MA323(Lab-11)

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Mathematics and Computing

First of all U are calculated using Linear Congruence Generator (studied in Lecture 1 (a= 1597, b= 51749, m= 244944)).
Then for each N, Vol(A) is calculated, then [0, 1] is broken down into N subintervals.
Then Discrepancy is calculated using

$$\sup_{A \in \mathcal{A}} \left| \frac{\#\{x_i \in A\}}{n} - \text{vol}(A) \right|,$$

Tabulation of Discrepancy is shown on right side:

Valueof N	Volume(A)	Discrepancy
10	0.100	0.004200
20	0.050	0.004200
50	0.020	0.002200
100	0.010	0.001700

Screenshot of output of code is shown on right side:


```
jatin@jatin-Lenovo-ideapad-330-15IKB:~/Desktop/Sen/MonteCarlo/11$ python 180123060_JATIN_Code.py
N= 10
Volume(A)= 0.100000
Discrepancy= 0.004200


N= 20
Volume(A)= 0.050000
Discrepancy= 0.004200


N= 50
Volume(A)= 0.020000
Discrepancy= 0.002200


N= 100
Volume(A)= 0.010000
Discrepancy= 0.001700

jatin@jatin-Lenovo-ideapad-330-15IKB:~/Desktop/Sen/MonteCarlo/11$
```