**STT 811**

**In-Class Assignment 21**

1. For the beer dataset
   1. Graph the time series. Does it appear that there is seasonality?

Chart, line chart

Description automatically generated

* 1. Plot the acf and pacf functions.

Chart, histogram

Description automatically generatedChart, histogram

Description automatically generated

* 1. Create an ARIMA forecasts auto.arima. Does the forecast have seasonality?

beer\_dec <- decompose(beer\_ts, type = 'multiplicative')

rand\_beer <- ts(beer\_dec$random[13:138], start = c(1956,1), frequency = 12)

auto.arima(rand\_beer)

* 1. Compute the MAPE. How does the MAPE compare to the H-W model from last time?

mean(abs(aa\_beer$residuals)/beer\_ts) = 0.0004143348