

How can a normal distribution be generated in R? Can you provide examples of how to generate a normal distribution in R?

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A normal distribution, also known as a Gaussian distribution, is a commonly used probability distribution that is symmetrical and bell-shaped. It is characterized by its mean and standard deviation, which determine the shape and spread of the distribution. In R, a normal distribution can be generated using the "rnorm" function, which takes the number of observations desired, the mean, and the standard deviation as arguments. For example, to generate a normal distribution with 100 observations, a mean of 0, and a standard deviation of 1, the code would be "rnorm(100, 0, 1)". This will produce a vector of 100 random numbers following a normal distribution. Another way to generate a normal distribution in R is by using the "dnorm" function, which calculates the density of the distribution at a given point. The "dnorm" function can be used to plot a normal curve by specifying a range of values for the x-axis and using the "curve" function. Overall, there are various ways to generate a normal distribution in R, depending on the specific needs and goals of the user.

Generate a Normal Distribution in R (With Examples)

You can quickly generate a normal distribution in R by using the `rnorm()` function, which uses the following syntax:

```
rnorm(n, mean=0, sd=1)
```

where:

n: Number of observations.
mean: Mean of normal distribution. Default is 0.
sd: Standard deviation of normal distribution. Default is 1.

This tutorial shows an example of how to use this function to generate a normal distribution in R.

A Guide to dnorm, pnorm, qnorm, and rnorm in R

Example: Generate a Normal Distribution in R

The following code shows how to generate a normal distribution in R:

```
#make this example reproducible  
set.seed(1)
```

```
#generate sample of 200 obs. that follows normal dist.  
with mean=10 and sd=3  
data <- rnorm(200, mean=10, sd=3)
```

```
#view first 6 observations in sample  
head(data)
```

```
8.120639 10.550930 7.493114 14.785842 10.988523  
7.538595
```

We can quickly find the mean and standard deviation of this distribution:

```
#find mean of sample  
mean(data)
```

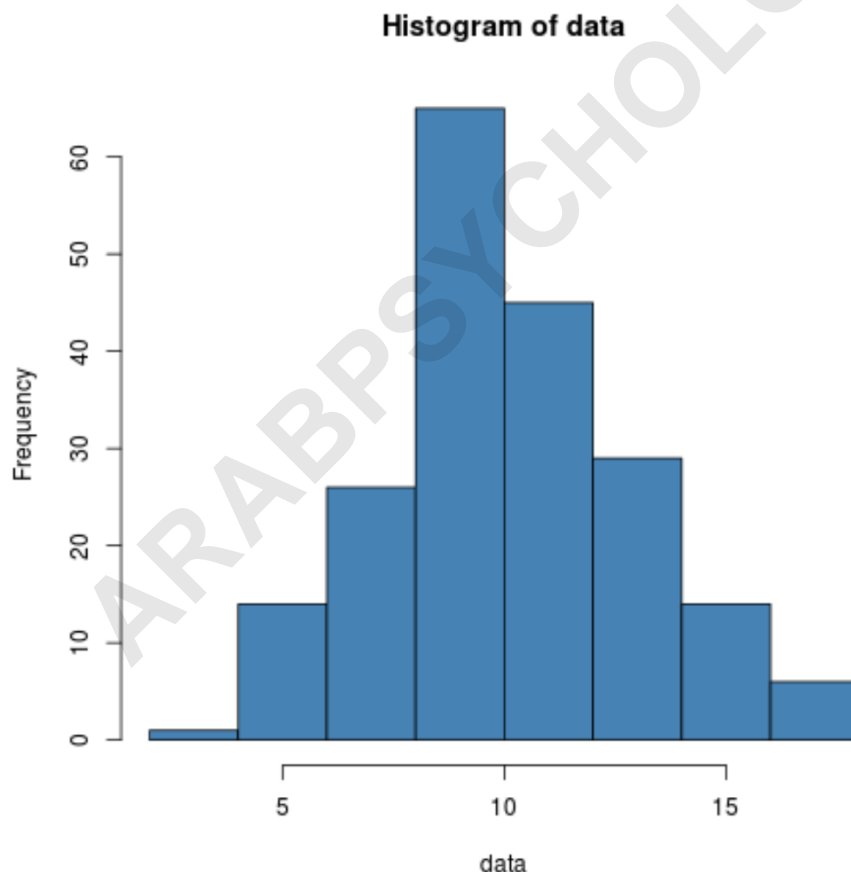
```
10.10662
```

#find standard deviation of sample
sd(data)

2.787292

We can also create a quick histogram to visualize the distribution of data values:

hist(data, col='steelblue')



We can even perform a Shapiro-Wilk test to see if the

dataset comes from a normal population:

shapiro.test(data)

Shapiro-Wilk normality test

data: data

W = 0.99274, p-value = 0.4272

The p-value of the test turns out to be 0.4272. Since this value is not less than .05, we can assume the sample data comes from a population that is normally distributed.

How to Plot a Normal Distribution in R

A Guide to dnorm, pnorm, qnorm, and rnorm in R

How to Perform a Shapiro-Wilk Test for Normality in R