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Numpy:

•It is used to perform operations like array, addition, subtraction, multiplication, to create some random numbers, create dummy values etc.

•Collection of homogeneous values.

Import numpy as np

arr1 = np.array([1,2.5,67,'priya'])

arr1

```
array(['1', '2.5', '67', 'priya'], dtype='<U32')
```

list vs array

1.In list we cannot do element - wise operation but in array we can

2.Array to list conversion is poosible and also list to array conversion it also poosible

but we will lose the dimension.

3.List is hetrogeneous datatype but numpy is a homogenous datatype.

a1 = np.array([1,2,3,4,5])

a2 = np.array([4,5,6,7,8])

a1+a2

```
array([ 5,  7,  9, 11, 13])
```

a2 = np.array([[4,5,6,7,8]])

list1 = a2.tolist()

list1

```
[[4, 5, 6, 7, 8]]
```

np.zeros((4,3))

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

np.zeros((4,3),dtype=int)

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

np.eye((3),dtype=int)

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

```
np.identity((3),dtype=int)
array([[1, 0, 0],
       [0, 1, 0],
       [0, 0, 1]])
```

```
a1.reshape((6,2))
array([[4, 5],
       [8, 1],
       [9, 2],
       [0, 5],
       [1, 3],
       [6, 9]])
```

```
a1.flatten()
array([4, 5, 8, 1, 9, 2, 0, 5, 1, 3, 6, 9])
```