

```
1 ### md
2 # PyTorch Tensor
3 ###
4 import torch
5 ### md
6 ### Tensor Allocation
7 ###
8 ft = torch.FloatTensor([[1, 2],
9                          [3, 4]])
10 ft
11 ###
12 lt = torch.LongTensor([[1, 2],
13                         [3, 4]])
14 lt
15 ###
16 bt = torch.ByteTensor([[1, 0],
17                        [0, 1]])
18 bt
19 ###
20 x = torch.FloatTensor(3, 2)
21 x
22 ### md
23 ### NumPy Compatibility
24 ###
25 import numpy as np
26
27 # Define numpy array.
28 x = np.array([[1, 2],
29              [3, 4]])
30 print(x, type(x))
31 ###
32 x = torch.from_numpy(x)
33 print(x, type(x))
34 ###
35 x = x.numpy()
36 print(x, type(x))
37 ### md
38 ### Tensor Type-casting
39 ###
40 ft.long()
41 ###
```

```
42 lt.float()
43 ###
44 torch.FloatTensor([1, 0]).byte()
45 ### md
46 ### Get Shape
47 ###
48 x = torch.FloatTensor([[[1, 2],
49                        [3, 4]],
50                        [[5, 6],
51                        [7, 8]],
52                        [[9, 10],
53                        [11, 12]]])
54 ### md
55 ##### - Get tensor shape.
56 ###
57 print(x.size())
58 print(x.shape)
59 ### md
60 ##### - Get number of dimensions in the tensor.
61 ###
62 print(x.dim())
63 print(len(x.size()))
64 ### md
65 ##### - Get number of elements in certain dimension
    of the tensor.
66 ###
67 print(x.size(1))
68 print(x.shape[1])
69 ### md
70 ##### - Get number of elements in the last
    dimension.
71 ###
72 print(x.size(-1))
73 print(x.shape[-1])
```