

# Random Data Distribution

< Previous</p>

Next >

# What is Data Distribution?

Data Distribution is a list of all possible values, and how often each value occurs.

Such lists are important when working with statistics and data science.

The random module offer methods that returns randomly generated data distributions.

# Random Distribution

A random distribution is a set of random numbers that follow a certain *probability* density function.

**Probability Density Function:** A function that describes a continuous probability. i.e. probability of all values in an array.

We can generate random numbers based on defined probabilities using the choice()
method of the random module.

The choice() method allows us to specify the probability for each value.



# Example

Get your own Python Server

Generate a 1-D array containing 100 values, where each value has to be 3, 5, 7 or 9.

The probability for the value to be 3 is set to be 0.1

The probability for the value to be 5 is set to be 0.3

The probability for the value to be 7 is set to be 0.6

The probability for the value to be 9 is set to be 0

```
from numpy import random

x = random.choice([3, 5, 7, 9], p=[0.1, 0.3, 0.6, 0.0], size=(100))
print(x)
```

Try it Yourself »

The sum of all probability numbers should be 1.

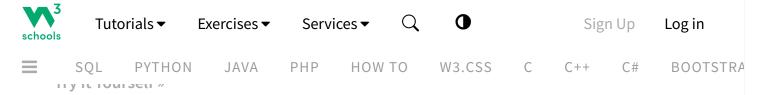
Even if you run the example above 100 times, the value 9 will never occur.

You can return arrays of any shape and size by specifying the shape in the size parameter.

## Example

Same example as above, but return a 2-D array with 3 rows, each containing 5 values.

```
from numpy import random
x = random.choice([3, 5, 7, 9], p=[0.1, 0.3, 0.6, 0.0], size=(3, 5))
```



# Exercise?

## Consider the following code:

x = random.choice([5, 2, 7], p=[0.1, 0.3, 0.0], size=(100))print(x)

Which one of the following numbers will never occur in the result?

- $\bigcirc$  5
- 0 2
- O 7

**Submit Answer** »

Previous

Next >

Track your progress - it's free!

Sign Up Log in



Tutorials **▼** 

Exercises **▼** 

Services **▼** 



0

Sign Up

Log in

SQL

PYTHON

JAVA

PHP

HOW TO

W3.CSS

C#

BOOTSTRA



**COLOR PICKER** 













schools

**PLUS** 

**SPACES** 

**GET CERTIFIED** 

**FOR TEACHERS** 



### **Top Tutorials**

HTML Tutorial
CSS Tutorial
JavaScript Tutorial
How To Tutorial
SQL Tutorial
Python Tutorial
W3.CSS Tutorial
Bootstrap Tutorial
PHP Tutorial
Java Tutorial
c++ Tutorial
jQuery Tutorial

## **Top References**

HTML Reference
CSS Reference
JavaScript Reference
SQL Reference
Python Reference
W3.CSS Reference
Bootstrap Reference
PHP Reference
HTML Colors
Java Reference
Angular Reference
jQuery Reference

### **Top Examples**

HTML Examples
CSS Examples
JavaScript Examples
How To Examples
SQL Examples
Python Examples
W3.CSS Examples
Bootstrap Examples
PHP Examples
Java Examples
XML Examples
jQuery Examples

## **Get Certified**

Sign Up

C#

C++

C

Log in

BOOTSTRA

HTML Certificate
CSS Certificate
JavaScript Certificate
Front End Certificate
SQL Certificate
Python Certificate
PHP Certificate
jQuery Certificate
Java Certificate
C++ Certificate
C# Certificate
XML Certificate



#### FORUM ABOUT ACADEMY

W3Schools is optimized for learning and training. Examples might be simplified to improve reading and learning.

Tutorials, references, and examples are constantly reviewed to avoid errors, but we cannot

