

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). Each question below is worth 2pts. A partial answer will be rounded to 1pt and no answer will be given zero points. Late submissions will not be graded!!

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.

10) Reflect on this R project: What did you learn? How it is linked to Ch 8 material? Why do you think it is important? What challenges did you face, etc.? Min 5 full sentences are required. Please proofread your writing.

