

```
import numpy as np
```

```
np.__version__
```

```
↗ '1.26.4'
```

```
import sys
```

```
sys.version
```

```
↗ '3.11.11 (main, Dec 4 2024, 08:55:07) [GCC 11.4.0]'
```

```
my_list=[0,1,2,3,4,5]
```

```
type(my_list)
```

```
↗ list
```

✓ here we are converting list to array

```
arr=np.array(my_list)
```

```
arr
```

```
↗ array([0, 1, 2, 3, 4, 5])
```

```
type(arr)
```

```
↗ numpy.ndarray
```

```
type(my_list)
```

```
↗ list
```

```
np.arange(15)
```

```
↗ array([ 0,  1,  2,  3,  4,  5,  6,  7,  8,  9, 10, 11, 12, 13, 14])
```

```
np.arange(3.0)
```

```
↗ array([0., 1., 2.])
```

```
np.arange(10)
```

```
↗ array([0, 1, 2, 3, 4, 5, 6, 7, 8, 9])
```

```
np.arange(10,20)
```

```
↗ array([10, 11, 12, 13, 14, 15, 16, 17, 18, 19])
```

```
np.arange(20,10)
```

```
↗ array([], dtype=int64)
```

```
np.arange(-20,10)
```

```
↗ array([-20, -19, -18, -17, -16, -15, -14, -13, -12, -11, -10, -9, -8,
        -7, -6, -5, -4, -3, -2, -1,  0,  1,  2,  3,  4,  5,
         6,  7,  8,  9])
```

```
np.arange(-20,-10)
```

```
↗ array([-20, -19, -18, -17, -16, -15, -14, -13, -12, -11])
```

✓ using variable print values using arange function



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always starting number(1st argument value)  
should less than 2nd argument value

```

ar=np.arange(-30,20)
ar

array([-30, -29, -28, -27, -26, -25, -24, -23, -22, -21, -20, -19, -18,
       -17, -16, -15, -14, -13, -12, -11, -10, -9, -8, -7, -6, -5,
        -4, -3, -2, -1,  0,  1,  2,  3,  4,  5,  6,  7,  8,
         9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19])

np.arange(10,10)

array([], dtype=int64)

np.arange(10,30,5)

array([10, 15, 20, 25])

np.zeros(3)

array([0., 0., 0.])

```

✓ if we want to get output as int need to tune

```

np.zeros(3,dtype=int)

array([0, 0, 0])

np.zeros((10,10))

array([[0., 0., 0., 0., 0., 0., 0., 0., 0., 0.],
       [0., 0., 0., 0., 0., 0., 0., 0., 0., 0.],
       [0., 0., 0., 0., 0., 0., 0., 0., 0., 0.],
       [0., 0., 0., 0., 0., 0., 0., 0., 0., 0.],
       [0., 0., 0., 0., 0., 0., 0., 0., 0., 0.],
       [0., 0., 0., 0., 0., 0., 0., 0., 0., 0.],
       [0., 0., 0., 0., 0., 0., 0., 0., 0., 0.],
       [0., 0., 0., 0., 0., 0., 0., 0., 0., 0.],
       [0., 0., 0., 0., 0., 0., 0., 0., 0., 0.],
       [0., 0., 0., 0., 0., 0., 0., 0., 0., 0.]])

```

```

np .twos((2,3))

-----
AttributeError                                Traceback (most recent call last)
<ipython-input-33-88a61ffc3b98> in <cell line: 0>()
----> 1 np.twos((2,3))

/usr/local/lib/python3.11/dist-packages/numpy/__init__.py in __getattr__(attr)
   331         raise RuntimeError("Tester was removed in NumPy 1.25.")
   332
--> 333         raise AttributeError("module {!r} has no attribute "
   334                                "{!r}".format(__name__, attr))
   335

AttributeError: module 'numpy' has no attribute 'twos'

```

```

rand(3,2)

-----
NameError                                Traceback (most recent call last)
<ipython-input-35-1463f76bb951> in <cell line: 0>()
----> 1 rand(3,2)

NameError: name 'rand' is not defined

```

```

rand(3,2)
random.rand(3,2)

-----
NameError                                Traceback (most recent call last)
<ipython-input-36-ce9aa083710b> in <cell line: 0>()
----> 1 rand(3,2)
      2 random.rand(3,2)

NameError: name 'rand' is not defined

```



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hyper parameter tuning

```
rand(3,2)
np.random.rand(3,2)
```



```
-----
NameError                                Traceback (most recent call last)
<ipython-input-37-619bcccd2b10> in <cell line: 0>()
----> 1 rand(3,2)
      2 np.random.rand(3,2)

NameError: name 'rand' is not defined
```

```
np.random.rand(3,2)
```



```
array([[0.49654945, 0.50639514],
       [0.06682756, 0.90243383],
       [0.28243928, 0.92006339]])
```

```
np.random.rand(5)
```



```
array([0.1882696 , 0.30311689, 0.24850663, 0.02803731, 0.17759361])
```

```
np.random.rand(2,4)
```



```
array([[0.16255543, 0.41229391, 0.29469567, 0.02175692],
       [0.05785136, 0.14678654, 0.72092355, 0.30873533]])
```

```
np.random.rand(3,4)
```



```
array([[0.10562095, 0.98563923, 0.80334234, 0.80177357],
       [0.43281755, 0.30535916, 0.93778784, 0.82462896],
       [0.98067341, 0.71922334, 0.7536273 , 0.49978009]])
```

```
np.random.rand(7,3)
```



```
array([[0.87607703, 0.27626449, 0.97002968],
       [0.09635501, 0.11480199, 0.90459635],
       [0.9057815 , 0.935559 , 0.91758837],
       [0.84560935, 0.09858685, 0.49653224],
       [0.91796425, 0.36668134, 0.53863375],
       [0.26625232, 0.96448204, 0.15094057],
       [0.9478106 , 0.23378168, 0.80256214]])
```

```
np.random.randint(2,4)
```



```
2
```

```
np.random.randint(2,20)#2nd argument is exclusive
```



```
7
```

```
np.random.randint(10,20,5)
```



```
array([13, 14, 18, 13, 18])
```

Start coding or [generate](#) with AI.



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random numbers will generate



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1d



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2d



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3d



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nd



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prints 2 to 19 randomly



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5numbers between 10 and 19