Assignment 3
STAT331 (Multivariate Statistics)

1. A researcher wants to find out whether regular yoga reduces the *average* resting pulse rate of adults. To do this, she divides total 10 volunteers into two groups completely randomly. She then makes the one group do yoga regularly for a month, while the other group (control group) does not participate in any yoga or similar activities. At the end of the month, she makes four measurements on each participant of both the groups. Use the dataset provided to you to do the hypothesis testing. You should clearly state H_0 and H_1, and decide which test you are going to use and why. Would you reject H_0 at 1% level of significance? Also compute and state the p-value.

2. The World Health Organization recommends 5 grams of daily intake of salt : too less or too much both are bad for the human body. Use the dataset given to you to decide whether people are actually consuming 5 grams of salt each day. State H_0 and H_1 clearly, and try at least two different levels of significance to see whether you can reject H_0.

3. The datafile `terrorists_events_data.txt` contains data about terrorist attacks that happened around the world since 1968 to 2007. Compute the average number of deaths in a single attack. Now do bootstrap sampling 10000 times and for each bootstrap sample, compute the same average. Hence plot the sampling distribution of the mean.