DATA624 - Homework 3

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# Week 3: ARIMA Models [13-Jun 19-Jun]

## Chapter 8 ARIMA Models (Forecasting: Principle and Practice HA)

### Exercise 8.11.1 (aka 8.1)

Figure 8.31 shows the ACFs for 36 random numbers, 360 random numbers and 1,000 random numbers.

#### 8.11.1.a

Explain the differences among these figures. Do they all indicate that the data are white noise?

#define default working directory  
# mywd = "D:\\Users\\Esteban\\OneDrive\\edu\\cuny\\Courses\\S4\_2022\_01\_Spring\\DATA605\\data605prj\\hw04"  
#   
# setwd(mywd)  
# imgfiles = list.files(paste0(getwd(), "/jpg"), pattern = "\\.jpg")  
  
# num\_imgfiles = length(imgfiles)

#### 8.11.1.a

Why are the critical values at different distances from the mean of zero? Why are the autocorrelations different in each figure when they each refer to white noise?

### Exercise 8.11.2 (aka 8.2)

A classic example of a non-stationary series is the daily closing IBM stock price series (data set ibmclose). Use R to plot the daily closing prices for IBM stock and the ACF and PACF. Explain how each plot shows that the series is non-stationary and should be differenced.

### Exercise 8.11.6 (aka 8.6)

Use R to simulate and plot some data from simple ARIMA models.

### Exercise 8.11.6.a

### Exercise 8.11.6.b

### Exercise 8.11.6.c

### Exercise 8.11.6.d

### Exercise 8.11.6.e

### Exercise 8.11.6.f

### Exercise 8.11.6.g

### Exercise 8.11.8 (aka 8.8)