

CSL 201 DATA STRUCTURES LAB – LAB CYCLE QUESTIONS

1. Write a program to read two polynomials and store them in an array. Calculate the sum of the two polynomials and display the first polynomial, second polynomial and the resultant polynomial.
2. Write a program to enter two matrices in normal form . Write a function to convert two matrices to tuple form and display it. Also find the transpose of the two matrices represented in tuple form and display it.
3. Write a program to Write a program to enter two matrices in normal form . Write a function to convert two matrices to tuple form and display it. Also find the sum of the two matrices in tuple form and display the sum in tuple form.
4. Implement a circular queue using arrays with the operations:
 - 4.1.Insert an element to the queue.
 - 4.2.Delete an elements from the queue.
 - 4.3.Display the contents of the queue after each operation.
5. Implement a Queue using arrays with the operations:
 - 5.1.Insert elements to the Queue.
 - 5.2.Delete elements from the Queue.
 - 5.3.Display the contents of the Queue after each operation.
6. Implement a Stack using arrays with the operations:
 - 6.1.Pushing elements to the Stack.
 - 6.2.Popping elements from the Stack
 - 6.3.Display the contents of the Stack after each operation.
7. Implement a Priority Queue using arrays with the operations:
 - 7.1.Insert elements to the Priority Queue.
 - 7.2.Delete elements from the Priority Queue.
 - 7.3.Display the contents of the Priority Queue after each operation.
8. Implement a Double-Ended Queue (DEQUEUE) with the operations:
 - 8.1.Insert elements to the Front of the queue.
 - 8.2.Insert elements to the Rear of the queue
 - 8.3.Delete elements from the Front of the queue.
 - 8.4.Delete elements from the Rear of the queue.
 - 8.5.Display the queue after each operation.

9. Using stack convert an infix expression to a postfix expression and evaluate the postfix expression.
10. Write a menu driven program for performing the following operations on a Linked List:
 - 10.1.Display
 - 10.2.Insert at Beginning
 - 10.3.Insert at End
 - 10.4.Insert at a specified Position
 - 10.5.Delete from Beginning
 - 10.6.Delete from End
 - 10.7.Delete from a specified Position
11. Implement a stack using linked list with the operations:
 - 11.1.Push elements to the queue.
 - 11.2.Pop elements from the queue.
 - 11.3.Display the queue after each operation.
12. Implement a Queue using linked list with the operations:
 - 12.1.Insert an elements to the queue.
 - 12.2.Delete an elements from the queue.
 - 12.3.Display the queue after each operation.
13. Write a program to reverse the content of queue using stack
14. Implementation of searching algorithms – linear search, binary search
15. Write a program to read two polynomials and store them using linked list. Calculate the sum of the two polynomials and display the first polynomial, second polynomial and the resultant polynomial.
16. Write a program to read two polynomials and store them using linked list. Find the product of two polynomials and store the result using linked list. Display the resultant polynomial.
17. Create a Doubly Linked List from a string taking each character from the string. Check if the given string is palindrome in an efficient method.

18. Create a binary search tree with the following operations:
 - 18.1. Insert a new node .
 - 18.2. Inorder traversal.
 - 18.3. Preorder traversal.
 - 18.4. Postorder traversal.
 - 18.5. Delete a node.
19. Represent any given graph and
 - 22.1. Perform a depth first search .
 - 22.2. Perform a breadth first search
20. Implementation of sorting algorithms – bubble, insertion, selection, quick, merge sort.

Note: Complete and Submit(fair record) Programs 1–14: 25/11/2022

Complete and Submit(fair record) Programs 15–20: 16/12/2022