STAT 443: Lab 7

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05 March, 2023

Question 1

```
data <- read.csv("lab7data.csv",header = TRUE)
annual_ts <- ts(data$Annual, start = c(1919), end = c(2008))
ar1model <- arima(annual_ts, order = c(1,0,0),include.mean = TRUE)
ar1model
```

```
##
## Call:
## arima(x = annual_ts, order = c(1, 0, 0), include.mean = TRUE)
##
## Coefficients:
##          ar1  intercept
##       0.5843    -1.9591
## s.e.  0.0864     0.2810
##
## sigma^2 estimated as 1.265:  log likelihood = -138.49,  aic = 282.99
```

The fitted model is

$$X_t - \hat{\mu} = 0.5843(X_{t-1} - \hat{\mu}) + Z_t$$

where $Z_t \sim WN(0, 1.265)$