In [2]:

```
import numpy as np
```

1. Create an array with zeros and ones

In [4]:

```
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 [5]:

```
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 [8]:

```
print(np.empty(5,dtype=np.int8))
```

```
[112  13   2 -61 -71]
```

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

In [9]:

```
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 [11]:

```
print(np.linspace(0,10,num=3,dtype=np.int8))
```

```
[ 0  5 10]
```

6. Access and manipulate elements in the array

In [13]:

```
arr1=np.array([1,2,3,4,5])
arr1[3]
```

Out[13]:

```
4
```

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

In [16]:

```
a1=np.array([[10,20],[30,40]])
print(np.ndim(a1))
print(np.shape(a1))
```

```
2
(2, 2)
```

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

In [20]:

```
print(np.arange(2,12,+2))
print(np.linspace(2,12,num=5,dtype=np.int8))
```

```
[ 2  4  6  8 10]
[ 2  4  7  9 12]
```

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

In [27]:

```
print(np.empty(2,dtype=np.int8))
```

```
[0 0]
```

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

In [28]:

```
g=np.array([1,2,3,4,5])
print(np.repeat(g,2))
print(np.tile(g,2))
```

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

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

In [29]:

```
#using the functions shape & size
print(np.shape(g))
print(np.size(g))
```

```
(5,)
5
```

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

In [32]:

```
print(np.size(g))
```

```
5
```

13. To find the number of dimensions of the array

In [33]:

```
print(np.ndim(g))
```

```
1
```

14. Create an array and reshape into a new array

In [37]:

```
h=np.array([23,12,34,56])
print(h.reshape(2,2))
```

```
[[23 12]
 [34 56]]
```

15. Create a null array of size 10

In [39]:

```
print(np.empty(10,dtype=np.int8))
```

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

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

In [40]:

```
y=np.arange(10,49)
print(y[y%7==0])
```

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

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

In [41]:

```
a2=np.array([12,34,14,67,24,15,77])
print(a2[(a2>15)&(a2<34)])
```

```
[24]
```

18. Use Arithmetic operator and print the output using array

In [42]:

```
print(y[3]+y[7])
```

```
30
```

19. Use Relational operators and print the results using array

In [44]:

```
print(y[(y>14)&(y<40)&(y%2==0)])
```

```
[16 18 20 22 24 26 28 30 32 34 36 38]
```

20. Difference between python and ipython

```
Python is a high level programming language and easy to write, use and build.
where ipython is a interactive level established in 2001.
```