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In [1]: #21BEC7152
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import numpy as np

In [2]: zeros_array=np.zeros(10)

In [3]: zeros_array
Out[3]: array([0., 0., 0., 0., 0., 0., 0., 0., 0., 0.])

In [4]: ones_array=np.ones(10)

In [5]: ones_array
Out[5]: array([1., 1., 1., 1., 1., 1., 1., 1., 1., 1.])

In [6]: fives_array = np.ones(10)*5

In [7]: fives_array
Out[7]: array([5., 5., 5., 5., 5., 5., 5., 5., 5., 5.])

In [8]: integers = np.arange(10, 51)

In [9]: integers
Out[9]: array([10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26,
27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43,
44, 45, 46, 47, 48, 49, 50])

In [10]: even_integers= np.arange(10, 51, 2)

In [11]: even_integers
Out[11]: array([10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42,
44, 46, 48, 50])

In [12]: matrix=np.arange(9).reshape(3,3)

In [13]: matrix
Out[13]: array([[0, 1, 2],
[3, 4, 5],
[6, 7, 8]])

In [14]: matrix = np.eye(3)

In [15]: matrix
Out[15]: array([[1., 0., 0.],
[0., 1., 0.],
[0., 0., 1.]])

In [16]: random=np.random.rand()

In [17]: random
Out[17]: 0.13290957125986913

In [22]: random_numbers = np.random.randn(25)

In [23]: random_numbers
Out[23]: array([ 1.13353077, -1.3835979 ,  0.00583986, -1.9932077 ,  0.42173757,
-0.41944744, -0.28932777, -0.12851813, -0.14745693, -0.55618731,
-0.21197336,  0.07683822,  0.21141923,  0.45003658,  0.48813446,
-0.60296451,  0.79429904, -0.53622896, -0.96869516,  0.15227369,
 0.36661931,  0.10144578,  0.45979863, -2.00988612, -0.74412662])

In [24]: matrix = np.arange(0.01, 1.01, 0.01).reshape(10, 10)

In [25]: matrix
Out[25]: array([[0.01, 0.02, 0.03, 0.04, 0.05, 0.06, 0.07, 0.08, 0.09, 0.1 ],
[0.11, 0.12, 0.13, 0.14, 0.15, 0.16, 0.17, 0.18, 0.19, 0.2 ],
[0.21, 0.22, 0.23, 0.24, 0.25, 0.26, 0.27, 0.28, 0.29, 0.3 ],
[0.31, 0.32, 0.33, 0.34, 0.35, 0.36, 0.37, 0.38, 0.39, 0.4 ],
[0.41, 0.42, 0.43, 0.44, 0.45, 0.46, 0.47, 0.48, 0.49, 0.5 ],
[0.51, 0.52, 0.53, 0.54, 0.55, 0.56, 0.57, 0.58, 0.59, 0.6 ],
[0.61, 0.62, 0.63, 0.64, 0.65, 0.66, 0.67, 0.68, 0.69, 0.7 ],
[0.71, 0.72, 0.73, 0.74, 0.75, 0.76, 0.77, 0.78, 0.79, 0.8 ],
[0.81, 0.82, 0.83, 0.84, 0.85, 0.86, 0.87, 0.88, 0.89, 0.9 ],
[0.91, 0.92, 0.93, 0.94, 0.95, 0.96, 0.97, 0.98, 0.99, 1.  ]])

In [26]: linear_array=np.linspace(0,1,20)

In [27]: linear_array
Out[27]: array([0.          , 0.05263158, 0.10526316, 0.15789474, 0.21052632,
0.26315789, 0.31578947, 0.36842105, 0.42105263, 0.47368421,
0.52631579, 0.57894737, 0.63157895, 0.68421053, 0.73684211,
0.78947368, 0.84210526, 0.89473684, 0.94736842, 1.         ])

In [36]: array = np.array([[12, 13, 14, 15],[17, 18, 19, 20],[22, 23, 24, 25]])

In [37]: array
Out[37]: array([[12, 13, 14, 15],
[17, 18, 19, 20],
[22, 23, 24, 25]])

In [33]: number=20
number
Out[33]: 20

In [35]: array = np.array([[2], [7], [12]])
array
Out[35]: array([[ 2],
[ 7],
[12]])

In [40]: array = np.arange(21, 26)

In [41]: array
Out[41]: array([21, 22, 23, 24, 25])

In [42]: array = np.arange(16, 26).reshape(2, 5)

In [43]: array
Out[43]: array([[16, 17, 18, 19, 20],
[21, 22, 23, 24, 25]])

In [46]: mat = np.arange(1, 26).reshape(5, 5)
mat
Out[46]: array([[ 1,  2,  3,  4,  5],
[ 6,  7,  8,  9, 10],
[11, 12, 13, 14, 15],
[16, 17, 18, 19, 20],
[21, 22, 23, 24, 25]])

In [47]: total_sum = np.sum(mat)
total_sum
Out[47]: 325

In [48]: std_deviation = np.std(mat)

In [49]: std_deviation
Out[49]: 7.211102550927978

In [50]: columns_sum= np.sum(mat, axis=0)

In [51]: columns_sum
Out[51]: array([55, 60, 65, 70, 75])
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