

### **Assaigemt-1**

1)what makes NumPy.shape() different from Numpy.size()?

A) **NumPy.shape()**:-Numpy.shape() have an attribute called shape that returns a tuple with each index having the number of corresponding elements.

**NumPy.size()**:-size() function in python.The size of an array is total number of elements in the array.The NumPy.size() function is the NumPy package returns the size of the given array.

**Difference:-** NumPy.shape() is used to get the complete structure of our 2D array.for example(2,3).NumPy.size() will give how many elements are there in total.

**2)In NumPy describe the idea of broadcasting.**

A) The term broadcasting refers to the ability of NumPy to treat arrays of different shapes during aithmetic operations on arrays are usually done on corresponding elements.If two arrays of exactly same shape,then these operations are smoothly performed.

**3)what makes python better than other libraries for numerical computation?**

A) • Numerical python has fixed size, homogeneous (fixed type), multi-dimensional array type and lots of functions for various array operations.The result is a dynamically typed environment for array computing similar to matalab.  
• we can use lot of numerical libraries which can solve any mathematical problem.  
• Also python can solve any special numerical modules be used to solve numerical problems as well.  
• All the points that we discussed above makes python better than other libraries for numerical computation.

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

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

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

A) • The empty() function is used to create a new array of given size and type without initialising entries.The shape of the empty array,e.g.,(2,3) or 2. Desired output data type for the array,e.g.,numpy.int8