```python
#1. Python program to retrieve the elements of an array using array index and
while loop.

import numpy as np
arr = [1,2,3,4,5,6,7,8,9]
arr1 = np.array(arr)
i=0
while (i < len(arr1)):
    print(arr1[i])
    i+=1
```

Output:

1

2

3

4

5

6

7

8

9

Process finished with exit code 0

```
#2. Python program to show effect of slicing operations in array.

import numpy as np
arr = [1,2,3,4,5,6,7,8,9]
arr1 = np.array(arr)

slice1 = arr1[0:3]
slice2 = arr1[3:6]
slice3 = arr1[6:9]

print("slice-1: ",slice1)
print("slice-2: ",slice2)
print("slice-3: ",slice3)
```

Output:

slice-1: [1 2 3]

slice-2: [4 5 6]

slice-3: [7 8 9]

Process finished with exit code 0

```
#3. Python program to retrieve and display only a range of elements from an
array using slicing.
```

```
import numpy as np
arr = [1,2,3,4,5,6,7,8,9]
arr1 = np.array(arr)

slice1 = arr1[3:6]

print("slice-1: ",slice1)
```

Output:

slice-1: [4 5 6]

Process finished with exit code 0

```
#4. Python Program to find sum of array.

import numpy as np
```

```
array = [1,2,3,4,5,6,7,8,9,10]
arr1 = np.array(array)

sum = sum(arr1)
print("Array: ",arr1)
print("The sum of the array is: ",sum)
```

Output:

Array: [1 2 3 4 5 6 7 8 9 10]

The sum of the array is: 55

Process finished with exit code 0

```
#5.Python Program to find largest element in an array.

arr = [25, 11, 7, 75, 56];

max = arr[0];
```

```
for i in range(0, len(arr)):
    if (arr[i] > max):
        max = arr[i];

print("The largest number is: ",max)
```

Output:

The largest number is: 75

Process finished with exit code 0

```
#6. Python Program for find reminder of array multiplication divided by n.

arr = [ 100, 10, 5, 25, 35, 14 ]
lens=len(arr)
n = 11
mul = 1
```

```
for i in range(lens):
    mul = (mul * (arr[i] % n)) % n

rem = mul % n

print("Array: ",arr)
print("Divided by: ",n)
print("Remainder: ",rem)
```

Output:

Array: [100, 10, 5, 25, 35, 14]

Divided by: 11

Remainder: 9

Process finished with exit code 0

```
#7. Python Program to Split the  array  and  add the first  part to the  end.

def splitArr(arr, n, k):
    for i in range(0, k):
        x = arr[0]
        for j in range(0, n - 1):
            arr[j] = arr[j + 1]

        arr[n - 1] = x
```

```
arr = [12, 10, 5, 6, 52, 36]
arr1 = [12, 10, 5, 6, 52, 36]
n = len(arr)
position = 2

splitArr(arr, n, position)

for i in range(0, n):
    print(arr[i], end=' ')
```

Output:

5 6 52 36 12 10

Process finished with exit code 0

```
#8. Write a Python program to get the number of occurrences of a specified
element in an array.

def countX(lst, x):
    count = 0
    for ele in lst:
        if (ele == x):
            count = count + 1
    return count

lst = [8, 6, 8, 10, 8, 20, 10, 8, 8]
```

```
x = 8
print('{0} has occurred {1} times'.format(x, countX(lst, x)))
```

Output:

8 has occurred 5 times

Process finished with exit code 0

```
#9. Write a Python program to append a new item to the end of the array.

my_list = ['Navrachana']
another_list = ['University']
my_list.append(another_list)
print ( my_list)
```

Output:

['Navrachana', ['University']]

Process finished with exit code 0

```
#10. Python program to add two matrices.

X = [[1, 2, 3],
     [4, 5, 6],
     [7, 8, 9]]

Y = [[9, 8, 7],
     [6, 5, 4],
     [3, 2, 1]]

result = [[X[i][j] + Y[i][j] for j in range
(len(X[0]))] for i in range(len(X))]

for r in result:
    print(r)
```

Output:

```
[10, 10, 10]
[10, 10, 10]
[10, 10, 10]

Process finished with exit code 0
```