Programming Basic Assignment 7

1. Write a Python Program to find the sum of the array.

1. Write a Python Program to find sum of array?

•[16]:
```
lis = list(input('enter numbers want to sum '))
arr = [eval(i) for i in lis]

print('list of array :', arr)

## for loop for sum
sum = 0
for i in range(0, len(arr)):
    sum = sum + arr[i] ## index value come and sum

print("Sum of all the elements of an array: " ,sum)
```

```
enter numbers want to sum  345
list of array : [3, 4, 5]
Sum of all the elements of an array:  12
```

2. Write a Python Program to find the largest element in an array?

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[2]:
```
lis = list(input('enter numbers to find maximum: '))
arr = [eval(i) for i in lis]

print('list of array :', arr)

## for loop for max
maxm = 0
for i in range(0, len(arr)):
    if arr[i] > maxm: ## index value come and check
        maxm = arr[i]

print("largest element of an given array: " ,maxm)
```

```
enter numbers to find maximum:  231
list of array : [2, 3, 1]
largest element of an given array:  3
```

3. Write a Python Program for array rotation?

```
•[6]: #Function reverse the given array by swapping first and last numbers.
def reverse(start,end,arr):
    #No of iterations needed for reversing the list
    no_of_reverse=end-start+1
    #By incrementing count value swapping of first and last elements is done.
    count=0
    while((no_of_reverse)//2!=count):
        arr[start+count],arr[end-count]=arr[end-count],arr[start+count]
        count+=1
    return arr

def left_rotate_array(arr,leng_arr,d):
    start=0
    end=leng_arr-1
    arr=reverse(start,end,arr) #Reverse the Entire List

    start=0     #Divide array into two sub-array based on no of rotations.
    end=leng_arr-d-1  # divide 1st sub array
    arr=reverse(start,end,arr) ## reverse 1st sub array

    start=leng_arr-d
    end=leng_arr-1  #divide 2nd sub array
    arr=reverse(start,end,arr) #3reverse the 2nd sub array
    return arr

lis = list(input('enter numbers for rotation: '))
arr = [eval(i) for i in lis]
leng_arr = len(arr) ## length of array
d=1
print('original list of array :', arr) ## original array list

if(d <= leng_arr):
    print('Rotated array: ',left_rotate_array(arr,leng_arr,d))
else:
    d = d%leng_arr
    print('Rotated array: ',left_rotate_array(arr,leng_arr,d))
```

```
enter numbers for rotation:  1234
original list of array : [1, 2, 3, 4]
Rotated array:  [2, 3, 4, 1]
```

4. Write a Python Program to Split the array and add the first part to the end?

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[10]:
```
def splitArr(arr, leng_arr, pstn):
    b = arr[:pstn] ## 1st split part
    return (arr[pstn::]+b[::]) ## last part + split part

lis = list(input('enter numbers for array list: '))
arr = [eval(i) for i in lis]
leng_arr = len(arr) ## length of array
pstn = int(input('enter a number want to split and add to the end: '))##how many nos want to move last

arr1 = splitArr(arr, leng_arr, pstn) ## call functn and store result
for i in range(0, leng_arr):
    print(arr1[i], end = ' ') ## print result array
```

```
enter numbers for array list:  1234
enter a number want to split and add to the end:  2
3 4 1 2
```

5. Write a Python Program to check if the given array is Monotonic?

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[11]:
```
def isMonotonic(arr):
    x, y = [], []
    x.extend(arr)# x = store
    y.extend(arr)# y = store
    x.sort() # x = ascending sort
    y.sort(reverse=True) # y = descending sort
    if(x == arr or y == arr):
        return True
    return False

lis = list(input('enter numbers for array list: '))
arr = [eval(i) for i in lis]

print(isMonotonic(arr))
```

```
enter numbers for array list:  247
True
```

[12]:
```
def isMonotonic(arr):
    x, y = [], []
    x.extend(arr)# x = store
    y.extend(arr)# y = store
    x.sort() # x = ascending sort
    y.sort(reverse=True) # y = descending sort
    if(x == arr or y == arr):
        return True
    return False

lis = list(input('enter numbers for array list: '))
arr = [eval(i) for i in lis]

print(isMonotonic(arr))
```

```
enter numbers for array list:  34215
False
```