BASIC PHYTON ASSIGNMENT 7

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

```
def sum_of_elements_array(arr):
    "This function will return the sum of all elements of an integer array"
    try:
        result = 0
        for i in arr:
            result += i
        return result
    except Exception as e:
        print("\nSome exception has occurred: ",e)


try:
    arr = []
    size = int(input("Enter the size of array: "))

    if size<=0:
        print("\nPlease enter a positive integer")
    else:
        for i in range(size):
            arr.append(int(input(f"Enter {i+1} element: ")))

        print(f"\nSum of all elements of {arr} : {sum_of_elements_array(arr)}")
except Exception as e:
    print("\nSome exception has occurred: ",e)
```

```
Enter the size of array: 5
Enter 1 element: 10
Enter 2 element: 20
Enter 3 element: 30
Enter 4 element: 40
Enter 5 element: 50

Sum of all elements of [10, 20, 30, 40, 50] : 150
```

In [2]:

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

```
def largest_in_array(arr):
    """This function will return the largest element in an integer array"""
    try:
        largest = arr[0]
        for i in arr:
            if i>largest:
                largest = i
        return largest
    except Exception as e:
        print("\nSome exception has occurred: ",e)


try:
    arr = []
    size = int(input("Enter the size of array: "))

    if size<=0:
        print("\nPlease enter a positive integer")
    else:
        for i in range(size):
            arr.append(int(input(f"Enter {i+1} element: ")))

        print(f"\nLargest elements in {arr} : {largest_in_array(arr)}")
except Exception as e:
    print("\nSome exception has occurred: ",e)
```

```
Enter the size of array: 5
Enter 1 element: 10
Enter 2 element: 20
Enter 3 element: 30
Enter 4 element: 40
Enter 5 element: 50

Largest elements in [10, 20, 30, 40, 50] : 50
```

In [3]:

#3. Write a Python Program for array rotation?

```
def rotate_array(arr,size,rotate_digit):
    """This function will return the rotated array by n elements"""
    try:
        temp = []
        for i in range(rotate_digit):
            temp.append(arr[i])
        j = 0
        for i in range(rotate_digit,size):
            arr[j] = arr[i]
            j = j+1
        arr[:] = arr[:j] + temp
        return arr
    except Exception as e:
        print("\nSome exception has occurred: ",e)


try:
    arr = []
    size = int(input("Enter the size of array: "))

    if size<=0:
        print("\nPlease enter a positive integer")
    else:
        for i in range(size):
            arr.append(int(input(f"Enter {i+1} element: ")))

        rotate_digit = int(input("\nHow many elements you want to rotate from the
array: "))
        if rotate_digit<= 0 or rotate_digit>size:
            print(f"\nPlease Enter number in range (1-{size})")
        else:
            print("\nArray Before Rotation\n")
            print(arr)
            print("\nArray After Rotation\n")
            print(rotate_array(arr,size,rotate_digit))
```

```
except Exception as e:
   print("\nSome exception has occurred: ",e)
```

```
Enter the size of array: 7
Enter 1 element: 10
Enter 2 element: 20
Enter 3 element: 30
Enter 4 element: 40
Enter 5 element: 50
Enter 6 element: 60
Enter 7 element: 70

How many elements you want to rotate from the array: 5

Array Before Rotation

[10, 20, 30, 40, 50, 60, 70]

Array After Rotation

[60, 70, 10, 20, 30, 40, 50]
```

In [4]:

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

```
def split_array(arr,size,position):
   """This function will split the array from a given index and append the first part to the end of the array"""
   try:
      temp = []
      for i in range(position):
         temp.append(arr[i])
      j = 0
      for i in range(position,size):
         arr[j] = arr[i]
         j = j+1
      arr[:] = arr[:j] + temp
      return arr
```

```
    except Exception as e:
        print("\nSome exception has occurred: ",e)


try:
    arr = []
    size = int(input("Enter the size of array: "))

    if size<=0:
        print("\nPlease enter a positive integer")
    else:
        for i in range(size):
            arr.append(int(input(f"Enter {i+1} element: ")))

        position = int(input("\nFrom which index you want to split the array: "))
        if position<= 0 or position>size:
            print(f"\nPlease Enter number in range (1-{size})")
        else:
            print("\nOriginal Array\n")
            print(arr)
            print("\nArray after adding first splitted part to last\n")
            print(rotate_array(arr,size,position))

except Exception as e:
    print("\nSome exception has occurred: ",e)
```

```
Enter the size of array: 3
Enter 1 element: 3
Enter 2 element: 1
Enter 3 element: 2

From which index you want to split the array: 1

Original Array

[3, 1, 2]

Array after adding first splitted part to last
```

[1, 2, 3]

In [5]:

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

```
def is_monotonic(arr):
    """This function will check whether the given array is monotonic or not"""
    return (all(arr[i]<=arr[i+1] for i in range(len(arr)-1)) or
            all(arr[i]>=arr[i+1] for i in range(len(arr)-1)))


try:
    arr = []
    size = int(input("Enter the size of array: "))

    if size<=0:
        print("\nPlease enter a positive integer.")
    else:
        for i in range(size):
            arr.append(int(input(f"Enter {i+1} element: ")))

        result = is_monotonic(arr)
        if result:
            print(f"\nArray {arr} is monotonic")
        else:
            print(f"\nArray {arr} is not monotonic")
except Exception as e:
    print("\nSome exception has occurred: ",e)
```

```
Enter the size of array: 5
Enter 1 element: 2
Enter 2 element: 4
Enter 3 element: 6
Enter 4 element: 6
Enter 5 element: 7

Array [2, 4, 6, 6, 7] is monotonic
```

In [ ]: