TASK-3- [PYTHON - EASY 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?

In [8]:
```
import numpy as np
x = int(input("First number :"))
y = int(input("Last number : "))
arr=[]
for i in range(x,y+1):
    arr.append(i)
z = 5
arr1 = np.zeros(len(arr) + (len(arr)-1)*(z))
for a in range(len(arr)):
    arr1[::z+1] = arr
print(arr1)
```

Output

```
First number :10
Last number : 14
[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 anb B, check if they are equal

In [12]:
```
import numpy as np
x = np.random.randint(0,2,6)
print("First array:")
print(x)
y = np.random.randint(0,2,6)
print("Second array:")
print(y)
array_equal = np.allclose(x, y)
print(array_equal)
```

Output

```
First array:
[1 0 0 0 1 0]
Second array:
[1 1 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)

```
In [25]: 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)
```

Output

```
nan
True
False
nan
False
```

Question -4

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

```
In [18]: import pandas as pd
         ser = pd.Series(['amrita', 'school', 'of', 'engineering', 'chennai' , 'campus'])
         Series = ser.map(lambda x: x[0].upper() + x[1:-1] + x[-1].lower())
         print(' '.join(Series))
```

Output

Amrita School Of Engineering Chennai Campus

Question -5

Do any two Exercises using Numpy

1.addition of 2 numpy arrays

```
In [22]: import numpy as np
         arr1 = np.array([1, 2, 3, 4])
         arr2 = np.array([5, 6, 7, 8])
         arr3 = np.add(arr1,arr2)
         print("arr1:", arr1)
         print("arr2:", arr2)
         print("arr1+arr2:", arr3)
```

Output

```
arr1: [1 2 3 4]
arr2: [5 6 7 8]
arr1+arr2: [ 6  8 10 12]
```

3.Identity Matrix

```
In [24]: import numpy as np
         n=int(input("enter the size of identity matrix: "))
         a=np.identity(n)
         print(a)
```

Output

```
enter the size of identity matrix: 5
[[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.]]
```