

## Lab Assignment-2

### UEC613 Data Structures and Algorithms

Note: Use C/C++ or JAVA programming language.

Q1. If a one dimensional integer type array with its size and length given, write the code in C++ language to create functions to perform the following operations (Please assume whatever is necessary to exemplify the results) :

- i. Display()
- ii. Add/Append(x)
- iii. Insert(index,x)
- iv. Delete(x)
- v. LinearSearch(s)
- vi. Get(index); function to get value available on the given index
- vii. Set(index,x); insert the value x at the given index
- viii. Max()
- ix. Min()
- x. Reverse()
- xi. Shift()
- xii. Rotate(int number )

Q2. For a given array, write functions to perform the following:

- i. Check if an array is sorted
- ii. Merge arrays
- iii. Set operations on array: Union, Intersection

Q3. For a given array, write functions to perform the following:

- i. Finding single element in an array
- ii. Finding multiple elements in an array
- iii. Finding duplicates in a sorted array;  
(Here, need to first insert sorted array and then perform operation)
- iv. Finding duplicates in an unsorted array;  
(Here, the array need not to be sorted)
- v. Finding a pair of elements with sum k
- vi. Finding max and min in a single scan; here you should use only single loop to perform both the operations