**Tasks for Week-3: Regression and Forecasting on Weather Data**

Understand the following operations/functions on weather related dataset “weatherHistory2016.csv” and perform similar operations on another weather related dataset based on given instructions.

rm(list=ls())

setwd("C:/Users/vitcc/Desktop/Plan-Fall-2020-21/DA-Lab")

a <- read.csv("weatherHistory2016.csv")

# Multiple linear regression

mlr= lm(Temperature..C.~Apparent.Temperature..C.+Humidity+Wind.Speed..km.h., a)

summary(mlr)

qqnorm(mlr$resid) #Q-Q Plot

# Time-series analysis

data <- ts(a$Temperature..C., start=as.Date("2016-01-01"), end=as.Date("2016-12-31"), frequency=24)

frequency(data)

summary(data)

# plotting the series

plot(data)

# day-wise mean plot

plot(aggregate(data,FUN=mean))

# hour-wise box plot

boxplot(data~cycle(data))

# install.packages("forecast")

library(forecast)

# Autocorrelation and Partial Autocorrelation plots

acf(data)

# Time-series forecasting (Auto ARIMA)

fit <- auto.arima(data)

accuracy(fit)

newdata <- forecast(fit, 240)

plot(newdata)