**Assignment-1**

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**1. What makes NumPy.shape() different from NumPy.size()?**

The Size method in Numpy arrays refers to the count or the number of elements in a specific array. In contrast, the Shape method refers to the array's dimensions or the array's number of rows and columns.

For example,

arr = np.array([

[0, 1, 2, 3, 4, 5, 6],

[0, 1, 2, 3, 4, 5, 6],

[0, 1, 2, 3, 4, 5, 6]

])

arr.shape (3,7) and arr.size 21

**2. In NumPy, describe the idea of broadcasting?**

Numpy users use the broadcasting terminology to refer to how Numpy deal with arrays with different Dimensions during arithmetic operations such as adding, subtracting, division or multiplication. Generally, the smaller array is broadcast across the bigger array so that the output has a compatible shape.

Example:

A = [2, 4, 6]

B = 2

C = A \* B = [ 4, 8, 12]

**3. What makes Python better than other libraries for numerical computation?**

Because It is a highly productive computing language, it is applied to hundreds of subject areas—for example, machine learning and deep learning applications.

**4. How does NumPy deal with files?**

NumPy introduces a simple file format for the array objects. This .npy file stores data, shape, data type and other information required to reconstruct the array in a disk file such that the array is correctly retrieved even if the file is on another machine with different architecture.

**5. Mention the importance of NumPy.empty()?**

The numpy.empty () function returns a new array of a given shape and type. It has random values and uninitialized entries.

myarray = np.empty([1, 2, 3], dtype = int)

myarray = [[[7,0, 8]

[0, 9, 0]]]