

TASK 3 [PYTHON - EASY LVL]

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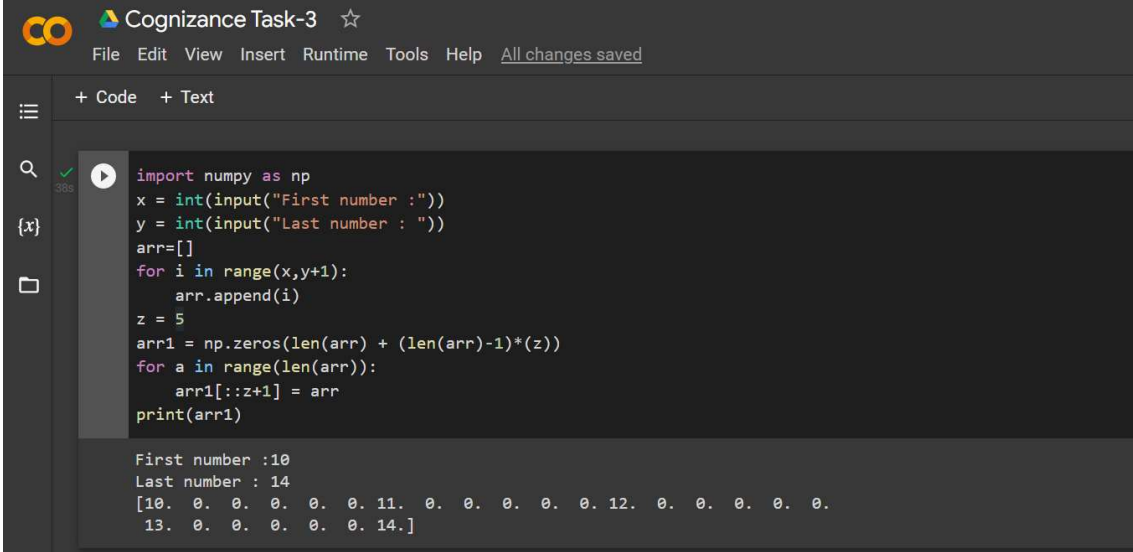
ROLL. NO: **CH.EN.U4CSE20125**

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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:



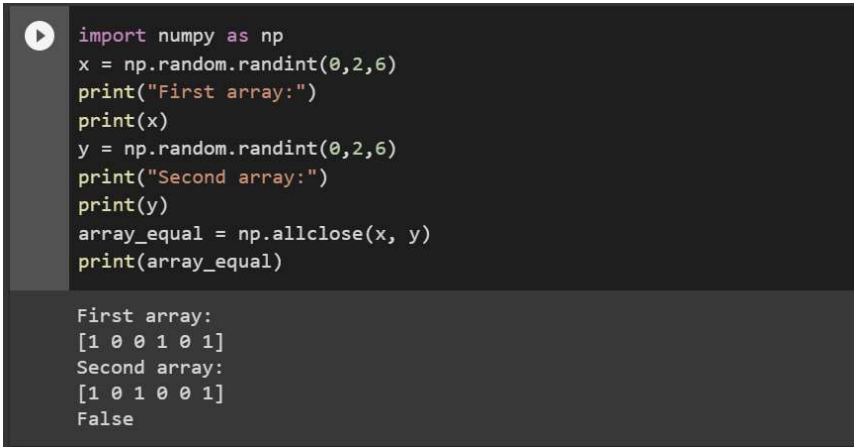
```
import numpy as np
x = int(input("First number :"))
y = int(input("Last number : "))
arr=[]
for i in range(x,y+1):
    arr.append(i)
z = 5
arr1 = np.zeros(len(arr) + (len(arr)-1)*(z))
for a in range(len(arr)):
    arr1[z+1] = arr
print(arr1)
```

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 and B, check if they are equal

Output:



```
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)
```

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

```
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?

Output:

```
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))

Amrita School Of Engineering Chennai Campus
```

Question-5:

1. Addition of 2 numpy arrays

Output:

```
import numpy as np
arr1 = np.array([1, 2, 3, 4])
arr2 = np.array([11, 12, 13, 14])
arr3 = np.add(arr1, arr2)
print("arr1:", arr1)
print("arr2:", arr2)
print("arr1+arr2:", arr3)

arr1: [1 2 3 4]
arr2: [11 12 13 14]
arr1+arr2: [12 14 16 18]
```

2. Multiplying a matrix

Output:

```
import numpy as np
A = np.array([[1,2,3], [4,5,6]])
B = np.array([[1,0,1], [1,1,0], [0,1,1]])
print("Matrix A is:\n",A)
print("Matrix B is:\n",B)
C = np.matmul(A,B)
print("Matrix multiplication of matrix A and B is:\n",C)
```

```
Matrix A is:
[[1 2 3]
 [4 5 6]]
Matrix B is:
[[1 0 1]
 [1 1 0]
 [0 1 1]]
Matrix multiplication of matrix A and B is:
[[ 3  5  4]
 [ 9 11 10]]
```