

# Reshaping in NumPy

This lesson explains how to reshape an array into various dimensions.

## We'll cover the following



- Examples
  - Reshape to 12 rows and 1 column
  - Reshape to 3 rows and 4 columns
  - Reshape to 4 rows and 3 column
  - Reshape to 6 rows and 2 columns
  - Reshape to 2 rows and 6 column

As explained in the previous lesson, to create a basic NumPy array write:

```
Z = np.array([0,0,0,0,0,0,0,0,0,0,1,0])
```

0	0	0	0	0	0	0	0	0	0	1	0
---	---	---	---	---	---	---	---	---	---	---	---

```
1 import numpy as np
2 Z = np.array([0,0,0,0,0,0,0,0,0,0,1,0])
3 print(Z)
```



We can reshape the array in any dimension

The basic syntax for reshaping array is:

```
Z=np.array(1D_array).reshape(x_dimension,y_dimension)
```

# Examples #

The following examples shows how to reshape an array in different dimensions:-

## Reshape to 12 rows and 1 column #

To reshape array to 12 rows and 1 column write:

```
Z = np.array([0,0,0,0,0,0,0,0,0,0,0,1,0]).reshape(12,1)
```

z

0
0
0
0
0
0
0
0
0
0
0
1
0

```
import numpy as np
Z = np.array([0,0,0,0,0,0,0,0,0,0,0,1,0]).reshape(12,1)
print(Z)
```



## Reshape to 3 rows and 4 columns #

To reshape array to 3 rows and 4 columns write:

```
Z = np.array([0,0,0,0,0,0,0,0,0,0,0,1,0]).reshape(3,4)
```

Z

0	0	0	0
0	0	0	0
0	0	1	0

```
import numpy as np
Z = np.array([0,0,0,0,0,0,0,0,0,0,0,1,0]).reshape(3,4)
print(Z)
```



## Reshape to 4 rows and 3 column #

To reshape array to 4 rows and 3 columns write:

```
Z = np.array([0,0,0,0,0,0,0,0,0,0,0,1,0]).reshape(4,3)
```

Z

0	0	0
0	0	0
0	0	0
0	1	0

```
import numpy as np
Z = np.array([0,0,0,0,0,0,0,0,0,0,0,1,0]).reshape(4,3)
print(Z)
```



## Reshape to 6 rows and 2 columns #

To reshape array to 6 rows and 2 columns write:

```
Z = np.array([0,0,0,0,0,0,0,0,0,0,0,1,0]).reshape(6,2)
```

Z	0	0
	0	0
	0	0
	0	0
	0	0
	1	0

```
import numpy as np
Z = np.array([0,0,0,0,0,0,0,0,0,0,0,1,0]).reshape(6,2)
print(Z)
```



## Reshape to 2 rows and 6 column #

To reshape array to 2 rows and 6 columns write:

```
Z = np.array([0,0,0,0,0,0,0,0,0,0,0,1,0]).reshape(2,6)
```

Z	0	0	0	0	0	0
	0	0	0	0	1	0

```
import numpy as np
Z = np.array([0,0,0,0,0,0,0,0,0,0,0,1,0]).reshape(2,6)
print(Z)
```





Solve this Quiz!

Q

Given an array `z`. How would you reshape an array in 3 rows and 2 columns?

```
z = np.array([0,0,0,0,0,0,0,0,0,0,0,1,0])
```

☐

A)

```
z = np.array([0,0,0,0,0,0,0,0,0,0,0,1,0]).reshape(3,2)
```

☐

B)

```
z = np.array([0,0,0,0,0,0,0,0,0,0,0,1,0]).reshape(2,2)
```

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1 of 1



Now that we have learned to reshape an array using NumPy, let's move to learn "Indexing in NumPy" in the next lesson.