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CH.EN.U4CSE20015

DISCORD HANDLE: KOUSHIK#4875

TASK – 3 [Python – Easy Lvl]

QUESTION-1

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

```python
import numpy as np
nums = np.array([10,11,12,13,14])
print("Original array:")
print(nums)
a = 5
new_nums = np.zeros(len(nums) + (len(nums)-1)*(a))
new_nums[::a+1] = nums
print("\nNew array:")
print(new_nums)
```

```
Original array:
[10 11 12 13 14]

New array:[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.]
```

QUESTION-2

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

```python
import numpy as np
a = np.random.randint(1,3,6)
print("First array:")
print(a)
b = np.random.randint(0,3,6)
print("Second array:")
print(b)
print("Checking whether both the arrays are equal or not: ")
equal = np.allclose(a, b)
print(equal)
```

```
First array:
[1 2 1 2 1 1]
Second array:
[2 1 1 2 0 0]
Checking whether both the arrays are equal or not:
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)
```

```
import numpy as np
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)
```

```
nan
True
False
nan
False
```

QUESTION-4

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

```
import pandas as pd
sam = pd.Series(['amrita', 'vishwa', 'vidyapeetham'])
comp = sam.map(lambda x: x[0].upper() + x[1:])
print("\nfirst character of each element in a series to uppercase:"
    )
print(comp)
```

```
first character of each element in a series to uppercase:
0          Amrita
1          Vishwa
2    Vidyapeetham
dtype: object
```

QUESTION-5

Do any two Exercises using NumPy

5.A

1.Addition of 2 NumPy arrays

```python
import numpy as np
arr1 = np.array([4,2,3,5])
arr2 = np.array([8,2,6,4])
arr3 = np.add(arr1,arr2)

print("adding of two numpy arrays")
print(arr3)
```

```
adding of two numpy arrays
[12  4  9  9]
```

5.B

2. Multiplying a matrix

```python
import numpy as np
Matrix1 = ([2, 2, 2],[3 ,3, 3],[4, 4, 4])
Matrix2 = ([4, 4, 4],[3, 3, 3],[2, 2, 2])
result = np.dot(Matrix1,Matrix2)

print("Multiplying a matrix")

print(result)
```

```
Multiplying a matrix
[[18 18 18]
 [27 27 27]
 [36 36 36]]
```