

Numpy! (DAY - 1) (1.21.2020) (1, 0, 0) square - 9

↳ Numpy is a fundamental library for scientific computing in python.

↳ It provides support for arrays and matrices.

Install! ! pip install numpy

* Import numpy as np

↳ Create array using numpy

arr1 = np.array([1, 2, 3, 4, 5]) — Create a 1D array

Print(arr1)

Print(type(arr1))

Print(arr1.shape)

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

arr1.reshape(1, 5)

* Create 2-d array

arr1 = np.array([[1, 2, 3], [4, 5, 6]])

Print(arr1)

Print(arr1.shape)

* Arrange 0 to 10 numbers with difference 2
reshape to (5,1)

`np.arange(0, 10, 2).reshape(5, 1)`

* Fill 1 as an element in matrix

`np.ones((3, 4))`

* Create Identity matrix

`np.eye(3)`

* Attributes of numpy array

Print ("array: ", arr)

arr.shape —> rank nahi

arr.ndim —> dimension

arr.size —> element

arr.dtype —> data type

arr.itemsize —> bytes

Numpy Vectorized Operations:-

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

arr2 = np.array([5, 6, 7, 8])

A1 = arr1 + arr2

A2 = arr1 - arr2

A3 = arr1 * arr2

A4 = arr1 / arr2

Universal function

Square root :- np.sqrt(arr)

Exponential :- np.exp(arr)

Sine :- np.sin(arr)

log :- np.log(arr)

Array Slicing & Indexing



arr = np.array([[1, 2, 3], [4, 5, 6], [7, 8, 9]])

Print (arr)

Print (arr [1, 1:2])

[[5, 6], [8, 9]]

Modify Array elements

arr [0, 0] = 100

Print (arr)

[[100, 2, 3],

[4, 5, 6],

[7, 8, 9]]

Statistical Concepts

mean :- np.mean (arr)

standard deviation :- np.std (arr)

normalized data :- $\frac{arr - mean}{std_dev}$

variance :- np.var (arr)

median :- np.median (arr)

Logical Operation

```
data = np.array([1, 2, 3, 4, 5, 6, 7, 8, 9, 10])
```

```
data[(data >= 5) & (data <= 8)]
```