

1) Write a program to generate random numbers using Multiplicative, Additive and Mixed congruence methods. Please use the best possible parameters (eg. seed, m, lambda etc. ) , which should be kept same for different methods wherever possible.

2) Generate sequences of 1000 random numbers between 0 and 1 using the above 3 methods (using the same seed) and also using the random number generator provided by the programming language.

3) Compare the efficacy of these 4 sequences using chi-square test with 10 classes and report your observations.

You are required to submit a folder (titled your roll number) comprising of

a) well-commented, indented program code. Readability of code carries 20% weightage.

b) 4 text files consisting of the sequences (named with the method used)

c) Readme file consisting of the parameters used for each method (seed, m, lambda etc. ) and the instructions to execute your program. The TAs should be able to run the command or script and be able to get the output.

d) a brief point-wise report of your observations. Also report insights gained, if any.