How can I create a NumPy matrix with random numbers?

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Creating a NumPy matrix with random numbers can be achieved by using the NumPy library's "random" module. This module provides various functions to generate random numbers and arrays. To create a matrix, the "numpy.random.rand()" function can be used, which takes in the desired size of the matrix as its parameters. This function will return a matrix with random numbers ranging from 0 to 1. Alternatively, the "numpy.random.randint()" function can be used to create a matrix with random integers within a specified range. These functions can be further customized by specifying the data type, shape, and other parameters to generate a desired matrix with random numbers.

Create a NumPy Matrix with Random Numbers

You can use the following methods to create a NumPy matrix with random numbers:

Method 1: Create NumPy Matrix of Random Integers

np.random.randint(low, high, (rows, columns))

Method 2: Create NumPy Matrix of Random Floats

np.random.rand(rows, columns)

The following examples show how to use each method in practice.

Example 1: Create NumPy Matrix of Random Integers

The following code shows how to create a NumPy matrix of random values that ranges from 0 to 20 with a

shape of 7 rows and 2 columns:

```
import numpy as np

#create NumPy matrix of random integers
np.random.randint(0, 20, (7, 2))

array(,
,
,
,
,
,
])
```

Notice that each value in the matrix ranges between 0 and 20 and the final shape of the matrix is 7 rows and 2 columns.

Example 2: Create NumPy Matrix of Random Floats

The following code shows how to create a NumPy matrix with random float values between 0 and 1 and a shape of 7 columns and 2 rows:

```
import numpy as np
```

#create NumPy matrix of random floats
np.random.rand(7, 2)

array(,
,
,
,
,
,
])

The result is a NumPy matrix that contains random float values between 0 and 1 with a shape of 7 rows and 2 columns.

Note that you can also use the NumPy round() function to round each float to a certain number of decimal places.

For example, the following code shows how to create a NumPy matrix of random floats each rounded to 2 decimal places:

import numpy as np

#create NumPy matrix of random floats rounded to 2 decimal places
np.round(np.random.rand(5, 2), 2)

array(,
,
,
,
])

Additional Resources

The following tutorials explain how to perform other common conversions in Python: