

# TASK-8

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## Question 1:



The screenshot shows a Jupyter Notebook interface with a code editor on the left and a console output on the right. The code editor has a tab labeled 'main.py' and contains the following Python code:

```
1 #building a new vector with 5 consecutive  
  zeros interleaved between each value  
2 import numpy as np  
3 vector=np.array([10,11,12,13,14])  
4 p=5  
5 output=np.zeros(len(vector)+(len(vector)-1)*  
  (p))  
6 output[:,p+1]=vector  
7 print(output)  
8  
9
```

The console output on the right shows the result of the code execution:

```
[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:

```
main.py x Console Shell
1 import numpy as np
2 #user inputing the elements of 1st array
3 elements1=int(input("enter the no.of elements
  of 1st array "))
4 a=np.zeros(elements1)
5 u=len(a)
6 i=0
7 while i<u:
8     x=int(input("enter the element "))
9     a[i]=x
10    i+=1
11 print(a)
12 #user inputing the elements of 2nd array
13 elements2=int(input("enter the no.of.elements
  of 2nd array "))
14 b=np.zeros(elements2)
15 v=len(b)
16 j=0
17 while j<v:
```

```
enter the no.of elements of 1st array 3
enter the element 1
enter the element 2
enter the element 3
[1. 2. 3.]
enter the no.of.elements of 2nd array 3
enter the element 2
enter the element 3
enter the element 4
[2. 3. 4.]
False
> |
```

## Question-3:

```
main.py x Console Shell
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)
7
8
```

```
nan
True
False
nan
False
> |
```

## Question-4:

```
main.py x ☰ Console Shell
1 #converting 1st character of each element to
  uppercase
2 import pandas as pd
3 words=pd.Series(['amrita','school','of','engineering'
  , 'chennai','campus'])
4 uppercase=words.str.title()
5 print(uppercase)
6
7
8
```

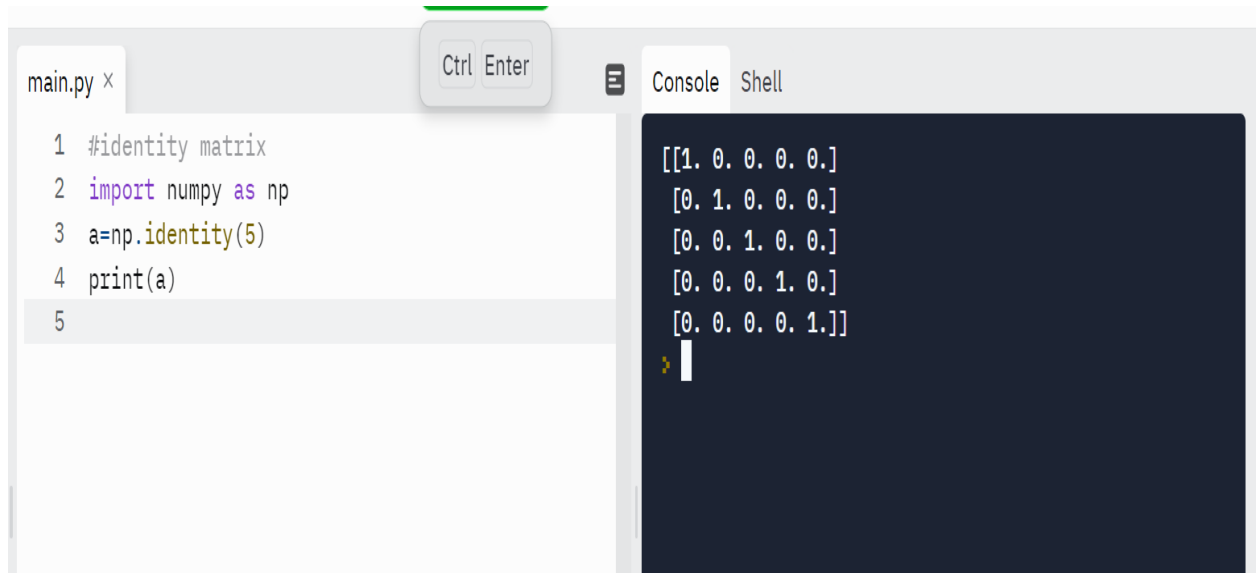
0 Amrita  
1 School  
2 Of  
3 Engineering  
4 Chennai  
5 Campus  
dtype: object  
>

## Question 5(i):

```
main.py x ☰ Console Shell
1 # addition of 2 numpy arrays
2 import numpy as np
3 a=np.array([[1,2,3,4],[5,6,7,8]])
4 b=np.array([[1,3,2,4],[5,7,6,8]])
5 print(a+b)
6
```

[[ 2 5 5 8]  
 [10 13 13 16]]  
>

## Question-5(iii):



The screenshot shows a Jupyter Notebook interface. On the left, a code editor window titled 'main.py x' contains the following Python code:

```
1 #identity matrix
2 import numpy as np
3 a=np.identity(5)
4 print(a)
5
```

On the right, a console window titled 'Console' displays the output of the code:

```
[[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.]]
```

The console window also shows a prompt character '>' at the bottom, indicating it is ready for the next command.