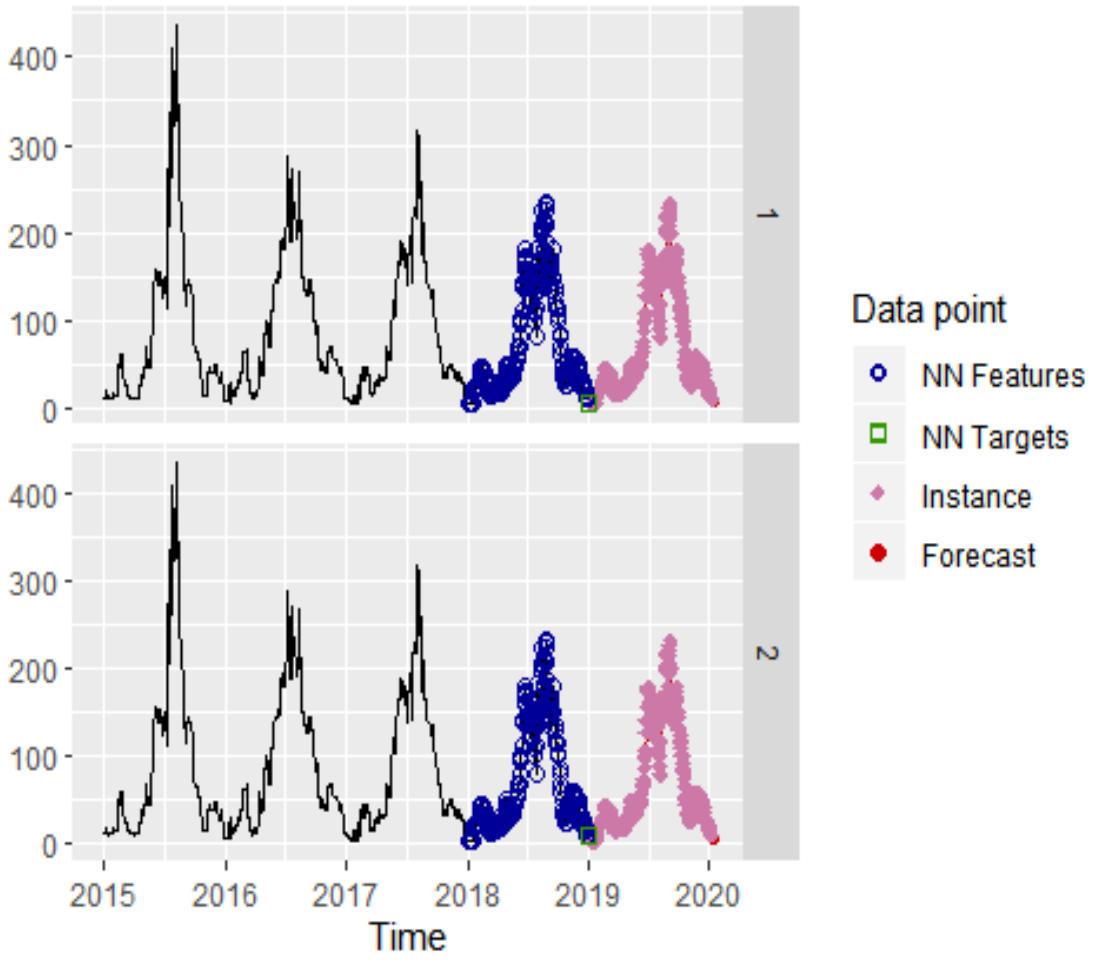


Table 5.1 Conclusions and Recommendations

Forecasting Methods	**RMSE**
SARIMA Model	10.8925
Bayesian Approach	8087.4049
Non-parametric Method KNN	180.3049
ANN with 5 Hidden nodes	11.0876
ANN fit with (10,5) hidden nodes	**3.4394**