Lab-1

NumPy Exercises

```
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```

First Import NumPy as np

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

***Write a code to show array of 5 zeros***

In [4]: ```python
arr = np.zeros(5)
arr
```

Out[4]: `array([0., 0., 0., 0., 0.])`

Write a code to show an array of 5 ones

In [5]: ```python
arr = np.ones(5)
arr
```

Out[5]: `array([1., 1., 1., 1., 1.])`

***Write a code to show integer numbers from 0 to 20***

In [9]: ```python
arr = np.arange(0, 21)
arr
```

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

***Write a code to show integer numbers from 0 to 20 with step 3***

In [10]: ```python
arr = np.arange(0, 21, 3)
arr
```

Out[10]: `array([ 0,  3,  6,  9, 12, 15, 18])`

Write a code to show integer numbers from -50 to 20 with step 5

```
In [11]: arr = np.arange(-50, 21, 5)
         arr
```

```
Out[11]: array([-50, -45, -40, -35, -30, -25, -20, -15, -10,  -5,   0,   5,  10,
                  15,  20])
```

Write a code to show max numbers from 10 to 50

```
In [13]: arr = np.arange(10, 51)
         arr.max()
```

```
Out[13]: 50
```

Write a code to show a 4x6 matrix with values ranging from 0 to 24

```
In [16]: arr = np.arange(0, 24)
         arr.reshape(4, 6)
         arr
```

```
Out[16]: array([ 0,  1,  2,  3,  4,  5,  6,  7,  8,  9, 10, 11, 12, 13, 14, 15, 16,
                 17, 18, 19, 20, 21, 22, 23])
```

Write a code to show a 3x3 identity matrix

```
In [17]: arr = np.eye(3)
         arr
```

```
Out[17]: array([[1., 0., 0.],
                [0., 1., 0.],
                [0., 0., 1.]])
```

Write a code to show a random number between 0 and 10

```
In [19]: num = np.random.randint(0, 10)
         num
```

```
Out[19]: 1
```

Write a code to Create the following matrix:

In [21]:
```python
arr = np.arange(0, 1, 0.01)
arr
```

Out[21]: array([0. , 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])

Run the array below and answer the questions.

In [22]:
```python
array = np.arange(0, 25).reshape(5, 5)
array
```

Out[22]: array([[0, 1, 2, 3, 4],
       [5, 6, 7, 8, 9],
       [10, 11, 12, 13, 14],
       [15, 16, 17, 18, 19],
       [20, 21, 22, 23, 24]])

In [23]:
```python
arr = array[3]
arr
```

Out[23]: array([15, 16, 17, 18, 19])

In [47]:
```python
#Write a code to create this output
```

Out[47]: array([15, 16, 17, 18, 19])

In [24]:
```python
arr1 = array[3][4]
arr1
```

Out[24]: 19

In [48]:
```python
#Write a code to create this output
```

Out[48]: 19

In [31]:
```python
arr2 = array[3:]
arr2
```

Out[31]: array([[15, 16, 17, 18, 19],
       [20, 21, 22, 23, 24]])

In [52]:
```python
#Write a code to create this output
```

Out[52]: array([[15, 16, 17, 18, 19],
       [20, 21, 22, 23, 24]])

Please save as pdf and submit in Lab folder.

In [ ]: