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

```
In [2]: a=[1,23,45,56]
        type(a)
```

Out[2]: list

```
In [3]: b=np.array(a)
        type(b)
```

Out[3]: numpy.ndarray

```
In [6]: a=int(input("Enter the length of list  : "))
        c=[]
        for i in range(1,a+1):
            c.append(input("Emter the element : "))
        print(c)
        d=np.array(c)
        print(d)
```

```
Enter the length of list  : 5
Emter the element :
Emter the element : 5
Emter the element : 5
Emter the element : 5
Emter the element : 5
['', '5', '5', '5', '5']
['' '5' '5' '5' '5']
```

How to check shape and size of an array?

```
In [11]: #shape=n(rows),n(columns)
         #size=total_elements --> n(rows)*n(columns)
         a=[[1,2,3],[4,5,6],[7,8,9]]
         b=np.array(a)
         print(b)
         print("Total Shape : ", b.shape)
         print("Total Elements : ", b.size)
```

```
[[1 2 3]
 [4 5 6]
 [7 8 9]]
Total Shape :  (3, 3)
Total Elements :  9
```

```python
# Image --> pixel --> (0-225)px --> 0px (complete black), 225px(white)

#convert --> grasyscale image -->

# image(pixel)--> normalization(0-1)--> 0px black , 1px white

# 0,1 --> Neuron Sysytem

# Matrix --> rows , columns -->

# symmertric matrix --> rows==columns
# asymmertric matrix -->rows!=columns
# diagonal Element = [(1,1),(2,2),(3,3)....(n,n)]
```

```python
# 1) Zeros() --> It will create an array in which all the elemets are zerow
```

```python
a=np.zeros(4)
a
```

    array([0., 0., 0., 0.])

```python
a=np.zeros((3,4))
a
```

    array([[0., 0., 0., 0.],
           [0., 0., 0., 0.],
           [0., 0., 0., 0.]])

```python
# 2) Ones() --> It will create an array in which all the values are one.
```

```python
a=np.ones(4)
a
```

    array([1., 1., 1., 1.])

```python
a=np.ones((3,4))
a
```

    array([[1., 1., 1., 1.],
           [1., 1., 1., 1.],
           [1., 1., 1., 1.]])

```python
# 3) It is a function that create an array in which all the diagonals are 1
```

```python
a=np.eye(3,4) # asymmetric
a
```

    array([[1., 0., 0., 0.],
           [0., 1., 0., 0.],
           [0., 0., 1., 0.]])
```

```python
In [25]: a=np.eye(4,4) # symmetric
         a
```

```
Out[25]: array([[1., 0., 0., 0.],
                [0., 1., 0., 0.],
                [0., 0., 1., 0.],
                [0., 0., 0., 1.]])
```

```python
In [ ]:
```