Reshaping in NumPy

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

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


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

We can reshape the array in any dimension

The basic syntax for reshaping array is:

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

Examples

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

Reshape to 12 rows and 1 column

To reshape array to 12 rows and 1 column write:

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



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



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



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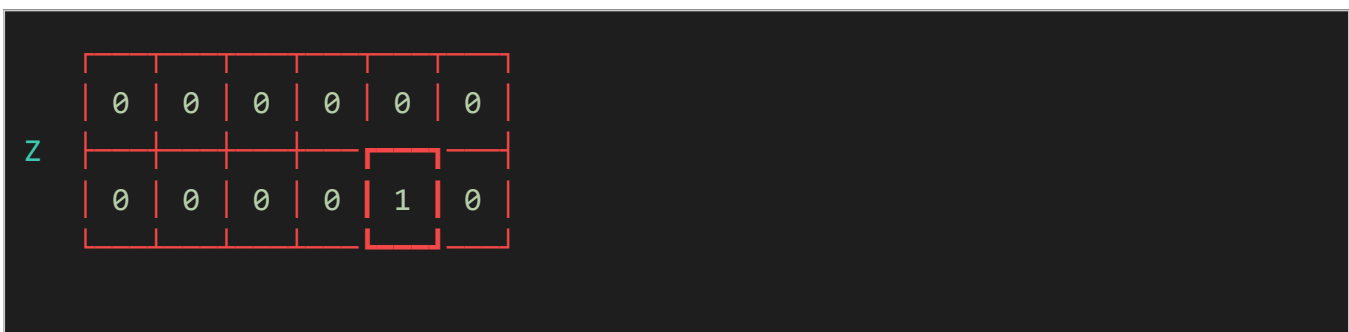


```
import numpy as np
Z = np.array([0,0,0,0,0,0,0,0,0,0,1,0]).reshape(6,2)
print(Z)
```

Reshape to 2 rows and 6 column

To reshape array to 2 rows and 6 columns write:

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



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

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

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

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