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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?

### OUTPUT:

```
PS C:\Users\rajashekarreddy\Downloads\cognizance> python -u "c:\Users\rajashekarreddy\Downloads\cognizance\vector.py"
first number :
10
second number :
14
[10, 11, 12, 13, 14]
5
[10. 0. 0. 0. 0. 0. 11. 0. 0. 0. 0. 0. 12. 0. 0. 0. 0. 0.]
13. 0. 0. 0. 0. 14. 0. 0. 0. 0.]
PS C:\Users\rajashekarreddy\Downloads\cognizance> █
```

### Question-2

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

### OUTPUT:

```
PS C:\Users\rajashekarreddy\Downloads\cognizance> python -u "c:\Users\rajashekarreddy\Downloads\cognizance\array.py"
First array:
[0 1 0 0 1 1]
Second array:
[0 0 0 0 0 1]
Test above two arrays are equal or not!
False
PS C:\Users\rajashekarreddy\Downloads\cognizance> █
```

### Question-3

What is the result of the following expression ?

```
print(0 * np.nan)
print(np.nan != np.nan)
print(np.inf > np.nan)
print(np.nan - np.nan)
print(0.3 == 3 * 0.1)
```

**OUTPUT:**

```
PS C:\Users\rajashekarreddy\Downloads\cognizance>
nan
True
False
nan
False
```

### 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'])
```

**OUTPUT:**

```
PS C:\Users\rajashekarreddy\Downloads\cognizance> python
original series:

amrita school of engineering chennai campus

Resulting Series :

Amrita School Of Engineering Chennai Campus
```

## Question-5

Do any two Exercises using Numpy

Multiplying two matrixes

## OUTPUT:

Question -5.2

```
PS C:\Users\rajashekarreddy\Downloads\cognizance> pyt
Enter the element ::>
1
2
3
4
5
6
7
8
9
[[1, 2, 3], [4, 5, 6], [7, 8, 9]]
Display Array In Matrix Form
1 2 3
4 5 6
7 8 9
Enter the element ::>
1
4
7
2
5
8
3
6
9
[[1, 4, 7], [2, 5, 8], [3, 6, 9]]
Display Array In Matrix Form
1 4 7
2 5 8
3 6 9

matrix after addition :

[[ 14  32  50]
 [ 32  77 122]
 [ 50 122 194]]
```

### Question -5.3

Identity matrix

OUTPUT:

```
PS C:\Users\rajashekarreddy\Downloads\cognizance> python -u
enter the size of identity matrix: 6
identity matrix of 6
[[1. 0. 0. 0. 0. 0.]
 [0. 1. 0. 0. 0. 0.]
 [0. 0. 1. 0. 0. 0.]
 [0. 0. 0. 1. 0. 0.]
 [0. 0. 0. 0. 1. 0.]
 [0. 0. 0. 0. 0. 1.]]
enter the any another size of identity matrix:4
identity matrix of 4
[[1. 0. 0. 0.]
 [0. 1. 0. 0.]
 [0. 0. 1. 0.]
 [0. 0. 0. 1.]]
```