**In-class Exercise 1 : Temperature Data**

(due Mon 1/31/2017)

Name:

Use This file as a template for your report. Submit your code and comments together with (selected) output from R console.

* Your comments must be Arial font, and **BOLD FACED**.
  + E.g. **Therefore I conclude that sample mean of the series is not significantly different from zero.**
* Your code must be Lucida Console font. E.g.

X <- ts(D, start=c(1880), freq=1)

plot(X, type='o')

You must submit PRINTOUT of this file. Electronic form can be sent via email to show that you were done before the dead line, but physical copy must be submitted at later date.

First, copy and paste below command in R console.

D <- read.table("http://gozips.uakron.edu/~nmimoto/pages/datasets/djao2.txt", header=T)

B1 <- ts(D$AO, start=c(1,1), freq=1)

B <- diff(log(B1))\*100

Now your “B” in R contains 251 daily log-return of Australian All Ordinaries Stock Index. That is how much (in %) Australian Stock market went up and down each day.

1. Plot the time series “B”. Does it look (weakly) stationary? State the definition of stationarity, then briefly explain what you see in the plot of “B” regarding the stationarity.

(Your code)

**(Your comment)**

1. Plot the ACF of “B”. Does the series look like White Noise? Briefly explain.

(Your code)

**(Your comment)**

1. Obtain the numerical value of the blue dashed lines in ACF plot. What does the line represent?

(Your code)

**(Your comment)**

1. What is the sample mean and sample standard deviation of “B”?

(Your code)

**(Your comment)**

1. Regardless of your answer in (1) and (2), assume that “B” is stationary and uncorrelated. Test the sample mean above for significance. That is, test the hypothesis that the true mean is zero. (See Lecture 3 ) Which Confidence Interval formula should you use? Why? Perform the one of your choice, state numerical result with your statistical conclusion.

(Your code)

**(Your comment)**