

DATA ANALYTICS REFERENCE DOCUMENT	
Document Title:	Trying to make sense of random generators
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REVISION HISTORY

Revision	Details of Modification(s)	Reason for modification	Date	By
0	Draft release	Document to practical use and use cases for random generators	2018/11/23 10:39	Gerhard van der Linde

Random Number Generation

This area has been a particular painful one so far and the more one look into a topic so fast the more elusive it becomes.

This section is an attempt at distilling a meaningful summary from the data analyst perspective to keep it simple but still use random generators is a meaningful way to approximate real world scenarios in a more meaningful way.

So for starters, a dump from the numpy.random documentation to work from.

<hr/> <hr/> Random Number Generation <hr/> <hr/>	
<hr/> <hr/> Utility functions <hr/> <hr/>	
<pre>random Uniformly distributed values of a given shape. bytes Uniformly distributed random bytes. random_integers Uniformly distributed integers in a given range. random_sample Uniformly distributed floats in a given range. random Alias for random_sample ranf Alias for random_sample sample Alias for random_sample choice Generate a weighted random sample from a given array-like permutation Randomly permute a sequence / generate a random sequence. shuffle Randomly permute a sequence in place. seed Seed the random number generator.</pre> <hr/> <hr/>	
<hr/> <hr/> Compatibility functions <hr/> <hr/>	
<pre>rand Uniformly distributed values. randn Normally distributed values. ranf Uniformly distributed floating point numbers. randint Uniformly distributed integers in a given range.</pre> <hr/> <hr/>	

Univariate distributions

```
beta          Beta distribution over ``[0, 1]``.  
binomial      Binomial distribution.  
chisquare     :math:`\chi^2` distribution.  
exponential   Exponential distribution.  
f             F (Fisher-Snedecor) distribution.  
gamma         Gamma distribution.  
geometric     Geometric distribution.  
gumbel         Gumbel distribution.  
hypergeometric Hypergeometric distribution.  
laplace        Laplace distribution.  
logistic       Logistic distribution.  
lognormal      Log-normal distribution.  
logseries      Logarithmic series distribution.  
negative_binomial Negative binomial distribution.  
noncentral_chisquare Non-central chi-square distribution.  
noncentral_f    Non-central F distribution.  
normal         Normal / Gaussian distribution.  
pareto         Pareto distribution.  
poisson        Poisson distribution.  
power          Power distribution.  
rayleigh       Rayleigh distribution.  
triangular     Triangular distribution.  
uniform        Uniform distribution.  
vonmises       Von Mises circular distribution.  
wald           Wald (inverse Gaussian) distribution.  
weibull        Weibull distribution.  
zipf           Zipf's distribution over ranked data.
```

Multivariate distributions

```
dirichlet     Multivariate generalization of Beta distribution.  
multinomial    Multivariate generalization of the binomial distribution.  
multivariate_normal Multivariate generalization of the normal distribution.
```

Standard distributions

```
standard_cauchy Standard Cauchy-Lorentz distribution.  
standard_exponential Standard exponential distribution.  
standard_gamma    Standard Gamma distribution.  
standard_normal   Standard normal distribution.  
standard_t        Standard Student's t-distribution.
```

Internal functions

```
get_state      Get tuple representing internal state of generator.  
set_state      Set state of generator.
```

From:
<http://www.hdip-data-analytics.com/> - HDip Data Analytics

Permanent link:
http://www.hdip-data-analytics.com/help/python/numpy_random

Last update: **2020/06/20 14:39**