**BCA-232 Data Structures**

**List of programs**

**Chapter 4 Array**

1. Find the largest element in unsorted array
2. Find second largest element in unsorted array
3. Delete duplicate elements from array
4. Array implementation

* Insert an element
* Delete an element
* Display elements

1. Find an element in an array using linear search
2. Find an element in an array using binary search
3. Find the largest number in 2-D matrix
4. Transpose of matrix
5. Find the sum of diagonal elements of matrix
6. Display the following elements of square matrix:

* Lower left triangular matrix
* Lower right triangular matrix
* Upper left triangular matrix
* Upper right triangular matrix
* Display border elements only

1. Addition of two 2-D matrices
2. Multiplication of two 2-D matrices
3. Implementation of triangular sparse matrix
4. Implementation of tridiagonal sparse matrix

**Chapter 6 Stack, Queue**

1. Implement stack using array

* Push an element
* Pop an element
* Display all the elements

1. Implement circular queue using array

* Insert an element
* Delete an element
* Display all the elements

**Chapter 3 Strings**

1. Search a substring in a string
2. Insert a substring in a string
3. Delete a substring from a string
4. Replace a substring with another substring

**Chapter 5 Linked List**

1. Find the smallest number in an array using pointers
2. Swap two numbers using function and pointers
3. Write a program to perform following operations on unsorted linked list:

* Insert a node at the beginning of linked list
* Insert a node at the end of linked list
* Search a node in linked list
* Delete a node from the linked list
* Display values of all the nodes

1. Write a program to perform following operations on sorted linked list:

* Insert a node in sorted linked list
* Search a node in sorted linked list
* Delete a node from the sorted linked list
* Display values of all the nodes

1. Implement stack using linked list

* Push an element
* Pop an element
* Display all the elements

1. Implement queue using linked list

* Insert an element
* Delete an element
* Display all the elements

**Chapter 9 Sorting and Searching**

1. Selection sort
2. Bubble sort
3. Insertion sort