

MA 323 - Monte Carlo Simulation Assignment - 11

VISHISHT PRIYADARSHI
180123053

1 TABULAR DATA:

The value of n was chosen to be 1000.

The simulation was run using two different LCGs:

- Lagged Fibonacci generator (custom)
- In-built LCG of python

1. Lagged Fibonacci generator:

$$U_i = (U_{i-17} - U_{i-5})$$

If $U_i < 0$, set $U_i = U_i + 1$

The first 17 values were generated using following General Linear Congruence Generator:

$$X_{i+1} = (a.X_i + b) \bmod m$$

$$U_{i+1} = X_{i+1} / m$$

with $a = 1229$, $b = 1$, $m = 2048$ and seed $(x_0) = 1$

SI No.	N	Discrepancy
1	10	0.023000000000000007
2	20	0.012000000000000004
3	50	0.009999999999999998
4	100	0.009

2. In-built LCG of python:

SI No.	N	Discrepancy
1	10	0.018999999999999999
2	20	0.013999999999999999
3	50	0.009000000000000001
4	100	0.009

The discrepancy generated using this method might fluctuate a little since the LCG was not seeded for getting more randomness in the produced uniform random variate.