Task 1

Create a program that reads in two 5x6 numpy.arrays, adds them together, and then stores the result in a third 5x6 matrix. The program should then print out the first two matrices and the result matrix.

```
import numpy as np
print("enter value of 5x6 array")
arr1 = np.array([input().split() for _ in range(5)], dtype=int)
print("enter value of second 5x6 array")
arr2 = np.array([input().split() for _ in range(5)], dtype=int)
arr3=arr1+arr2
print("first")
print(arr1)
print("sec")
print(arr2)
print("result")
print(arr3)
```

```
enter value of 5x6 array
098765
123456
234567
456789
213453
enter value of second 5x6 array
12 34 45 67 78 90
32 43 54 76 87 09
12 11 13 14 15 16
98 87 86 85 84 83
98 76 56 45 34 23
first
[[ 98765]
 [123456]
 [234567]
 [456789]
 [213453]]
sec
[[12 34 45 67 78 90]
 [32 43 54 76 87  9]
 [12 11 13 14 15 16]
 [98 87 86 85 84 83]
 [98 76 56 45 34 23]]
result
[[ 98777  98799  98810  98832  98843  98855]
 [123488 123499 123510 123532 123543 123465]
 [234579 234578 234580 234581 234582 234583]
 [456887 456876 456875 456874 456873 456872]
 [213551 213529 213509 213498 213487 213476]]
```

Task 2

Create a program that reads in three 2x3 numpy.arrays, subtracts the second from the first, and adds the third to the result. The program should then print out all three matrices and the result matrix.

```
import numpy as np
arr1 = np.array([input().split() for _ in range(2)], dtype=int)
arr2 = np.array([input().split() for _ in range(2)], dtype=int)
arr3 = np.array([input().split() for _ in range(2)], dtype=int)
result = arr1 - arr2 + arr3
print(arr1)
print(arr2)
print(arr3)
print(result)
```

```
3 4 5
6 7 8
1 2 4
3 5 7
8 9 0
2 6 8
[[3 4 5]
 [6 7 8]]
```

```
[[1 2 4]
 [3 5 7]]
[[8 9 0]
 [2 6 8]]
[[10 11  1]
 [ 5  8  9]]
```

Task 3

Create a 4x4 matrix containing random numbers in the range of 1 to 20. Have the user prompted for a number, check that the imputed value is a number and then check if the number is in the matrix. If the number is in the matrix, return the number of times that number is in the matrix.

```
matrix = np.random.randint(1,21,(4,4))
num = input("number")
if num.isdigit() and int(num) in matrix:
  count = np.count_nonzero(matrix == int(num))
  print(f"number{num} is in matrix {count}")
else:
  print(f"number{num} is not in matrix ")
```

```
number2
number2 is in matrix 1
```