1. # Ans : Arrays represent multiple data items of the same type using a single name.In arrays, the elements can be

# accessed randomly by using the index number. Arrays allocate memory in contiguous memory locations for all its

# elements. Hence there is no chance of extra memory being allocated in case of arrays. This avoids memory

# overflow or shortage of memory in arrays.

2. # Ans : The number of elements to be stored in an array should be known in advance. An array is a static structure

# (which means the array is of fixed size). Once declared the size of the array cannot be modified. The memory

# which is allocated to it cannot be increased or decreased. Insertion and deletion are quite difficult in an

# array as the elements are stored in consecutive memory locations and the shifting operation is costly.

# Allocating more memory than the requirement leads to wastage of memory space and less allocation of memory

# also leads to a problem.

3. # Ans : The array package doesn't provide any help with numerical calculation with the items insdie it in number form

# while NumPy give you a wide variety of numerical operations. An array is a single dimensional entity which hold

# the numerical data, while numpy can have more than 1 dimension.In case of array, item can be accessed by its

# index position and it is easy task while in numpy item is accessed by its column and row index, which makes

# it slightly time taking. Same goes with appending operation.In case of array we do not form a tabular

# structure, while in numpy it forms a tabular structure.

4. # Ans : Empty function: An empty function is a function that does not contain any statement within its body. If you

# try to write a function definition without any statement in python ,it will return an error. To avoid this,

# we use pass statement. pass is a special statement in Python that does nothing. It only works as a dummy

# statement ones: This function returns a new array of given shape and data type, where the element’s value is 1.

# zeros: This function returns a new array of given shape and data type, where the element’s value is 0

5. # Ans : Its function is to execute the function over each coordinate and the resulting array. 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.

6. # Ans : If any scaler value such as integer is added to the numpy array then all the elements inside the array

# will add that value in it.

# Example :

import numpy as np

a=np.arange(9).reshape(3,3)

print(a)

print()

print(a+1)

[[0 1 2]

[3 4 5]

[6 7 8]]

[[1 2 3]

[4 5 6]

[7 8 9]]

7. # Ans : It will do the operation as per operators. Like if we use + operand it will update the current array by adding

# and when we use '\*', it will update by multiplying.

8. # Ans : Yes it is possible that we can include a string of fixed length in numpy array. The dtype of any numpy array

# containing string values is the maximum length of any string present in the array.

# Once set, it will only be able to store new string having length not more than the maximum length at the time

# of the creation. If we try to reassign some another string value having length greater than the maximum length

# of the existing elements, it simply discards all the values beyond the maximum length accept upto those values

# which are under the limit.

9. # Ans : It will simply add or multiply element to element at same position.The only requirement which must be met are:

# 1)Data type should be same.

# 2) Shape of the two matrices must be same

10. Ans :

y = np.array([.True,True,False,True])

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

m = np.ma.masked\_where(x>2,y)

print(list(m))

print(m.ndim)

[True, True, masked, masked]

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11. # Ans : Standard deviation can be calculated in amny ways. If wee see the formula of SD, it says

# std= Square Root of [ Summation of [square of (x-mean)/number of observation] ] .So this can be achive by:

# 1)Using math module :

import math

N = 1

avg=a

total=N

x=[1,2]

SD=math.sqrt((1-a)\*\*2+(2-a)\*\*2/N)