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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:

```
===== RESTART: D:\AVV\2 nd year\sem4\PYTHON\Question - 1.py =====
First Number : 10
Last Number : 14
Input array:
[10 11 12 13 14]

New Array with 5 consecutive zeros :
[10.  0.  0.  0.  0.  0. 11.  0.  0.  0.  0. 12.  0.  0.  0.  0.  0.
 13.  0.  0.  0.  0.  0. 14.]
```

Question-2

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

OUTPUT:

```
===== RESTART: D
First array:
[1 1 0 1 1 1]
Second array:
[1 0 0 0 1 1]
False
```

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:

```
===== RESTART:
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'])
```

```
===== RESTART: D:\AVV\2 nd year\sem4\PYTHON\Question - 4.py =====  
original series:  
  
amrita school of engineering chennai campus  
  
Resulting Series :  
  
Amrita School Of Engineering Chennai Campus
```

OUTPUT:

Question-5

Do any two Exercises using Numpy

Addition of 2numpy arrays

OUTPUT: Question -5.1

```
===== RESTART: D:\AVV\2 nd year\sem4\PYTHON\Question - 5.1.py =====  
First Array [ 1 -5  9 10 10]  
Second Array [ 4  6 -4  2 -9]  
Sum of the arrays : [ 5  1  5 12  1]
```

Identity Matrix

OUTPUT: Question - 5.3

```
===== RESTART: D:\AVV\2 nd year\sem4\PYTHON\Question - 5.3.py =====  
Matrix [[1. 0. 0.]  
 [0. 1. 0.]  
 [0. 0. 1.]]  
Matrix [[1. 0. 0. 0. 0.]  
 [0. 1. 0. 0. 0.]  
 [0. 0. 1. 0. 0.]  
 [0. 0. 0. 1. 0.]  
 [0. 0. 0. 0. 1.]]
```