BCA-241 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
5. Find an element in an array using linear search
6. Find an element in an array using binary search
7. Find the largest number in 2-D matrix
8. Transpose of matrix
9. Find the sum of diagonal elements of matrix
10. 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
11. Addition of two 2-D matrices
12. Multiplication of two 2-D matrices
13. Implementation of triangular sparse matrix
14. Implementation of tridiagonal sparse matrix

Chapter 6 Stack, Queue

15. Implement stack using array
    - Push an element
    - Pop an element
    - Display all the elements
16. Implement circular queue using array
    - Insert an element
    - Delete an element
    - Display all the elements

Chapter 3 Strings

17. Search a substring in a string
18. Insert a substring in a string
19. Delete a substring from a string
20. Replace a substring with another substring

Chapter 5 Linked List

21. Find the smallest number in an array using pointers
22. Swap two numbers using function and pointers

23. 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
24. 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
25. Implement stack using linked list
    - Push an element
    - Pop an element
    - Display all the elements
26. Implement queue using linked list
    - Insert an element
    - Delete an element
    - Display all the elements

Chapter 9 Sorting and Searching

27. Selection sort
28. Bubble sort
29. Insertion sort

Chapter 7 Trees

30. Implement binary search tree using linked list
    - Insert a node
    - Search a node
    - Delete a node
    - Preorder traversal
    - Inorder traversal
    - Postorder traversal

Chapter 8 Trees

31. Graph
    - Insert a node
    - Search a node
    - Delete a node
    - Insert an edge
    - Search an edge
    - Delete an edge