

How can I fill a NumPy array with values? Can you provide some examples?

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June 27, 2024

RECOMMENDED CITATION

stats writer (2024). *How can I fill a NumPy array with values? Can you provide some examples?*. PSYCHOLOGICAL SCALES. Retrieved from <https://scales.arabpsychology.com/?p=155403>

NumPy is a powerful Python library that provides efficient data structures and tools for scientific computing. One of its key features is its ability to create and manipulate homogeneous multidimensional arrays. To fill a NumPy array with values, one can use the `numpy.array()` function and pass in a list or tuple containing the desired values. Alternatively, NumPy also offers specialized functions such as `numpy.zeros()` and `numpy.ones()` to create arrays filled with zeros or ones respectively. Here are some examples of how to fill a NumPy array with values:

1. Using the `numpy.array()` function:

```
```python
import numpy as np
my_arr = np.array()
print(my_arr)
Output:
...`
```

2. Using the `numpy.zeros()` function:

```
```python
import numpy as np
my_arr = np.zeros((3, 3)) # creates a 3x3 array filled with zeros
print(my_arr)
# Output:
#
#
# ]
...`
```

3. Using the `numpy.ones()` function:

```
```python
import numpy as np
my_arr = np.ones((2, 4)) # creates a 2x4 array filled with ones
print(my_arr)
Output:
#
]
...`
```

In summary, NumPy provides various methods for filling arrays with values, allowing for efficient and flexible data manipulation for scientific computing tasks.

## Fill NumPy Array with Values (2 Examples)

You can use the following methods to fill a NumPy array with values:

### Method 1: Use np.full()

```
#create NumPy array of length 10 filled with 3's
my_array = np.full(10, 3)
```

### Method 2: Use fill()

```
#create empty NumPy array with length of 10
my_array = np.empty(10)

#fill NumPy array with 3's
my_array.fill(3)
```

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

### Example 1: Use np.full()

The following code shows how to use the np.full() function to fill up a NumPy array of length 10 with the value 3 in each position:

```
import numpy as np

#create NumPy array of length 10 filled with 3's
my_array = np.full(10, 3)

#view NumPy array
print(my_array)
```

The NumPy array is filled with a value of 3 in each position.

We can use similar syntax to create a NumPy array of any size.

For example, the following code shows how to create a NumPy array with 7 rows and 2 columns:

```
import numpy as np

#create NumPy array filled with 3's
my_array = np.full((7, 2), 3)

#view NumPy array
print(my_array)
```

]

The result is a NumPy array with 7 rows and 2 columns where each position is filled with a value of 3.

Example 2: Use fill()

The following code shows how to use the fill() function to fill up an empty NumPy array with the value 3 in each position:

```
#create empty NumPy array with length of 10
```

```
my_array = np.empty(10)
```

```
#fill NumPy array with 3's
```

```
my_array.fill(3)
```

```
#view NumPy arrayprint(my_array)
```

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