Generating Random Values in R

The simple case of generating a uniform random number between 0 and 1 is handled by the **`runif`** function. This example generates one uniform random number:

```
> runif(1)
[1] 0.2619108
```

Also, samples from a set of numbers or names can be drawn by the `sample` function.

```
sample(20) # this arranges 1:20 in random order
sample(20,5) # this draws 5 samples from 1:20
sample(20, replace=T)
```

```
> sample(10)
 [1]  3  8  4  7  5  9  1  2  6 10
```

The last example draws 20 samples from 1:20 with replacement, while the default is to sample without replacement.

List of Random Value Generating Functions:

In R, there are many functions to generate random deviates. Most of them start with **`r`**. So it is easy to find them. Here are some of them

- `rbeta` (for the beta random variable)
- `rbinom` (for the binomial random variable)
- `rexp` (for the exponential random variable)
- `rf` (for the F random variable)
- `rgamma` (for the gamma random variable)
- `rgeom` (for the geometric random variable)
- `rhyper` (for the hypergeometric random variable)
- `rlnorm` (for the lognormal random variable)
- `rlogis` (for the logistic random variable)
- `rmvbin` (for the multivariate binary random variable)
- `rnbinom` (for the negative binomial random variable)
- `rmvnorm` (for the multivariate normal random variable, nonexisting?)
- `rnorm` (for the normal random variable)
- `rpois` (for the Poisson random variable)
- `rweibull` (for the weibull random variable)
- `runif` (for the uniform random variable)

One very important step in simulation is set the initial seed for your simulation. It is the function `rngseed(x)`, where `x` should be a large integer. The `set.seed()` function works the same way.

Here are the two most important random deviates.

1. The uniform distribution (random numbers): `runif(n, min=, max=)`, the default value for `min` is 0 and `max` is 1, i.e., `runif(n)` will generate `n` random numbers.
2. The normal distribution (random numbers): `rnorm(n,mean=,sd=)` with default `mean=0` and `sd=1`.