

R – Bootstrapping Test

Deadline: 10:00 PM on Thursday, 14th November 2018

Dear candidate, in this project you will demonstrate how to use bootstrapping in R to estimate confidence intervals. Consider the data set on Norwegian fire losses provided for this project on Canvas. The file name is norweginafire.txt. Complete this assignment using R Markdown and provide your R markdown files (2 files). Please make sure to implement each question below. **No answer will be given zero points. Late submissions will not be considered !!**

Filter the data for one particular year that is assigned to your group. The assignment is the defined as follows

Table C1-1981

Table C3-1982

Table C5-1983

Table D1-1984

Table D3-1985

Table C2-1986

Table C4-1987

Table D2-1988

Table D4-1989

1) Import the data to R and create a subset of data assigned to your group. Plot the histogram of your data in R and write min 3 sentences discussing your main observations.

2) Generate 1000 samples of size n (size of your subset data) for each sample compute the 95th quantile in R and plot the sampling distribution of this statistic. Discuss your observations. Min 3 sentences are required for full credit.

3) Based on your results in 2), compute bias and MSE for the 95th quantile.

4) Compute 95% confidence interval for the 95th quantile based on the bootstrap results 2-3).

Jackknife resampling

5) Repeat 2) using Jackknife resampling by leaving one observation out from each sample. Develop a sampling distribution. Plot the histogram of this distribution and discuss your observations.

6) Based on your results in 5) compute bias and MSE for the 95% quantile.

7) Compute 95% confidence interval for the 95th quantile based on 5)-6).

8) Plot side by side confidence intervals from 4) and 7). Discuss your observations.

9) Plot side by side 2 sampling distributions from 2) and 5). Discuss your observations.