Simulation Lab(MC503)

Assignment 9

Try to solve all the problems

---

1. Using Chi-square test, check whether following sample is generated from the uniform distribution with parameter 1 and 3 at $\alpha = 0.05$.
X:1.81, 1.24, 1.06, 1.80, 2.15, 1.93, 1.97, 1.59, 1.91, 1.86, 1.08, 2.53, 1.12, 2.74, 1.69, 1.23, 1.24, 1.80, 2.30, 1.54.

2. Consider a given station in a watershed where the severe rainstorms are recorded over a period of 70 years. Out of this 70 years, 22 years were without serve rainstorms and 25,14,6,3 years with 1,2,3 and 4 rainstorms annually. Test whether the data can be assumed to follow Poisson distribution at 5% significance level.

3. First apply the probability integral transformation method to generate the 30 sample from **two parameter exponential distribution** and then apply the Chi-square test to judge the goodness of fit. (You can take specific choice of parameter).
pdf of two parameter exponential distribution is given by

$$f(x) = \frac{1}{\sigma} e^{-\frac{(x-\mu)}{\sigma}}, x > \mu, \sigma > 0, -\infty < \mu < \infty$$

Note: You have to submit the solution of this assignment in a pdf format. You may do the analysis in R programming.

. . . . . end . . . . . .