Data structure lab

Mca- 112

Lab manual

Link list

1. Write a program to perform insert, delete and traverse operations on the singly linked list in the beginning, end and on any specific location.
2. Write a program to rearrange the elements of a singly linked list in ascending or descending order.
3. Write a program to move the last node to the front of singly linked list.
4. Write a program to print the elements of singly link list using recursion.
5. Write a program to reverse link list using the iteration technique.
6. Write a program to reverse the singly link list using recursion.
7. write a program to implement a circular linked list.
8. Write a program to check whether the given singly linked list is in non-decreasing order or not.
9. Write a program to perform insert, delete, and traverse operations on the doubly linked list in the beginning, end and on any specific location.

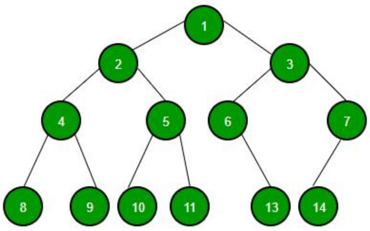
Stack and queue

10. Write a program to implement stack (push and pop operations) using array.
11. Write a program to implement stack using singly linked list.
12. Write a program to implement a queue using a circular array.
13. Write a program to implement a queue using a circular linked list.
14. Write a program to implement stack using priority queue.
15. Write a program to implement a queue using two stacks.
16. Write a program to convert an infix expression to a postfix expression.
17. Write a program to evaluate postfix expression.

Tree

18. write a program to find out the preorder, inorder and postorder traversal of the tree.
19. write a program to perform double-order traversal and triple-order traversal on the tree.
20. Write a program to find the number of binary trees possible with given number of nodes.

21. Write a program to perform indirect recursion on the tree.



22. Write a program to find out possible labelled and unlabeled binary trees with the given number of nodes.
23. Write a program to construct the unique binary tree using inorder and preorder traversal and hence find postorder.
24. Write a recursive program to count the total number of nodes in the tree.
25. write a recursive program to count the number of the leaf or non-leaf nodes of the tree.
26. write a recursive program to count the number of full nodes of the tree (Full Nodes are nodes which has both left and right children as non-empty).
27. write a recursive program to find the height of the tree.