

ASSIGNMENT 1 N DHANA RAHUL SAI

```
In [1]: import numpy as np
```

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

```
Out[2]: array([0., 0., 0., 0., 0., 0., 0., 0., 0., 0.])
```

```
In [3]: one = np.ones(10)
one
```

```
Out[3]: array([1., 1., 1., 1., 1., 1., 1., 1., 1., 1.])
```

```
In [4]: fiv = np.full(10,5.0)
fiv
```

```
Out[4]: array([5., 5., 5., 5., 5., 5., 5., 5., 5., 5.])
```

```
In [5]: arr = np.arange(10,51)
arr
```

```
Out[5]: 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 [6]: eve_arr = np.arange(10,51,2)
eve_arr
```

```
Out[6]: array([10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38,
                40, 42,
                44, 46, 48, 50])
```

```
In [7]: arra = np.array([[0,1,2],[3,4,5],[6,7,8]])
arra
```

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

```
In [8]: ran_num = np.random.rand(25)
ran_num
```

```
Out[8]: array([0.81191607, 0.34460948, 0.43867994, 0.26495169, 0.8626832 ,
               0.55581831, 0.53966748, 0.65462103, 0.31845816, 0.56242196,
               0.52078474, 0.90336747, 0.28699157, 0.59286837, 0.26369739,
               0.36472781, 0.02261945, 0.36945951, 0.31513466, 0.91616628,
               0.67161646, 0.1393101 , 0.45884768, 0.61294132, 0.94760508])
```

```
In [9]: arr_matrix = np.linspace(0.01,1.0,100).reshape(10,10)
arr_matrix
```

```
Out[9]: 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 [10]: np.linspace(0.01,1.0,20)
```

```
Out[10]: array([0.01      , 0.06210526, 0.11421053, 0.16631579, 0.21842105,
               0.27052632, 0.32263158, 0.37473684, 0.42684211, 0.47894737,
               0.53105263, 0.58315789, 0.63526316, 0.68736842, 0.73947368,
               0.79157895, 0.84368421, 0.89578947, 0.94789474, 1.
               ])
```

Numpy Indexing and Selection

```
In [11]: mat = np.arange(1,26).reshape(5,5)
mat
```

```
Out[11]: 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 [12]: mat1 = mat[2:6,1:6]
mat1
```

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

```
In [13]: mat[0:3,1:2]
```

```
Out[13]: array([[ 2],
                [ 7],
                [12]])
```

```
In [15]: mat[4:6,0:6]
```

```
Out[15]: array([[21, 22, 23, 24, 25]])
```

```
In [16]: mat[3:6,0:6]
```

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

```
In [18]: summ = np.sum(mat)
summ
```

```
Out[18]: 325
```

```
In [19]: sd = np.std(mat)
sd
```

```
Out[19]: 7.211102550927978
```

```
In [20]: col_sum = np.sum(mat,axis=0)
col_sum
```

```
Out[20]: array([55, 60, 65, 70, 75])
```

```
In [ ]:
```

