Q1. What are the benefits of the built-in array package, if any?

Advantages NumPy Advantages Python Lists

Multi-dimensional Slicing Library-Independent

Broadcasting Functionality Intuitive

Processing Speed Less Complicated

Memory Footprint Heterogeneous List Data Allowed

Q2. What are some of the array package's limitations?

An array which is formed will be homogeneous. That is, in an integer array only integer values can be stored, while in a float array only floating value and character array can have only characters. Thus, no array can have values of two data types.

Q3. Describe the main differences between the array and numpy packages.

There are several important differences between NumPy arrays and the standard Python sequences: NumPy arrays have a fixed size at creation, unlike Python lists (which can grow dynamically). Changing the size of an ndarray will create a new array and delete the original.

Q4. Explain the distinctions between the empty, ones, and zeros functions.

empty, unlike zeros, does not set the array values to zero, and may therefore be marginally faster. On the other hand, it requires the user to manually set all the values in the array, and should be used with caution. Return a new array setting values to zero.

Q5. In the fromfunction function, which is used to construct new arrays, what is the role of the callable argument?

function : [callable] The function is called with N parameters, where N is the rank of shape. Each parameter represents the coordinates of the array varying along a specific axis. shape : [(N, ) tuple of ints] Shape of the output array, which also determines the shape of the coordinate arrays passed to function.

Q6. What happens when a numpy array is combined with a single-value operand (a scalar, such as an int or a floating-point value) through addition, as in the expression A + n?

Numpy arrays are mutable objects that have clearly defined in place operations. If a and b are arrays of the same shape, a += b adds the two arrays together, using a as an output buffer.

Q7. Can array-to-scalar operations use combined operation-assign operators (such as += or \*=)? What is the outcome?

Perl supports all the numeric operators you would expect: + for addition,- for subtraction, \* for multiplication and / for division. In addition, perl also provides \*\* for exponentiation, and % for modulus (remainder). These numeric operators are all known as binary operators, because they require exactly two operands, one on each side of the operator's symbols. As always, variables and constant values can be freely combined:

Q8. Does a numpy array contain fixed-length strings? What happens if you allocate a longer string to one of these arrays?

Q9. What happens when you combine two numpy arrays using an operation like addition (+) or multiplication (\*)? What are the conditions for combining two numpy arrays?

Q10. What is the best way to use a Boolean array to mask another array?

Q11. What are three different ways to get the standard deviation of a wide collection of data using both standard Python and its packages? Sort the three of them by how quickly they execute.

12. What is the dimensionality of a Boolean mask-generated array?