**Lab 1 : Single Dimensional Array**

* Write a program to search an element in an array using linear search technique. Write separate functions for reading the array, and for searching the element in the array.
* Write a program to search an element in an array using binary search technique. Write separate functions for reading the array, and for searching the element in the array.
* Write a program to insert an integer in an array of N integers. Write separate functions for reading the array, displaying the array and to insert the element in the array.
* Write a program to delete an integer in an array of N integers. Write separate functions for reading the array, displaying the array and to delete the element from the array,

**Lab 2 & 3 : Two Dimensional Array**

* Write a program to find the multiplication of two matrices. Write separate functions for reading the matrix, displaying the matrix and to find the multiplication of the matrices.
* Write a program to find the transpose of a matrix. Write separate functions for reading, displaying and to find the transpose of the matrix.
* Write a program to find check whether the matrix is upper triangular or not. Write separate functions for reading the matrix and to check whether the matrix is upper triangular or not.
* Write a program to find check whether the matrix is lower triangular or not. Write separate functions for reading the matrix and to check whether the matrix is lower triangular or not.

**Lab 4 & 5 : Linked List**

* Write a program to perform following operations on the singly linked list :

Inserting a node (at the start, at the end, in between), deleting a node (starting node, last node, in between node), displaying information stored in the nodes.

Write separate functions for each of the operations.

* Write a program to perform following operations on the circular linked list :

Inserting a node (at the start, at the end, in between), deleting a node (starting node, last node, in between node), displaying information stored in the nodes.

Write separate functions for each of the operations.

* Write a program to perform following operations on the doubly linked list :

Inserting a node (at the start, at the end, in between), deleting a node (starting node, last node, in between node), displaying information stored in the nodes.

Write separate functions for each of the operations.

* Write a program to add two polynomials using link list.

**Lab 6 & 7 : Stack**

* Write a program to implement stack using array. Write separate functions for the following operations on stack : Push (inserting element), pop (deleting element).
* Write a program to implement stack using linked list. Write separate functions for the following operations on stack : Push (inserting element), pop (deleting element)
* Write a program to convert an expression from infix notation to postfix notation.
* Write a program to evaluate an expression in postfix notation.

**Lab 8 : Queue**

* Write a program to implement simple queue using array. Write separate functions for the following operations on queue : Enqueue (inserting element), Dequeue (deleting element).
* Write a program to implement simple queue using linked list. Write separate functions for the following operations on queue : Enqueue (inserting element), Dequeue (deleting element).
* Write a program to implement circular queue using array. Write separate functions for the following operations on queue : Enqueue (inserting element), Dequeue (deleting element).
* Write a program to implement circular queue using linked list. Write separate functions for the following operations on queue : Enqueue (inserting element), Dequeue (deleting element).

**Lab 9 & 10 : Trees**

* Write a program to implement binary search tree. Write separate functions for each of the following operations on binary search tree: Creating Binary Search Tree, Inserting a node in the tree, Deleting a node from the tree and to search an element in the tree.
* Write a program to search a largest number in a binary search tree which is less than equal to N.
* Write a program to traverse a binary search tree in pre-order, post-order and in-order.
* Write a program to find the minimum value in a binary search tree.

**Lab 11 & 12 : Graphs**

* Write a program to find the transitive closure of a directed graph.
* Write a program to find the minimum spanning tree using Prim’s algorithm
* Write a program to implement find BFS Algorithm
* Write a program to implement find DFS Algorithm.

**Lab 13 : Sorting**

* Write a program to sort an array of N integers using selection sort technique. Write separate functions for reading the array, sorting the array and to display the elements of the array.
* Write a program to sort an array of N integers using bubble sort technique. Write separate functions for reading the array, sorting the array and to display the elements of the array.
* Write a program to sort an array of N integers using insertion sort technique. Write separate functions for reading the array, sorting the array and to display the elements of the array.
* Write a program to sort an array of N integers using merge sort technique. Write separate functions for reading the array, sorting the array and to display the elements of the array.
* Write a program to sort an array of N integers using quick sort technique. Write separate functions for reading the array, sorting the array and to display the elements of the array.
* Write a program to sort an array of N integers using heap sort technique. Write separate functions for reading the array, sorting the array and to display the elements of the array.