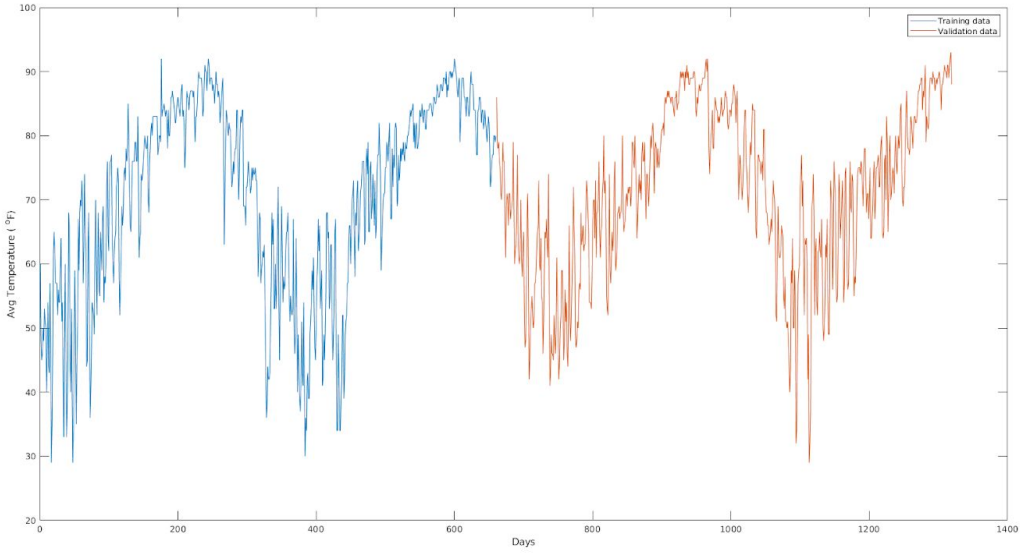
Time Series Report on Temperature Prediction of Austin

Introduction

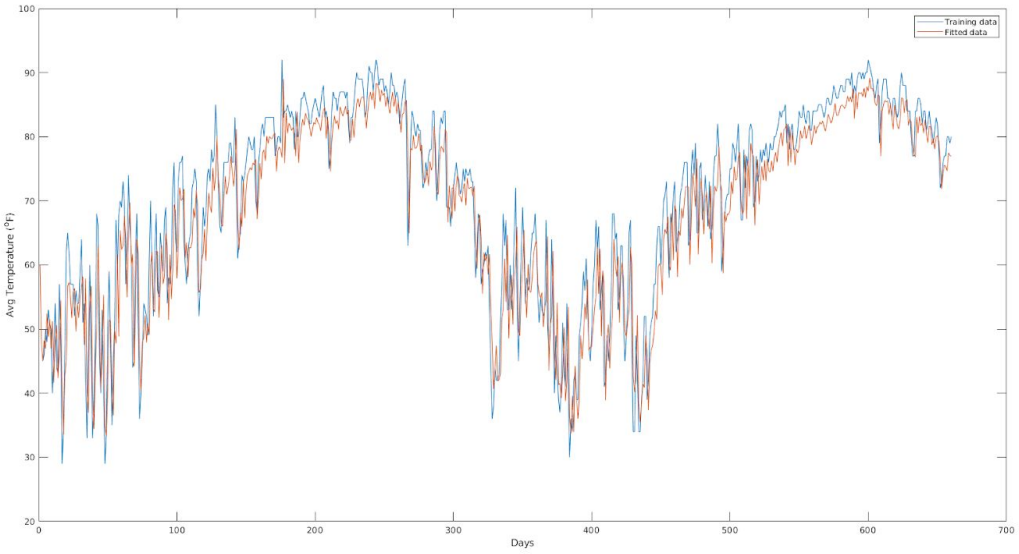
- Accurate weather prediction is important for planning our day to day activities.
- In our case, we are predicting Temperature (whether it will be cool or hot tomorrow? Do we need to wear sweater or T-shirt?)
- Austin Weather Dataset from Kaggle was used which was obtained from WeatherUnderground.com, at the Austin KATT station. https://www.kaggle.com/grubenm/austin-weather
- This dataset contains data for every date from 2013-12-21 to 2017-07-31. (1319 data points)
- For training we used 50% data, which is around 660 data points and validated on the remaining data.

Original data

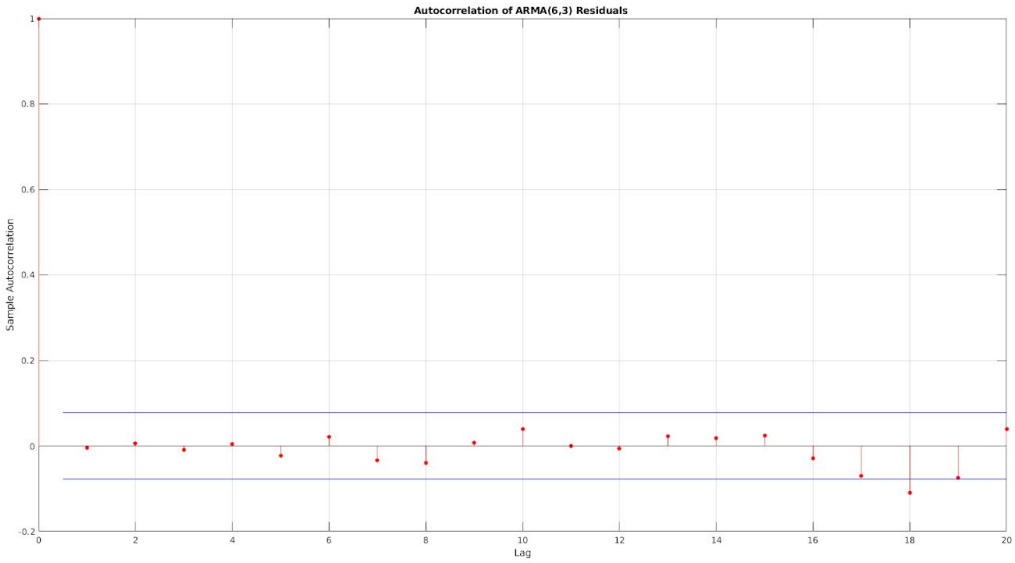


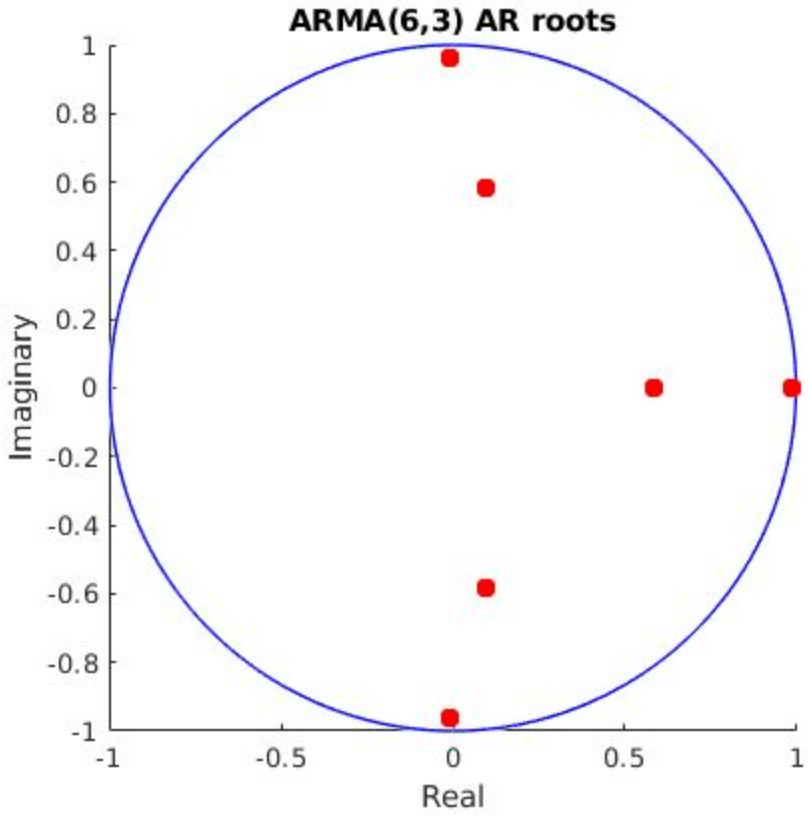
Stationary Model

- ARMA(2n,2n-1) Technique, F-test was used
- ARMA(6,3) model was found adequate with RSS was 1.7312e+04
- Out of 6 roots, 2 roots are real and 4 are complex.
- 1 root is 0.9903 ≅ 1 so stochastic trend was checked it was found that it exits. RSS=1.7374e+04
- Complex roots give period 3.9748 ≅ 4 and 4.4614 ≅ 4.5. Seasonality was checked and it was found that it does not exists.



Residuals plot





Non Stationary Model

ARMAV Model

Forecast