

# TASK – 8

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## 1 ) Question-1

Five consecutive zeroes interleaved between each value in the vector [10, 11, 12, 13, 14]

```
1 '''
2                                     Online Python Compiler.
3                                     Code, Compile, Run and Debug python program online.
4                                     Write your code in this editor and press "Run" button to execute it.
5 '''
6
7
8 import numpy
9 nums = numpy.array([10,11,12,13,14])
10 print ("Previous array:")
11 print (nums)
12 p=5
13 new_nums = numpy.zeros(len(nums)+(len(nums)-1)*(p))
14 new_nums[::p+1] = nums
15 print ("\n New array :")
16 print ( new_nums)
```

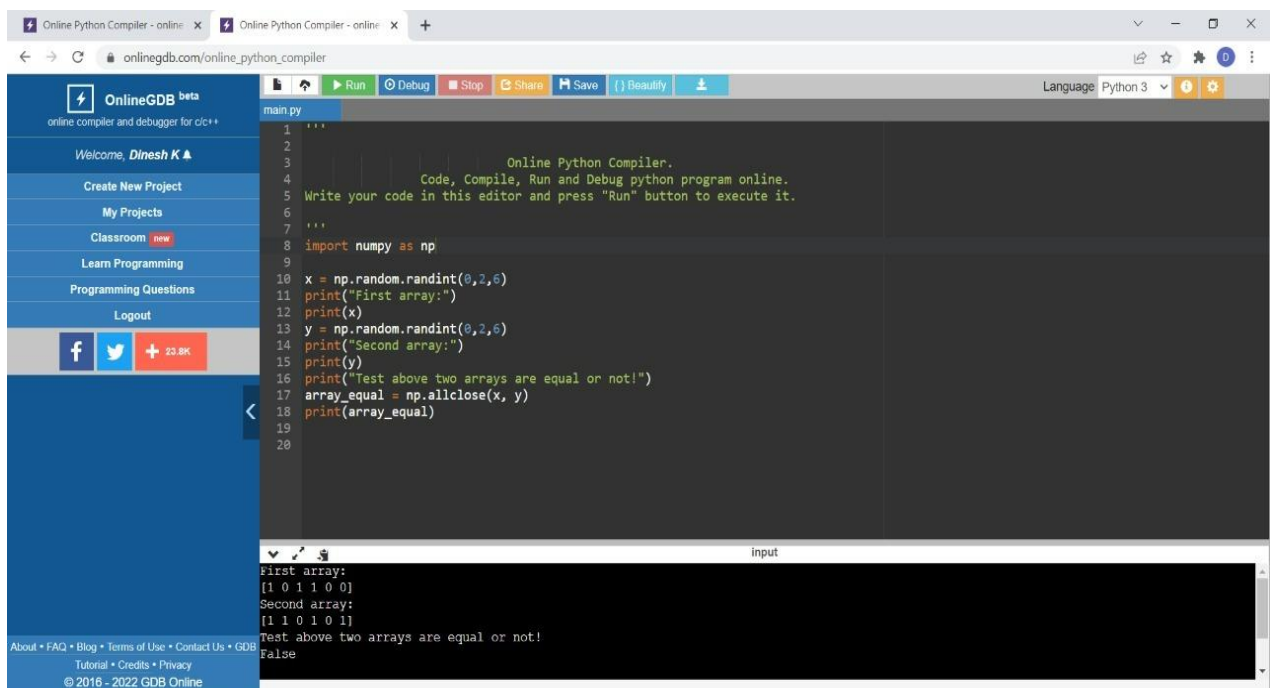
Input

```
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.]

...Program finished with exit code 0
Press ENTER to exit console.
```

## 2) Question-2

Considering two random arrays and checking whether they are equal or not.



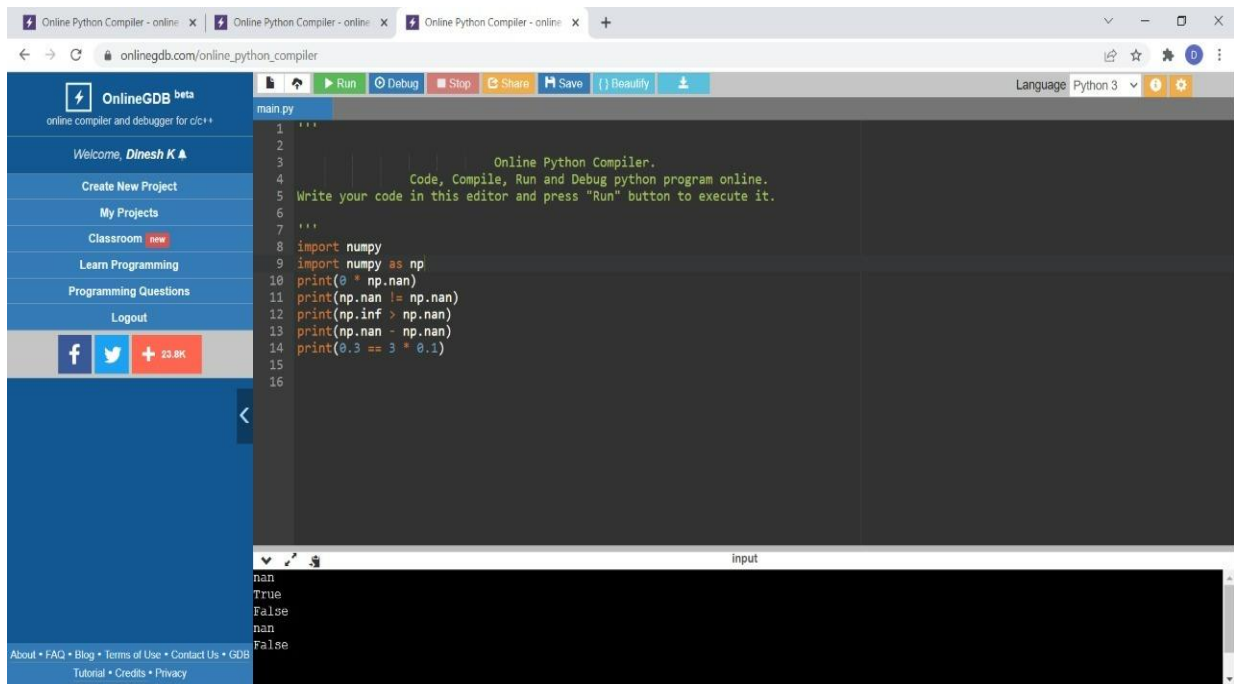
The screenshot shows the OnlineGDB web interface. The left sidebar contains navigation links: Welcome, Dinesh K, Create New Project, My Projects, Classroom (new), Learn Programming, Programming Questions, and Logout. The main editor area displays a Python script in a dark-themed editor. The script imports numpy as np, generates two random arrays x and y using np.random.randint(0,2,6), and prints them. It then uses np.allclose(x, y) to check if the arrays are equal and prints the result. The output window at the bottom shows the execution results: First array: [1 0 1 1 0 0], Second array: [1 1 0 1 0 1], and the test result: False.

```
1 """
2
3 Online Python Compiler.
4 Code, Compile, Run and Debug python program online.
5 Write your code in this editor and press "Run" button to execute it.
6 """
7
8 import numpy as np
9
10 x = np.random.randint(0,2,6)
11 print("First array:")
12 print(x)
13 y = np.random.randint(0,2,6)
14 print("Second array:")
15 print(y)
16 print("Test above two arrays are equal or not!")
17 array_equal = np.allclose(x, y)
18 print(array_equal)
19
20
```

First array:  
[1 0 1 1 0 0]  
Second array:  
[1 1 0 1 0 1]  
Test above two arrays are equal or not!  
False

## 3) Question-3

Outputs of the given expression after checking



#### 4) Question-4

Converting first character of the each element of given series as an uppercase letter

The screenshot shows the OnlineGDB beta web interface. The left sidebar contains navigation links: Welcome, Dinesh K, Create New Project, My Projects, Classroom (new), Learn Programming, Programming Questions, and Logout. Below these are social media icons for Facebook, Twitter, and a button with a plus sign and '23.8K'. The main editor area displays a Python script in 'main.py' with the following code:

```
1 '''
2
3 Online Python Compiler.
4 Code, Compile, Run and Debug python program online.
5 Write your code in this editor and press "Run" button to execute it.
6 '''
7
8 p = "amrita school of engineering , chennai campus"
9 print ("Original string")
10 print(p)
11 result = p.title()
12 print (" capitalize first letter of each word:")
13 print (result)
14
15
```

The output console at the bottom shows the execution results:

```
amrita school of engineering , chennai campus
capitalize first letter of each word:
Amrita School Of Engineering , Chennai Campus
...Program finished with exit code 0
Press ENTER to exit console.
```

## 5) Question-5

a. Addition of two numpy arrays :

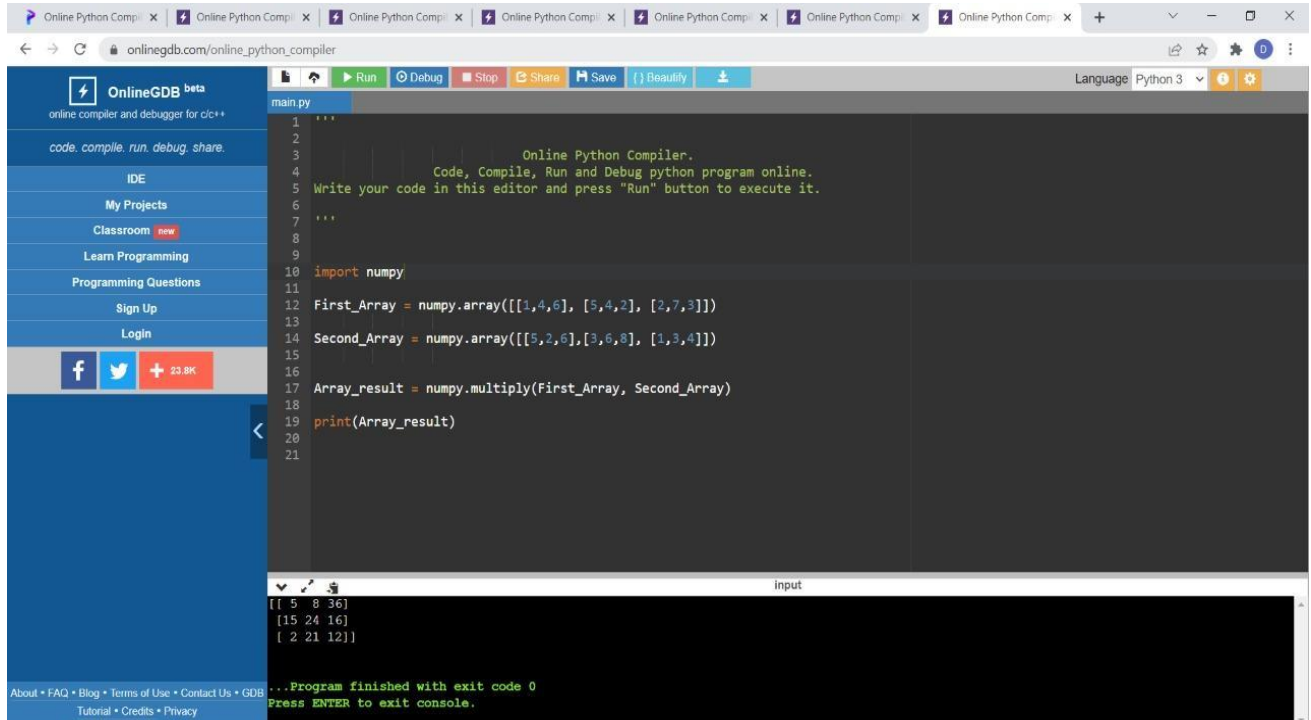
The screenshot shows the OnlineGDB beta web interface with a different Python script. The left sidebar is similar to the first screenshot but includes 'Sign Up' and 'Login' links. The main editor area displays a Python script in 'main.py' with the following code:

```
1 '''
2
3 Online Python Compiler.
4 Code, Compile, Run and Debug python program online.
5 Write your code in this editor and press "Run" button to execute it.
6 '''
7
8
9 import numpy
10
11 Array1 = numpy.array([1 ,1 ,5 , 7 ])
12 Array2 = numpy.array([1 ,1 ,5 , 7 ])
13
14 print ("1st array : ", Array1)
15 print ("2nd array : ", Array2)
16
17 output_Array = numpy.add(Array1, Array2)
18 print ("added array : ", output_Array)
19
```

The output console at the bottom shows the execution results:

```
1st array : [1 1 5 7]
2nd array : [1 1 5 7]
added array : [ 2  2 10 14]
...Program finished with exit code 0
Press ENTER to exit console.
```

## b. Matrix multiplication using numpy.



The screenshot shows the OnlineGDB website interface. The browser's address bar displays `onlinegdb.com/online_python_compiler`. The left sidebar contains navigation links: "OnlineGDB beta", "online compiler and debugger for c/c++", "code, compile, run, debug, share.", "IDE", "My Projects", "Classroom new", "Learn Programming", "Programming Questions", "Sign Up", and "Login". Below these are social media icons for Facebook and Twitter, and a "23.8K" badge. The main editor area shows a Python file named `main.py` with the following code:

```
1 '''
2
3         Online Python Compiler.
4         Code, Compile, Run and Debug python program online.
5         Write your code in this editor and press "Run" button to execute it.
6
7     '''
8
9
10 import numpy
11
12 First_Array = numpy.array([[1,4,6], [5,4,2], [2,7,3]])
13
14 Second_Array = numpy.array([[5,2,6],[3,6,8], [1,3,4]])
15
16
17 Array_result = numpy.multiply(First_Array, Second_Array)
18
19 print(Array_result)
20
21
```

The output console at the bottom shows the result of the matrix multiplication:

```
Input
[[ 5  8 36]
 [15 24 16]
 [ 2 21 12]]

...Program finished with exit code 0
Press ENTER to exit console.
```