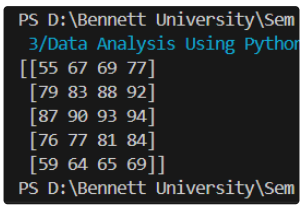
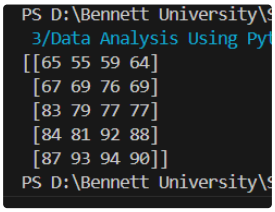
CSET214(P) - E23CSEU0055 Assignment 1 - 29.07.2024

Question 1: Write a NumPy program to sort an along the first and last axis of array1

```
import numpy as np

arr = np.array([[67,55,77,69],
                [83,79,92,88],
                [87,93,94,90],
                [84,81,76,77],
                [65,69,59,64]])

def sort_acc_rows(x):
    sortedx = np.sort(x,axis=1)
    print(sortedx)

def sort_acc_col(x):
    sortedy = np.sort(x,axis=0)
    print(sortedy)
```



Output Q1



Output Q1

Question 2: Write a program to return a contiguous flattened array. A 1-D array, containing the elements of the array1, is returned. The returned array will have the same type as the input array.

```
def flat_array():
    arr1 = arr.flatten()
    print(arr1)
```

```
PS D:\Bennett University\Sem 3\Data Analysis Using Python - CSET214> & C
 3/Data Analysis Using Python - CSET214/Practical/29jul/1.py"
[67 55 77 69 83 79 92 88 87 93 94 90 84 81 76 77 65 69 59 64]
PS D:\Bennett University\Sem 3\Data Analysis Using Python - CSET214>
```

Output Q2

Question 3: Write a NumPy program to redesign array1 with 1 on the border and 0 inside.

```python
def create_zero_ones():
    m = np.zeros((5,4))
    m[0,:] = 1
    m[-1,:] = 1
    m[:,0] = 1
    m[:, -1] = 1
    print(m)
```

```
PS D:\Bennett University\Sem
 3/Data Analysis Using Python
[[1. 1. 1. 1.]
 [1. 0. 0. 1.]
 [1. 0. 0. 1.]
 [1. 0. 0. 1.]
 [1. 1. 1. 1.]]
PS D:\Bennett University\Sem
```

Output Q3

Question 4: Write a program to returns the indices of the maximum values of array1 along an axis 1.

```python
def max_val_axisone(x):
    arrmax = np.argmax(x, axis=1)
    print(arrmax)
```

```
PS D:\Bennett University
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[2 2 2 0 1]
PS D:\Bennett University
```
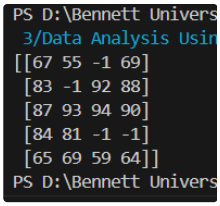

Output Q4

Question 5: Write a program to replace the elements > 70 and < 80 using the following syntax array1[(array1 > 70) & (array1 < 80)] = -1

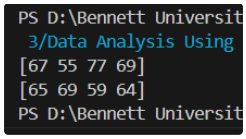
```python
def replace_minusone():
    arr[(arr>70) & (arr<80)] = -1
    print(arr)
```



Output Q5

Question 6: In exam hall, students are sitting in 5 rows and 4 columns (array1). Access the students roll number of the first and last row.

```
def access_first_and_last(x):
    print(x[0])
    print(x[-1])
```



Output of Q6