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Github link -

Pseudo Random Number Generator(PRNG) refers to an algorithm that uses mathematical formulas to produce sequences of random numbers. PRNGs generate a sequence of numbers approximating the properties of random numbers.
A PRNG starts from an arbitrary starting state using a seed state. Many numbers are generated in a short time and can also be reproduced later, if the starting point in the sequence is known. Hence, the numbers are deterministic and efficient.

Characteristics of PRNG
• Efficient: PRNG can produce many numbers in a short time and is advantageous for applications that need many numbers
• Deterministic: A given sequence of numbers can be reproduced at a later date if the starting point in the sequence is known.Determinism is handy if you need to replay the same sequence of numbers again at a later stage.
• Periodic: PRNGs are periodic, which means that the sequence will eventually repeat itself. While periodicity is hardly ever a desirable characteristic, modern PRNGs have a period that is so long that it can be ignored for most practical purposes

Results

For Python's Random Function

```
How many observations should we perform?
Selection > 1000
Successfully stored %d random numbers in file named: 'py_random_output.txt'. 1000

TEST SUITE FOR:  PYTHON BUILT-IN RAND
=====================================
---------CHI-SQ_TEST-----------
Significance Level: 0.8
Chi Sq: 827.23
Crit Value: 10118.8246
Result is: FAIL TO REJECT null hypothesis
....................................
Significance Level: 0.9
Chi Sq: 827.23
Crit Value: 10181.6616
Result is: FAIL TO REJECT null hypothesis
....................................
Significance Level: 0.95
Chi Sq: 827.23
Crit Value: 10233.7489
Result is: FAIL TO REJECT null hypothesis
....................................

---------KS_TEST-----------
D+ VALUE =0.013788963708928535
D- VALUE=0.11068630932200996
D VALUE (max): 0.11068630932200996



Alpha Level is: 0.1
D_statistic is: 0.11068630932200996
Critical value is: 0.122
Result is: FAIL TO REJECT null hypothesis
........................
Alpha Level is: 0.05
D_statistic is: 0.11068630932200996
Critical value is: 0.136
Result is: FAIL TO REJECT null hypothesis
........................
Alpha Level is: 0.01
D_statistic is: 0.11068630932200996
Critical value is: 0.16299999999999998
Result is: FAIL TO REJECT null hypothesis
........................
Kolmogorov-Smirnov Test Result for D-Value: 0.11068630932200996
```

For Linear Congruential Generator

```
How many observations should we perform?
Selection > 1000
Successfully stored 1000 random numbers in file named: 'lgc_output.txt'.

TEST SUITE FOR:  LINEAR CONGRUENTIAL GENERATOR
=======================================
----------CHI-SQ_TEST-----------
Significance Level: 0.8
Chi Sq: 5.72
Crit Value: 10118.8246
Result is: FAIL TO REJECT null hypothesis
.....................................
Significance Level: 0.9
Chi Sq: 5.72
Crit Value: 10181.6616
Result is: FAIL TO REJECT null hypothesis
.....................................
Significance Level: 0.95
Chi Sq: 5.72
Crit Value: 10233.7489
Result is: FAIL TO REJECT null hypothesis
.....................................


----------KS_TEST-----------
D+ VALUE =0.051652832031249984
D- VALUE=0.05378662109374999
D VALUE (max): 0.05378662109374999



Alpha Level is: 0.1
D_statistic is: 0.05378662109374999
Critical value is: 0.122
Result is: FAIL TO REJECT null hypothesis
..........................
Alpha Level is: 0.05
D_statistic is: 0.05378662109374999
Critical value is: 0.136
Result is: FAIL TO REJECT null hypothesis
..........................
Alpha Level is: 0.01
D_statistic is: 0.05378662109374999
Critical value is: 0.16299999999999998
Result is: FAIL TO REJECT null hypothesis
..........................
Kolmogorov-Smirnov Test Result for D-Value: 0.05378662109374999
```