



Random Numbers in NumPy

[< Previous](#)[Next >](#)

What is a Random Number?

Random number does NOT mean a different number every time. Random means something that can not be predicted logically.

Pseudo Random and True Random.

Computers work on programs, and programs are definitive set of instructions. So it means there must be some algorithm to generate a random number as well.

If there is a program to generate random number it can be predicted, thus it is not truly random.

Random numbers generated through a generation algorithm are called *pseudo random*.

Can we make truly random numbers?

Yes. In order to generate a truly random number on our computers we need to get the random data from some outside source. This outside source is generally our keystrokes, mouse movements, data on network etc.

We do not need truly random numbers, unless its related to security (e.g. encryption keys) or the basis of application is the randomness (e.g. Digital roulette wheels).

In this tutorial we will be using pseudo random numbers.

Generate Random Number

NumPy offers the `random` module to work with random numbers.



HTML

CSS

MORE ▼



Generate a random integer from 0 to 100:

```
from numpy import random  
  
x = random.randint(100)  
  
print(x)
```

Try it Yourself »

Generate Random Float

The random module's `rand()` method returns a random float between 0 and 1.

Example

Generate a random float from 0 to 1:

```
from numpy import random  
  
x = random.rand()  
  
print(x)
```

Try it Yourself »

Generate Random Array

In NumPy we work with arrays, and you can use the two methods from the above examples to make random arrays.

Integers



HTML

CSS

MORE ▼



Example

Generate a 1-D array containing 5 random integers from 0 to 100:

```
from numpy import random  
  
x=random.randint(100, size=(5))  
  
print(x)
```

Try it Yourself »

Example

Generate a 2-D array with 3 rows, each row containing 5 random integers from 0 to 100:

```
from numpy import random  
  
x = random.randint(100, size=(3, 5))  
  
print(x)
```

Try it Yourself »

Floats

The `rand()` method also allows you to specify the shape of the array.

Example

Generate a 1-D array containing 5 random floats:

```
from numpy import random  
  
x = random.rand(5)
```



HTML

CSS

MORE ▼

[Try it Yourself »](#)

Example

Generate a 2-D array with 3 rows, each row containing 5 random numbers:

```
from numpy import random  
  
x = random.rand(3, 5)  
  
print(x)
```

[Try it Yourself »](#)

Generate Random Number From Array

The `choice()` method allows you to generate a random value based on an array of values.

The `choice()` method takes an array as a parameter and randomly returns one of the values.

Example

Return one of the values in an array:

```
from numpy import random  
  
x = random.choice([3, 5, 7, 9])  
  
print(x)
```

[Try it Yourself »](#)

Add a **size** parameter to specify the shape of the array.

Example

Generate a 2-D array that consists of the values in the array parameter (3, 5, 7, and 9):

```
from numpy import random

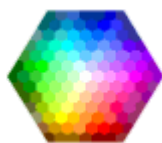
x = random.choice([3, 5, 7, 9], size=(3, 5))

print(x)
```

[Try it Yourself »](#)

[< Previous](#)[Next >](#)

COLOR PICKER



HOW TO

Tabs
Dropdowns
Accordions
Side Navigation
Top Navigation
Modal Boxes
Progress Bars
Parallax

[HTML](#)[CSS](#)[MORE ▼](#)

[Google Maps](#)
[Range Sliders](#)
[Tooltips](#)
[Slideshow](#)
[Filter List](#)
[Sort List](#)

SHARE



CERTIFICATES

[HTML](#)
[CSS](#)
[JavaScript](#)
[SQL](#)
[Python](#)
[PHP](#)
[jQuery](#)
[Bootstrap](#)
[XML](#)

[Read More »](#)

[REPORT ERROR](#)

[PRINT PAGE](#)

[FORUM](#)

[ABOUT](#)

Top Tutorials

[HTML](#)[CSS](#)[MORE ▼](#)[JavaScript Tutorial](#)[How To Tutorial](#)[SQL Tutorial](#)[Python Tutorial](#)[W3.CSS Tutorial](#)[Bootstrap Tutorial](#)[PHP Tutorial](#)[jQuery Tutorial](#)[Java Tutorial](#)[C++ Tutorial](#)

Top References

[HTML Reference](#)[CSS Reference](#)[JavaScript Reference](#)[SQL Reference](#)[Python Reference](#)[W3.CSS Reference](#)[Bootstrap Reference](#)[PHP Reference](#)[HTML Colors](#)[jQuery Reference](#)[Java Reference](#)[Angular Reference](#)

Top Examples

[HTML Examples](#)[CSS Examples](#)[JavaScript Examples](#)[How To Examples](#)[SQL Examples](#)[Python Examples](#)[W3.CSS Examples](#)[Bootstrap Examples](#)[PHP Examples](#)[jQuery Examples](#)[Java Examples](#)[XML Examples](#)

Web Certificates

[HTML Certificate](#)[CSS Certificate](#)[JavaScript Certificate](#)[SQL Certificate](#)[Python Certificate](#)[jQuery Certificate](#)[PHP Certificate](#)[Bootstrap Certificate](#)[XML Certificate](#)[Get Certified »](#)



HTML

CSS

MORE ▼



we cannot warrant the correctness of all content. While using this site, you agree to have read and accepted our terms of use, cookie and privacy policy. Copyright 1999-2020 by Refsnes Data. All Rights Reserved.

Powered by W3.CSS.

