20-07-2023

1.Create an array with zeros and ones and print the output

```
In [2]: import numpy as np
```

```
In [8]: a=np.zeros(2)
        b=np.ones(2)
        print(np.concatenate((a,b)))
```

```
[0. 0. 1. 1.]
```

2. Create an array and print the output

```
In [9]: c=np.array([1,2,3,4])
        print(c)
```

```
[1 2 3 4]
```

3. Create an array whose initial content is random and print the output

```
In [11]: print(np.empty(5,dtype=np.int8))
```

```
[ 97  53 -53  90 101]
```

4. Create an array with the range of values with even intervals

```
In [14]: print(np.arange(2,10,+2))
```

```
[2 4 6 8]
```

5. create an array with values that are spaced linearly in a specified interval

```
In [16]:  print(np.linspace(0,10,num=3,dtype=np.int8))
```

```
[ 0  5 10]
```

6. Access and manipulate elements in the array

```
In [17]:  arr=np.array([1,2,3,4,5])
          arr[3]
```

Out[17]: 4

7. Create a 2-dimensional array and check the shape of the array

```
In [19]:  a1=np.array([[10,20],[30,40]])
          print(a1)
```

```
[[10 20]
 [30 40]]
```

8. Using the arange() and linspace() function to evenly space values in a specified interval

```
In [20]:  a=np.linspace(0,100,num=11)
          print(a)
```

```
[  0.  10.  20.  30.  40.  50.  60.  70.  80.  90. 100.]
```

9.Create an array of random values between 0 and 1 in a given shape

```
In [25]:  d=np.linspace(0,1,num=3)
          print(d)
```

```
[0.  0.5 1. ]
```

10.Repeat each element of an array by a specified number of times using repeat() and tile() functions

```
In [28]: a=np.array([1,2,3,4,5,6])
         print(np.repeat(a,3))
         print(np.tile(a,3))
```

```
[1 1 1 2 2 2 3 3 3 4 4 4 5 5 5 6 6 6]
[1 2 3 4 5 6 1 2 3 4 5 6 1 2 3 4 5 6]
```

11.How do you know the shape and size of an array?

```
In [32]: d=np.array([[1,2,3,4],[10,20,30,40]])
         print(np.shape(d))
         print(np.size(d))
```

```
(2, 4)
8
```

12.Create an array that indicates the total number of elements in an array

```
In [33]: x=np.arange(6)
         print(x)
```

```
[0 1 2 3 4 5]
```

```
In [ ]:
```

13.To find the number of dimensions of the array

```
In [35]: print(np.ndim(d))
```

```
2
```

14.Create an array and reshape into a new array

```
In [40]: h=np.array([12,33,44,55])
         print(h.reshape(2,2))
```

```
[[12 33]
 [44 55]]
```

15.Create a null array of size 10

In [41]:
```python
print(np.empty(10,dtype=np.int8))
```

```
[-80 -74 -86  94 101   2   0   0   0   0]
```

16.Create any array with values ranging from 10 to 49 and print the numbers whose remainders are zero when divided by 7

In [42]:
```python
y=np.arange(10,48)
print(y[y%7==0])
```

```
[14 21 28 35 42]
```

17.Create an array and check any two conditions and print the output

In [44]:
```python
a3=np.array([12,34,14,67,88,95,15])
print(a3[(a3>15)&a3<34])
```

```
[12 34 14 67 88 95 15]
```

18.Use Arithmetic operator and print the output using array

In [45]:
```python
print(y[3]+y[7])
```

```
30
```

19.Use Relational operators and print the results using array

In [46]:
```python
print(a3[a3%3==0])
```

```
[12 15]
```

20.Difference between python and ipython

#Python is a programming language, while IPython is an interactive shell for Python

In [ ]: