Q1:

The code for Q1 is in assignment1Q1.py.

I fit the time series using model AR(1) to AR(30) using MLE method and compare the modeling results based on AIC and BIC. Best models indicated by AIC and BIC are different.

Based on AIC: the best model is AR(28) with lowest value -24722.503.

Based on BIC: the best model is AR(15) with lowest value -24587.051.

I think the difference is because of that BIC applies higher penalty for model complexity and the sample size is very large, which also makes the penalty be greater.