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In my last blog post, we discovered random values.

[Creating a Numpy array](#), today we will use the `random` module to create Numpy arrays with

We can create NumPy arrays filled with random values, these random values can be integers, normal values(based on the normal distribution) or uniform values(based on the uniform distribution).

The important point to note is, to access any of the random functions we need to include keyword **random** because all these random functions are a part of the **random module**.

Let's take a look at these functions one by one :



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Using this function we can create a NumPy array filled with random integers values. This function returns an array of shape mentioned explicitly, filled with random integer values. If **size** parameter is not explicitly mentioned this function will just return a random integer value between the range mentioned instead of the array.

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Parameters :

Low: This is the lower limit of the range or the starting point of values we need in our array to be created. It is inclusive (is included).

High: This is the upper limit of the range or the ending point of values we need in our array to be created. It is exclusive (is not included).

Size: This is the shape of the array to be created. We pass in shape of the array as a tuple.

be create
the range
inclusive

• **Size:** This is the shape of the array to be created. We pass in shape of the array as a tuple here. For example, if we want values in our array to be in the range 5 to 20, we would be confined between 5 and 19.

• **dtype:** This is the data type of the array to be created.



ple, if we want values in our array to be in the range 5 to 20, we would be confined between 5 and 19.

f the array. We pass in shape of the array as a tuple. For example, if we want values in our array to be in the range 5 to 20, we would be confined between 5 and 19.

of the values to be stored in the array to

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```
import numpy as np
```

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if the shape is not mentioned the output will just be a random integer in the range of 0 to 10

```
rand_int = np.random.randint(5,10)
```

```
print("First array", rand_int)
```

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```
print("Second array", rand_int2)
```

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```
rand_int3 = np.random.randint(50,75,(2,2), dtype='int64')
```

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```
print("Third array", rand_int3)
```

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Output:

```
First array
Second array
[[66 49 2]
 [39 87 3]
 [76 86 8]
Third array
[[71 50]]
```



2. Using Numpy randn() function

This function returns an array of shape mentioned explicitly, filled with values from the standard normal distribution. The values are always floating-point numbers based on the normal distribution having the mean equal to 0 and variation equal to 1.

Parameters:

The `randn()` function only takes one parameter as input, `size` which is optional.



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Let's take a code example,

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`import numpy as np`

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`rand_n = np.random.randn()` # outputs a single floating point number

`print("First array", rand_n)`

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`rand_n2 = np.random.randn(4,5)` # outputs an 4x5 array filled with random float

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`print("Second array", rand_n2)`

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Output:

First arr

Second ar

[-0.4213

[-0.4547

[0.3141



3408267 2.85782319 1.28046521]

135505 -0.11190143]

875305 0.45955272]

03291 -0.68195657]]

3. Using `numpy.random.randn()`

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random samples from a uniform distribution over **[0, 1)** whereas the array created using the

`randn()` function is filled with random values from normal distribution.

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Parameters:

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The `rand()` function also takes one parameter as input, `size` which is optional.

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- **Size:** Similar to `randn()` function, size here represents the dimensions of the returned array. If

nothing is passed we will get a single floating-point number as output.

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```
import numpy as np
```

```
rand = np
```

```
print("Fi
```

```
rand2 = n
```

loating-point value .

2 array filled with random floating



Output:

First array 0.7578858928993336

Second array [[0.15647101 0.13870584]

[0.89344256 0.68226333]

[0.46247578 0.09658549]]

Conclusion

Generally, we use `randint()` function when we need random integer values but the `randn()`

function on the other hand is used when we want floating-point random numbers that are both

positive and negative. Finally, the `rand()` function unlike `randn()` is used when we want random



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So, you just learned how to use random functions to generate random NumPy arrays. These random functions are extremely useful and widely used in machine learning and deep learning.

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