

# ASSIGNMENT 1

- What makes `numpy.shape()` different from `numpy.size()`?
- `Shape()` is used to get complete structural shape of our 2D array. For example `(3,4)` . `Np. Size()` will give us how many elements are present in total.

- In numpy describe the idea of broadcasting?
- The term broadcasting refers to the ability of NumPy to treat arrays of different shapes during arithmetic operations. Arithmetic operations on arrays are usually done on corresponding elements. If two arrays are of exactly the same shape, then these operations are smoothly performed.

- What makes python better than other libraries for numerical computation?
- SciPy (Scientific Numeric Library)
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- The library consists of modules for optimisation, image processing, FFT, special functions and signal processing. The SciPy package includes algorithms and functions which are the crux of Python scientific computing capabilities.
- NumPy. NumPy (Numerical Python) is the fundamental package for numerical computation in Python; it contains a powerful N-dimensional array object.

- How does numpy deals with files?
- How does Numpy deal with files?
- NumPy introduces a simple file format for ndarray objects. This . Npy file stores data, shape, dtype and other information required to reconstruct the ndarray in a disk file such that the array is correctly retrieved even if the file is on another machine with different architecture.

- Mention the importance of `numpy.empty()` ?
- The `numpy` module of Python provides a function called `numpy.empty()`. This function is used to create an array without initializing the entries of given shape and type.
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- Just like `numpy.zeros()`, the `numpy.empty()` function doesn't set the array values to zero, and it is quite faster than the `numpy.zeros()`. This function requires the user to set all the values in the array manually and should be used with caution.
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- Syntax
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- `numpy.empty(shape, dtype=float, order='C')`
- Parameters:
- shape: int or tuple of ints
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- This parameter defines the shape of the empty array, such as (3, 2) or (3, 3).
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- Dtype: data-type(optional)