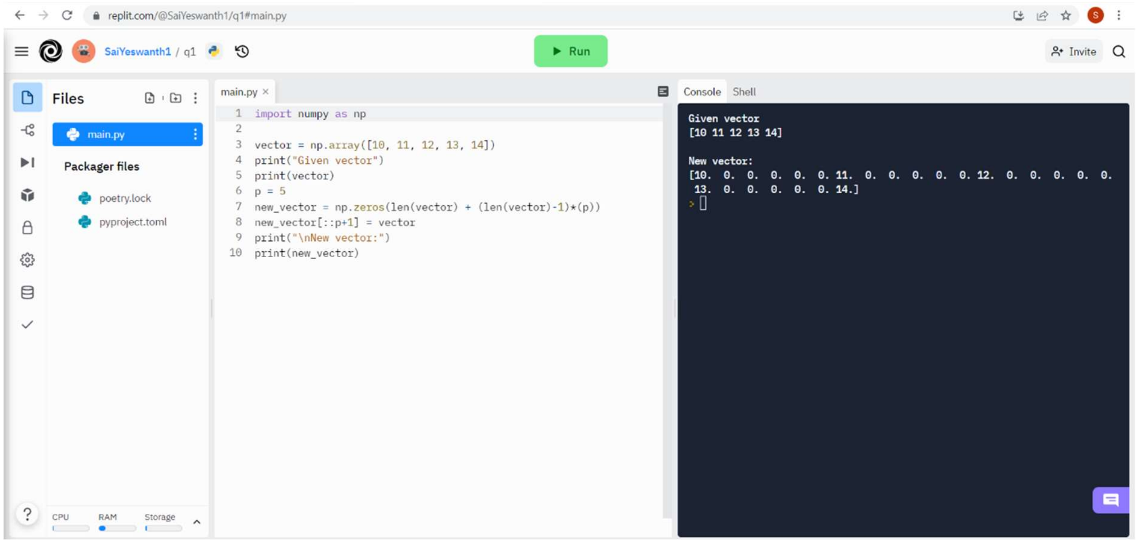
Task-8

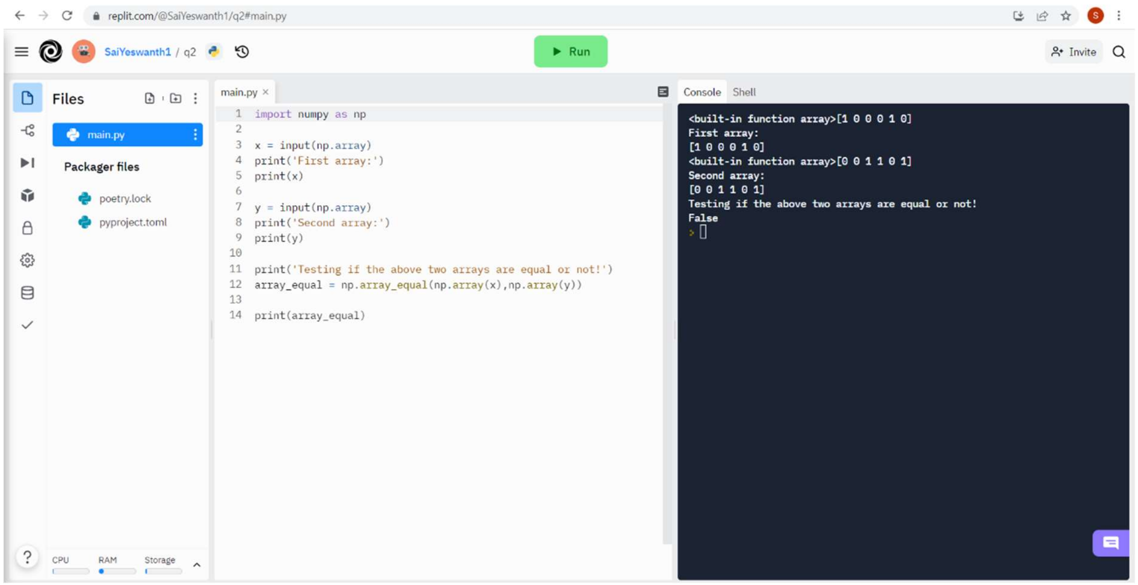
Question-1:



```python
import numpy as np

vector = np.array([10, 11, 12, 13, 14])
print("Given vector")
print(vector)
p = 5
new_vector = np.zeros(len(vector) + (len(vector)-1)*(p))
new_vector[::p+1] = vector
print("\nNew vector:")
print(new_vector)
```

```
Given vector
[10 11 12 13 14]

New vector:
[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.]
> 
```

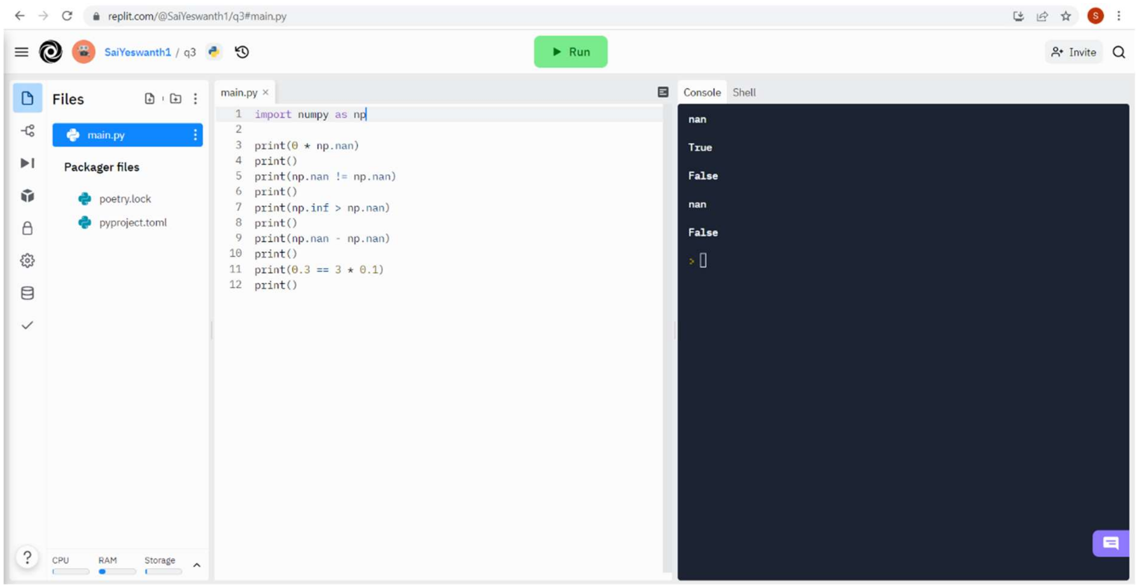
Question-2:



```python
import numpy as np

x = input(np.array)
print('First array:')
print(x)

y = input(np.array)
print('Second array:')
print(y)

print('Testing if the above two arrays are equal or not!')
array_equal = np.array_equal(np.array(x),np.array(y))

print(array_equal)
```

```
<built-in function array>[1 0 0 0 1 0]
First array:
[1 0 0 0 1 0]
<built-in function array>[0 0 1 1 0 1]
Second array:
[0 0 1 1 0 1]
Testing if the above two arrays are equal or not!
False
> 
```

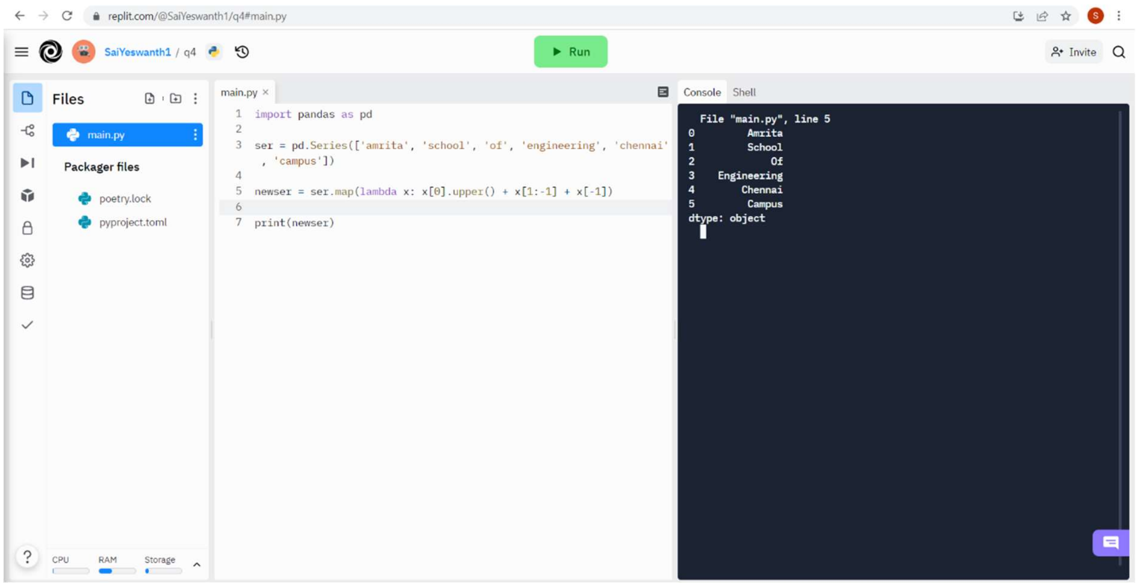
Question-3:



```python
import numpy as np

print(0 * np.nan)
print()
print(np.nan != np.nan)
print()
print(np.inf > np.nan)
print()
print(np.nan - np.nan)
print()
print(0.3 == 3 * 0.1)
print()
```

```
nan

True

False

nan

False

>
```

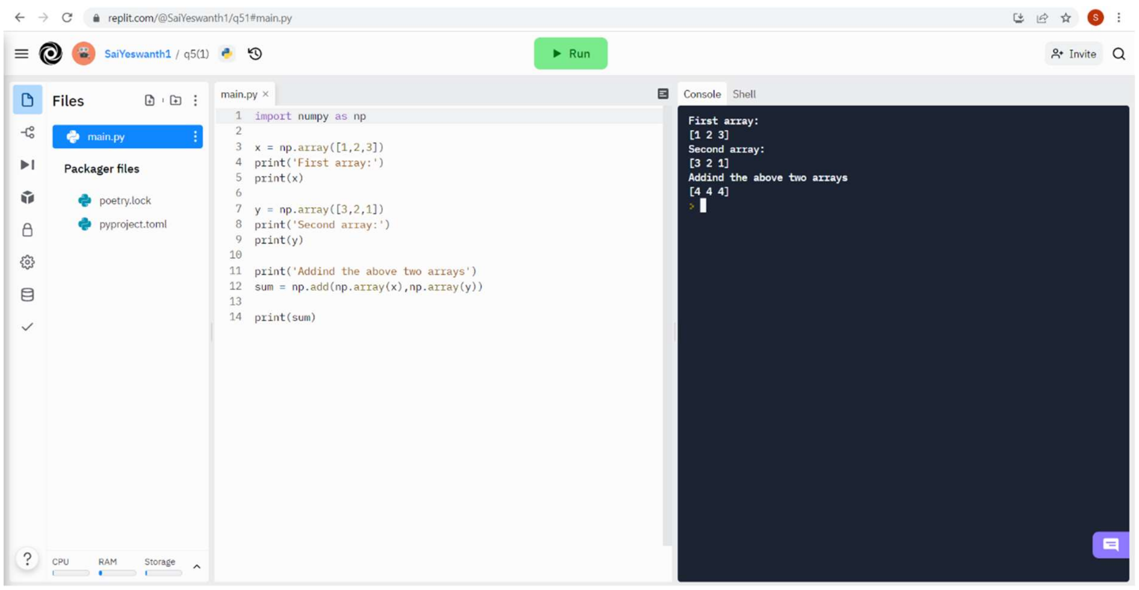
Question-4:



```python
import pandas as pd

ser = pd.Series(['amrita', 'school', 'of', 'engineering', 'chennai'
 , 'campus'])

newser = ser.map(lambda x: x[0].upper() + x[1:-1] + x[-1])

print(newser)
```

```
  File "main.py", line 5
0         Amrita
1         School
2             Of
3    Engineering
4        Chennai
5         Campus
dtype: object
```

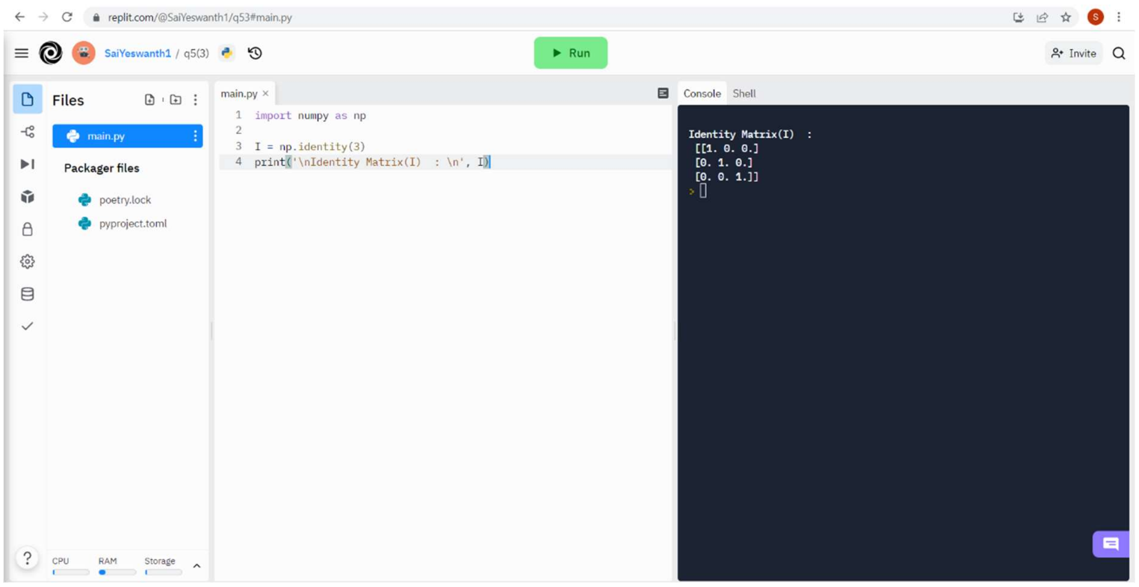
Question-5(1):



```python
import numpy as np

x = np.array([1,2,3])
print('First array:')
print(x)

y = np.array([3,2,1])
print('Second array:')
print(y)

print('Addind the above two arrays')
sum = np.add(np.array(x),np.array(y))

print(sum)
```

```
First array:
[1 2 3]
Second array:
[3 2 1]
Addind the above two arrays
[4 4 4]
>
```

Question-5(3):



```python
import numpy as np

I = np.identity(3)
print('\nIdentity Matrix(I)  : \n', I)
```

```

Identity Matrix(I)  :
 [[1. 0. 0.]
 [0. 1. 0.]
 [0. 0. 1.]]
>
```