Cognizance preliminary Task-8

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Question-1

Consider the vector [10, 11, 12, 13, 14], how to build a new vector with 5 consecutive zeros interleaved between each value?

Sample Input

First Number: 10

Last Number: 14

Sample Output

```
[10.  0.  0.  0.  0.  0. 11.  0.  0.  0.  0.  0. 12.  0.  0.  0.  0.  0. 13.
 0.  0.  0.  0.  0. 14.]
```

File name in Repo : vector.py

Output sample's:

```
>>>
========== RESTART: C:\Users\JAI\Documents\egjams\amrita\cognizance\preliminary\t8\vector.py ==========
Enter first number:7
Enter second number:12
[ 7.  0.  0.  0.  0.  0.  8.  0.  0.  0.  0.  0.  9.  0.  0.  0.  0.  0.
 10.  0.  0.  0.  0.  0. 11.  0.  0.  0.  0.  0. 12.]
>>>
```

```
>>>
========== RESTART: C:\Users\JAI\Documents\egjams\amrita\cognizance\preliminary\t8\vector.py ==========
Enter first number:23
Enter second number:27
[23.  0.  0.  0.  0.  0. 24.  0.  0.  0.  0.  0. 25.  0.  0.  0.  0.  0.
 26.  0.  0.  0.  0.  0. 27.]
>>>
```

Question-2

Consider two random array A and B, check if they are equal

Sample Input

First array:

[1 0 0 0 1 0]

Second array:

[0 0 1 1 0 1]

Sample Output

False

File name in Repo : equality.py

Output sample's:

```
>>>
====================== RESTART: C:\Users\JAI\Documents\egjams\amrita\cognizance\preliminary\t8\equality.py ======================
Enter array1 (blank to stop)
1
3
2

Enter array2 (blank to stop)
1
3
2

True
>>>
====================== RESTART: C:\Users\JAI\Documents\egjams\amrita\cognizance\preliminary\t8\equality.py ======================
Enter array1 (blank to stop)
1
3
3

Enter array2 (blank to stop)
1
2
3

False
>>>
```

Question-3

What is the result of the following expression ?

1. Print(0 * np.nan)

Ans. The output will be ' nan ' . As np.nan is the nan function of numpy library which says Not A Number and when 0 is multiplied with that you'll get the output is Not A Number.

2. Print(np.nan != np.nan)

Ans. ' True ' will be the output. As we cant check inequality on some unknown thing.

3. Print(np.inf > np.nan)

Ans. ' False ' is the output. As np.inf represents +ve infinity and np.nan represents Not A number and we cant check & compare these two.

4. Print(np.nan – np.nan)

Ans. The output will be ' nan ' . Cause the deference b/w two undefined is a undefined.

5. Print(0.3 == 3*0.1)

Ans. ' False ' , as 3*0.1 results 0.3…0..4 & hex value differs for 0.3 , 3*0.1 .

Question-4

Convert the first character of each element in a series to uppercase?

Sample Input

```
ser = pd.Series(['amrita', 'school', 'of', 'engineering' 'chennai' , 'campus'])
```

Sample Output

```
Amrita School Of Engineering Chennai Campus
```

File name in Repo : capitalize.py

Output sample's:

```
>>>
========== RESTART: C:\Users\JAI\Documents\egjams\amrita\cognizance\preliminary\t8\capitalize.py ==========
Enter series elements(0 to stop):
this
is
a
sample
0
This Is A Sample
>>>
========== RESTART: C:\Users\JAI\Documents\egjams\amrita\cognizance\preliminary\t8\capitalize.py ==========
Enter series elements(0 to stop):
an
other
one
bites
the
dust

0
An Other One Bites The Dust
>>>
```

Question-5

Do any two Exercises using Numpy

1. Addition of two numpy arrays

Sol.

File name in Repo : addition.py

Output sample's:

```
>>>
====================== RESTART: C:/Users/JAI/Documents/egjams/amrita/cognizance/preliminary/t8/addition.py ======================
Enter Array1 elements(Enter blank to stop):
6
8
12

Enter Array2 elements(Enter blank to stop):
87
4
2

[93. 12. 14.]
>>>
====================== RESTART: C:/Users/JAI/Documents/egjams/amrita/cognizance/preliminary/t8/addition.py ======================
Enter Array1 elements(Enter blank to stop):
13
765
23
124

Enter Array2 elements(Enter blank to stop):
13
542
132
132

[  26. 1307.  155.  256.]
>>>
```

2. Matrix multiplication

Sol.

File name in Repo : addition.py

Output sample:

```
>>>
====================== RESTART: C:/Users/JAI/Documents/egjams/amrita/cognizance/preliminary/t8/matrixm.py ======================
[[ 30  24  18]
 [ 84  69  54]
 [138 114  90]]
>>>
```

3. Getting index if values are same from 2 numpy arrays.

Sol.

File name in Repo : a.py

Output sample:

```
>>>
========================== RESTART: C:\Users\JAI\Documents\egjams\amrita\cognizance\preliminary\t8\a.py ==========================
Enter Array1 elements(Enter blank to stop):
1
2
3
4
5

Enter Array2 elements(Enter blank to stop):
2
4
9
8

1,3,
```