

## Python Numpy Exercise:

Question 1: Create a 4X2 integer array and Prints its attributes

```
'''Question 1: Create a 4X2 integer array and Prints its attributes'''

import numpy as np

firstarray = np.empty([4,2], dtype = numpy.uint16))

print("Printing Array")
print(firstarray)

print("Printing numpy array attributes")
print("Array shape is",firstarray.shape)
print ("Array dimension is", firstarray.ndim)
print("length of each element of array in bytes is",firstarray.itemsize)
```

Question 2: Create a 7X2 integer array from a range between 200 to 400 such that the difference between each element is 20

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'''Question 2: Create a 5X2 integer array from a range
between 200 to 400 such that the difference between each element is 20'''

import numpy as np

print ("create array")
array = np.arange(200,400,20)
array = array.reshape(5,2)
print(array)
```

Question 3: Following is the provided numPy array. return array of items in the third column from all rows

```
'''Question 3: Following is the provided numPy array.
return array of items in the third column from all rows'''

import numpy as np

array = np.array([[2,3,4,12], [5,6,7,23], [11,8,9,34], [44,55,66,77]])

print(array)

new_array=array[...,2]
print(new_array)
```

Question 4: Following is the given numpy array return array of odd rows and even columns

```
'''Question 4: Following is the given
numpy array return array of odd rows and even columns'''

import numpy as np

array = np.array([[3,6,9,12],[15,17,23,12],[24,45,67,89],[42,89,21,34],[72,30,
90,80]])
print(array)

new_array=array[::2,1::2]

print(new_array)
```

Question 5: Add the following two NumPy arrays and Modify a result array by calculating the square of each element

```
'''Question 5: Add the following two
NumPy arrays and Modify a result array by calculating
the square of each element'''

import numpy as np

array_one=np.array([[5,3,4,6], [7,5,2,9]])
array_two=np.array([[3,4,5,7], [2,3,3,4]])

array=array_one+array_two
print(array)

for num in array:
    num=array*num

print(num)
```

Question 6: Split the array into four equal-sized sub-arrays

Note: Create an 8X3 integer array from a range between 10 to 34 such that the difference between each element is 1 and then Split the array into four equal-sized sub-arrays.

```
'''Question 6 :Split the array into four equal-sized sub-arrays

Note: Create an 8X3 integer array from a range between 10 to 34
such that the difference between each element is 1
and then Split the array into four equal-sized
sub-arrays.'''

import numpy as np

array =np.arange(10,34,1)
array=array.reshape(8,3)

print(array)

new_array=np.split(array,4)
print(new_array)
```

Question 7; Sort following NumPy array

7.1- by the second row and

7.2-by the second column

```
'''Question 7; Sort following NumPy array

    7.1- by the second row and
    7.2-by the second column
'''

import numpy as np

array = np.array([[34,56,78],[76,54,32],[98,12,43]])

print(array)

sort_array_row= array[:,array[1,:].argsort()]

print(sort_array_row)

sort_array_col = array[array[:,1].argsort()]

print(sort_array_col)
```

Question 8: Following is the 2-D array. Print max from axis 0 and min from axis 1

```
'''Question 8: Following is the 2-D array. Print max from axis 0
and min from axis 1
'''

import numpy as np

array = np.array([[34,12,87],[76,24,32],[98,92,43]])
print(array)
array_min=np.amin(array,1)
print(array_min)
array_max=np.amax(array,0)
print(array_max)
```

Question 9: Following is the input NumPy array delete column two and insert following new column in its place.

```
'''Question 9: Following is the input NumPy array delete column
two and insert following new column in its place.
'''

import numpy as np

array = np.array([[34,12,87],[76,24,32],[98,92,43]])
print(array)

array= np.delete(array,1,axis=1)
print(array)

new_array=np.array([[10,10,10]])

array=np.insert(array,1,new_array,axis=1)

print(array)
```

Question 10: Create a two 2-D array and Plot it using matplotlib

```
'''Create a two 2-D array and Plot it using matplotlib
'''

import numpy as np
import matplotlib.pyplot as plt

samplear=np.arange(100,200,10)
samplear=samplear.reshape(5,2)

x=samplear[:,0:1]
y=samplear[:,1:2]

plt.plot(x,y)
plt.show()
```