

Task - 8

[PYTHON - MEDIOCRE LVL]

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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?

```
"D:\python\PyCharm Community Edition 2021.3.2\myfiles\venv\Scripts\python.exe" "D:/python/PyCharm Community Edition 2021.3.2/myfiles/Q1.py"
Enter starting number
10
Enter ending number
14
Given array:
[10, 11, 12, 13, 14]
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.]
```

```
Run: Q1 x Q4 x Q3 x
"D:\python\PyCharm Community Edition 2021.3.2\myfiles\venv\Scripts\python.exe" "D:/python/PyCharm Community Edition 2021.3.2/myfiles/Q1.py"
Enter starting number
3
Enter ending number
12
Given array:
[3, 4, 5, 6, 7, 8, 9, 10, 11, 12]
Output:
[ 3. 0. 0. 0. 0. 0. 4. 0. 0. 0. 0. 0. 5. 0. 0. 0. 0. 0.
 6. 0. 0. 0. 0. 0. 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.]
```

```
Run: Q1 x Q4 x Q3 x
12
Given array:
[3, 4, 5, 6, 7, 8, 9, 10, 11, 12]
Output:
[ 3. 0. 0. 0. 0. 0. 4. 0. 0. 0. 0. 0. 5. 0. 0. 0. 0. 0.
 6. 0. 0. 0. 0. 0. 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.]

Process finished with exit code 0
```

Question-2 :

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

```
Run: Q2 x Q4 x Q3 x
"D:\python\PyCharm Community Edition 2021.3.2\myfiles\venv\Scripts\python.exe" "D:/python/PyCharm Community Edition 2021.3.2/myfiles/Q2.py"
Array one:
[0 0 0 1 1 1]
Array 2:
[0 1 1 1 0 0]
Check if these two arrays are equal :
False
Process finished with exit code 0
```

```
Run: Q2 x Q4 x Q3 x
"D:\python\PyCharm Community Edition 2021.3.2\myfiles\venv\Scripts\python.exe" "D:/python/PyCharm Community Edition 2021.3.2/myfiles/Q2.py"
Array one:
[0 0 0 0 0 1]
Array 2:
[0 0 1 1 1 1]
Check if these two arrays are equal :
False
Process finished with exit code 0
```

Question-3 :

What is the result of the following expression ?

- ❖ `print(0 * np.nan)` : Nan - Anything multiplied by zero is zero! But since nan is not a number it will always return nan as the answer.
- ❖ `print(np.nan != np.nan)` : True - Since NAN stands for “Not An Number” it is not equal to itself hence this statement is true.
- ❖ `print(np.inf > np.nan)` : False - Similar to the above question since nan is not a numerical value infinity cannot be greater than it, as both are incomparable quantities to each other.
- ❖ `print(np.nan - np.nan)` : Nan - “Not An Number” thus cannot be used for mathematical operations
- ❖ `print(0.3 == 3 * 0.1)` : False - Floating point number hence they are not equal

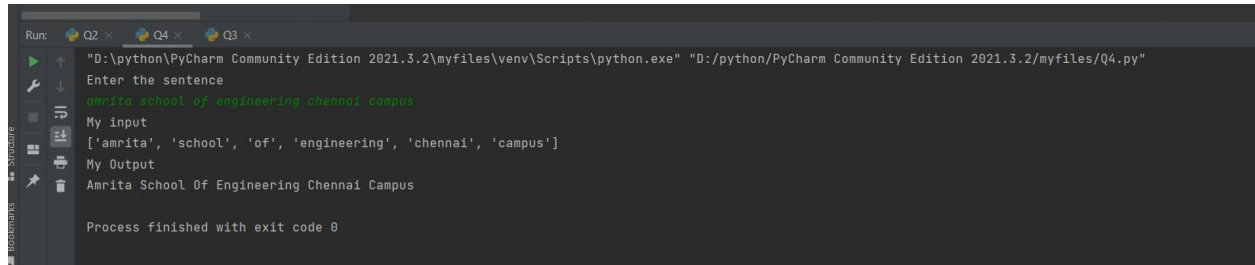
```
Run: Q2 x Q4 x Q3 x
"D:\python\PyCharm Community Edition 2021.3.2\myfiles\venv\Scripts\python.exe" "D:/python/PyCharm Community Edition 2021.3.2/myfiles/Q3.py"
nan
True
False
nan
False
Process finished with exit code 0
```


Question-4 :

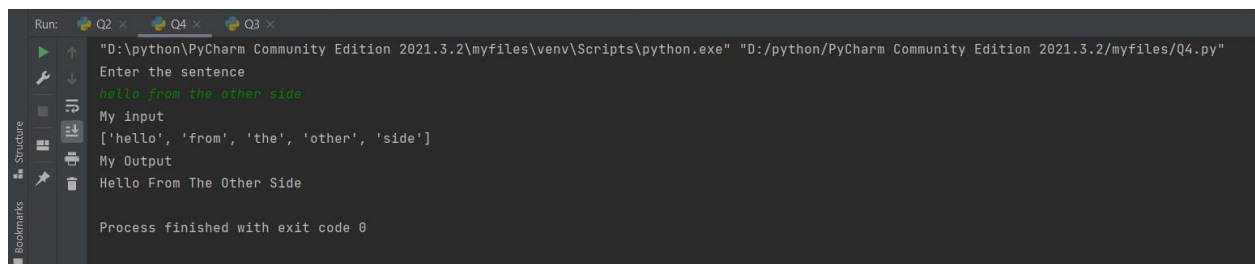
Convert the first character of each element in a series to uppercase?

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

Output will be : Amrita School Of Engineering Chennai Campus



```
Run: Q2 x Q4 x Q3 x
"D:\python\PyCharm Community Edition 2021.3.2\myfiles\venv\Scripts\python.exe" "D:/python/PyCharm Community Edition 2021.3.2/myfiles/Q4.py"
Enter the sentence
amrita school of engineering chennai campus
My input
['amrita', 'school', 'of', 'engineering', 'chennai', 'campus']
My Output
Amrita School Of Engineering Chennai Campus
Process finished with exit code 0
```



```
Run: Q2 x Q4 x Q3 x
"D:\python\PyCharm Community Edition 2021.3.2\myfiles\venv\Scripts\python.exe" "D:/python/PyCharm Community Edition 2021.3.2/myfiles/Q4.py"
Enter the sentence
hello from the other side
My input
['hello', 'from', 'the', 'other', 'side']
My Output
Hello From The Other Side
Process finished with exit code 0
```

Question-5

Do any two Exercises using Numpy :

- ❖ Array re-dimensioning
- ❖ Getting the positions (indexes) where elements of 2 numpy arrays match

```
Run: Q2 x Q5.5 x Q3 x
"D:\python\PyCharm Community Edition 2021.3.2\myfiles\venv\Scripts\python.exe" "D:\python\PyCharm Community Edition 2021.3.2\myfiles\Q5_5.py"
print 4 rows and 3 columns
[[ 1  2  3]
 [ 4  5  6]
 [ 7  8  9]
 [10 11 12]]
print 3 rows * 2 columns with 2 matrix
[[[ 1  2]
 [ 3  4]
 [ 5  6]]
```

```
[ 4  5  6]
 [ 7  8  9]
 [10 11 12]]
print 3 rows * 2 columns with 2 matrix
[[[ 1  2]
 [ 3  4]
 [ 5  6]]

 [[ 7  8]
 [ 9 10]
 [11 12]]]
print 3 * 4
[[ 1  2  3  4]
 [ 5  6  7  8]
 [ 9 10 11 12]]
single array
[1 2 3 4 5 6 7 8]
print 2 * 2 * 2 matrix
[[[1 2]
 [3 4]]

 [[5 6]
 [7 8]]]

Process finished with exit code 0
```

```
Run: Q2 x Q5.7 x Q3 x
"D:\python\PyCharm Community Edition 2021.3.2\myfiles\venv\Scripts\python.exe" "D:\python\PyCharm Community Edition 2021.3.2\myfiles\Q5_7.py"
(array([1, 7], dtype=int64),)
(array([], dtype=int64),)
(array([0, 1, 2], dtype=int64),)

Process finished with exit code 0
```

