

## **Data Structures (Lab)**

### **Assignment-1(a)**

1. Write a program to perform the following operations on an array:
  - a. Insert an element at a specific position.
  - b. Delete an element from a specific position.
  - c. Search for an element in the array.
  - d. Display the elements of the array.
2. Write a program to reverse an array.
3. Write a program using two sorted arrays, merge them without using extra space.
4. Write a program to rearrange the array in alternating positive and negative numbers while maintaining the relative order of positive and negative elements.
5. Write a program to manage a dynamic list of each datatype using calloc, malloc, realloc, free.
6. Write a program to manage a structure dynamically using malloc, calloc, realloc, free.
7. WAP to implement Magic Square.
8. WAP to implement Call by Value and Call by Reference mechanisms.
9. WAP to implement three different ways to swap two variables without using a third variable.
10. WAP to implement programs using recursion.
  - a. Factorial
  - b. Fibonacci Series
  - c. Greatest Common Divisor
  - d. Linear Search
  - e. Binary Search
  - f. Tower of Hanoi