

COGNIZANCE CLUB

TASK-8

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CSE-B

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

Input:

```
1.py > ...
1  from numpy import *
2  x=array([])
3  y=int(input("First Number:"))
4  z=int(input("Last Number:"))
5  for i in range(y,z):
6      x=append(x,i)
7      for i in range(5):
8          x=append(x,0)
9  x=append(x,z)
10 print(x)
```

Output:

```
C:\Users\91830\OneDrive\Documents\VS CODE\PYTHON>python -u "c:\Users\91830\OneDrive\Documents\VS CODE\PYTHON\1.py"
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.]
```

2. Consider two random array X and Y, check if they are equal

Input:

```
2.py > ...
1  import numpy as np
2  x = np.array([1 ,0, 1, 1 ,1, 0])
3  y = np.array([1 ,0, 0, 1 ,0 ,1])
4  array_len=len(x)
5  for i in range(array_len):
6      if x[i] == y[i] :
7          result=0
8      else :
9          result=1
10 if result==0:
11
12     print("Arrays are equal ")
13 else :
14
15     print("Arrays are not equal ")
16
```

Output:

```
C:\Users\91830\OneDrive\Documents\VS CODE\PYTHON>python -u "c:\Users\91830\OneDrive\Documents\VS CODE\PYTHON\2.py"
Arrays are not equal
```

3. What is the result of the following expression?

Input:

```
3.py
1  import numpy as np
2  print(0 * np.nan)
3  print(np.nan != np.nan)
4  print(np.inf > np.nan)
5  print(np.nan - np.nan)
6  print(0.3 == 3 * 0.1)
```

Output:

```
C:\Users\91830\OneDrive\Documents\VS CODE\PYTHON>python -u "c:\Users\91830\OneDrive\Documents\VS CODE\PYTHON\3.py"
nan
True
False
nan
False
```

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

Input:

```
4.py > ...
1 import pandas as pd
2 ser = pd.Series(['amrita', 'school', 'of', 'engineering', 'chennai', 'campus'])
3 new_ser= ser.str.title()
4 print("The original series: ")
5 print(ser)
6 print("The new series: ")
7 print(new_ser)
```

Output:

```
C:\Users\91830\OneDrive\Documents\VS CODE\PYTHON>python -u "c:\Users\91830\OneDrive\Documents\VS CODE\PYTHON\4.py"
The original series:
0      amrita
1      school
2         of
3  engineering
4      chennai
5      campus
dtype: object
The new series:
0      Amrita
1      School
2         Of
3  Engineering
4      Chennai
5      Campus
dtype: object
```

5(i). Addition of 2 numpy arrays

Input:

```
5(Addition_of_arrays).py > ...  
1 # Addition of 2 numpy arrays  
2 import numpy as np  
3 array_1= np.array([9, 5, 8])  
4 array_2 = np.array([3, 7, 4])  
5 print ("1st array :", array_1)  
6 print ("2nd array :", array_2)  
7 new_array = np.add(array_1, array_2)  
8 print ("added array :", new_array)
```

Output:

```
C:\Users\91830\OneDrive\Documents\VS CODE\PYTHON>python -u "c:\Users\91830\OneDrive\Documents\VS CODE\PYTHON\5(Addition_of_arrays).py"  
1st array : [9 5 8]  
2nd array : [3 7 4]  
added array : [12 12 12]
```

5(ii). Multiplying a matrix

Input:

```
5(multiplication_of_array).py > ...  
1 # Multiplying a matrix  
2 import numpy as np  
3 x= [[5, 8], [2, 4]]  
4 y= [[4, 1], [5, 4]]  
5 print(x)  
6 print(y)  
7 print(np.dot(x, y))  
8
```

Output:

```
C:\Users\91830\OneDrive\Documents\VS CODE\PYTHON>python -u "c:\Users\91830\OneDrive\Documents\VS CODE\PYTHON\5(multiplication_of_array).py"  
[[5, 8], [2, 4]]  
[[4, 1], [5, 4]]  
[[60 37]  
 [28 18]]
```