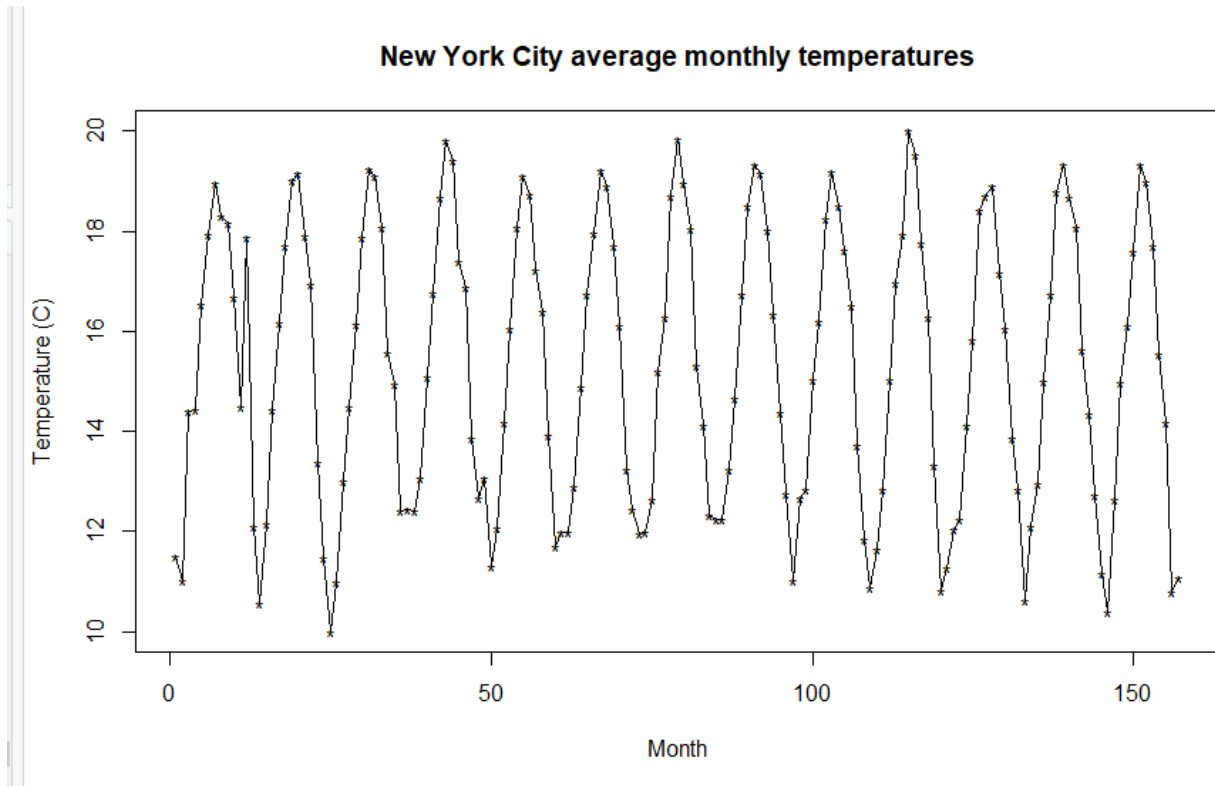# Time Series Assignment

Read the data file from the assignment called nycdata.csv

Prepare the data as time series between 1946 and 1959 based on monthly frequency

The following packages may be useful - library(tseries), library(stats), library(lmtest), library(ast), library(astsa)

Plot the time series – as shown below with points connected by line

Q1: How do you interpret the data as it relates to time series data pattern?

Fit an autoregressive time series model to the data using -yule-walker, burg, ols, mle, yw

Q2 What is the best AR method to fit the data and Why?

Calculate acf & pacf for this data and plot them

Q3 Based on these plots, do you think it is necessary to adjust the data for seasonality by modifying p,d or q?

Use auto.arima to find the p,d,q values

Q4 What is the recommended p,d,q for this time series

Q5 Try different combinations of p,d,q and explain what values you would use and why?

Q6 Use various models to forecast and analyze the output; explain which combination of p,d,q is better and why

Q7 – Plot the forecast model and perform LJung-Box test and explain the results; Do this for a minimum of two forecast models based on your choice of p,d,q

Q8 Plost forecast errors using
plotForecastErrors(forecastmodel$residuals)

Histogram of forecasterrors