#### **Programming Assignment\_7**

1. Write a Python Program to find sum of array?
2. Write a Python Program to find largest element in an array?
3. Write a Python Program for array rotation?
4. Write a Python Program to Split the array and add the first part to the end?
5. Write a Python Program to check if given array is Monotonic?

Q 1: Write a Python Program to find sum of array?

Solution :

**def sum\_of\_array (lis):  
 sum = 0  
 for i in lis:  
 sum += i  
  
 return sum  
  
print(sum\_of\_array([5,4,3,2,1,8]))**

Q 2: Write a Python Program to find largest element in an array?

Solution:

**def sum\_of\_array (lis):  
 lis.sort()  
 return lis[-1]  
  
print(sum\_of\_array([5,4,3,2,1,8,7]))**

Q 3: Write a Python Program for array rotation?

Solution :

**import logging as lg  
lg.basicConfig(level=lg.INFO)  
  
class array\_rotation:  
 def left\_rotate\_by\_one(self,arr, n):  
 temp = arr[0]  
  
 for i in range(n - 1):  
 arr[i] = arr[i + 1]  
 arr[n - 1] = temp  
  
 def leftRotate(self, arr, d, n):  
 for i in range(0, d):  
 self.left\_rotate\_by\_one(arr, n)  
  
 def right\_rotate\_by\_one(self,arr, n):  
 temp = arr[n - 1]  
 for i in range(n - 1, 0, -1):  
 arr[i] = arr[i - 1]  
 arr[0] = temp  
  
 def rightRotate(self,arr, d, n):  
 for i in range(0, d):  
 self.right\_rotate\_by\_one(arr, n)  
 def printArray(self,arr):  
 for i in range(0, len(arr)):  
 print(arr[i], end=' ')  
  
if \_\_name\_\_ == '\_\_main\_\_':  
 arr = [1, 2, 3, 4, 5, 6, 7, 8, 9]  
 n = len(arr)  
 try :  
 obj = array\_rotation()  
 print("Array Elements before rotation : ")  
 obj.printArray(arr)  
 print("\nArray Elements after left rotation : ")  
 obj.leftRotate(arr, 3, n)  
 obj.printArray(arr)  
 print("\nArray Elements after left rotation : ")  
 obj.rightRotate(arr, 1, n)  
 obj.printArray(arr)  
 except Exception as e:  
 lg.error(e)**

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

Solution:

**def split\_arr(arr, n):  
 arr = arr[n:] + arr[:n]  
 return arr  
  
arr = [1,2,3,4,5,6,7,8,9]  
print("Input array is : ", arr)  
print("Output array is", split\_arr(arr, 3))**

Q 5: Write a Python Program to check if given array is Monotonic?

Solution :

**import itertools  
import operator  
import logging as lg  
lg.basicConfig(level=lg.INFO)  
  
class monotonoic:  
 try:  
 def monotone\_increasing(self,lst):  
 pairs = zip(lst, lst[1:])  
 return all(itertools.starmap(operator.le, pairs))  
  
 def monotone\_decreasing(self,lst):  
 pairs = zip(lst, lst[1:])  
 return all(itertools.starmap(operator.ge, pairs))  
  
 def monotone(self,lst):  
 return self.monotone\_increasing(lst) or self.monotone\_decreasing(lst)  
 except Exception as e:  
 lg.error(e)  
  
if \_\_name\_\_ == '\_\_main\_\_':  
 lis = [4.3, 4.2, 4.2, -2]  
 obj = monotonoic()  
 print(obj.monotone(lis))**