Instructions: Answer each question as thoroughly as possible. Round answers to 4 decimal places as needed. Exact answers are best when possible. Be sure to answer all parts of each question.

1. Using the built-in data in R called Nile (on Nile river flooding), perform the following time series analyses.
   a. Plot the time series. Paste the graph below.

   b. What happens if you use decompose() on this data? Describe the results or paste the graph.

   c. Plot the acf and pacf graphs. What do you notice?

   d. Find an AR model, an MA model, and an ARMA model of the data. Plot the results against the original graph.

   e. Use AIC and BIC to determine which model best fits the data.

   f. Plot all three models on the same graph against the original time series. Paste the graph below. You'll need to adjust the plots slightly so that the lines plot in different colors or styles.

b. you get an error. it says There is no detectable seasonal cycle.

c. it takes 9 lags to fall below significance on the ACF graph the pacf uses only 1

	AR	MA	ARMA	ARIMA
AIC	1285.9	1295.4	1282.1	1267.3
BIC	1293.7	1303.3	1292.5	1275.0

Lowest AIC is The ARIMA(1,1,1), same for BIC among those I tested, this is The best model