

# Military Institute of Science and Technology (MIST)

CSE-204

## ASSIGNMENT ON DYNAMIC ARRAY

### ASSIGNMENT-1

Initialize a dynamic array and ask user to give input the initial size and elements of the array. Also create the following menu:

1. Insert element at the first position of the array
2. Insert element at the last position of the array
3. Insert element at any position of the array
4. Delete an element from the first position of the array
5. Delete an element from the last position of the array
6. Delete an element from any position of the array
7. Update any value of any position of the array
8. Quit

**Instructions:**

- Perform Bound checking for search/add/delete
- Write a report containing the complexity analysis with big O notation for each operation.

Create different functions for the different options. Make sure, the size of the array is updated after each insert and delete.

```
Enter the size of the array: 5
Enter the elements of the array: 10 12 5 70 11
The resultant array: 10 12 5 70 11
Choose one of the option:
    1. Insert element at the first position of the array
    2. Insert element at the last position of the array
    3. Insert element at any middle position of the array
    4. Delete an element from the first position of the array
    5. Delete an element from the last position of the array
    6. Delete an element from any position of the array
    7. Update any value of any position of the array
    8. Quit
Enter option: 1
Enter value: 4
The resultant array: 4 10 12 5 70 11
Enter option: 2
Enter value: 8
The resultant array: 4 10 12 5 70 11 8
Enter option: 3
Enter position: 2
Enter value: 50
The resultant array: 4 50 10 12 5 70 11 8
Enter option: 4
The resultant array: 50 10 12 5 70 11 8
Enter option: 5
The resultant array: 50 10 12 5 70 11
Enter option:6
Enter position: 8
Entered position is not a valid one.
Enter option:6
Enter position: 4
The resultant array: 50 10 12 70 11
Enter option:7
Enter position: 4
Enter value: 9
The resultant array: 50 10 12 9 11
Enter option:8
```

### Additional Problem for practice

1) Implement the following function:

**void LeftRotate(int n)**

The function will take an integer  $n$  and left rotate the array  $n$  times. For example, if the arraylist contains 1,2,3,4,5 then after calling LeftRotate(3) the list will look like 4,5,1,2,3

2) Implement the following function:

**void Reverse(int start, int end)**

The function will take two integer  $start$ ,  $end$  and reverse the array *from start to end*. For example, if the arraylist contains 1,2,3,4,5,6 then after calling Reverse(2,4) the list will look like 1,4,3,2,5,6.

3) Implement the following function:

**void Max\_Min (int start, int end)**

The following function will find the maximum and minimum number in the arralist. Fpr example, if the arraylist contains 1,9,20,4,8,0 then after calling the function Max\_Min(0,5) it will give output :

Max: 20

Min: 0