GCET
G H PATEL COLLEGE OF ENGINEERING & TECHNOLOGY

ACADEMIC YEAR: 2021-22(ODD) **SEMESTER: 3**

SUBJECT: 102040301 – DATA STRUCTURES

PRACTICAL LIST

Sr. No.	Name of Experiment
1	**ARRAYS** 1.1 Write a program to insert/delete in linear array at specific position. 1.2 Write a program to remove duplicate elements from liner array. 1.3 Write a program to read 10 integers in an array. Sort them out on the basis of number of digits in each element.
2	**POINTERS** 2.1 Demonstrate the concept of Call by value and Call by Reference. 2.2 Write a program to prints array elements in reverse orders applying pointers**.**
3	**STACK** 3.1 Write a program for stack using array for the following operations: Push, Pop, Peek and IsEmpty 3.2 Write a program of conversion of an expression from infix to Postfix, Prefix. 3.3 Write a program to evaluate postfix expression. 3.4 Write a program to check whether a given expression is having a balanced (correct patter of) parenthesis or not.
4	**RECURSION** 4.1 Let A be an array of integers. Write recursive program to compute: The maximum element of the array. The sum of the elements of the array. 4.2 Write a program using recursion to find the solution for the following Series F(n) = 1/1! + 3/3! + 5/5! + ... + n/n! 4.3 Write a recursive program to find GCD of two integers.
5	**QUEUE** 5.1 Write a program for queue using array for the following operations: Enqueue, Dequeue, IsEmpty, IsFull. 5.2 Write a program for circular queue using array for the following operations: Enqueue, Dequeue, IsEmpty, IsFull.
6	**LINKED LIST** 6.1 Write a program for single linked list for the following operations: 1. Count the number of nodes in a given linked list 2. Delete the desired node from linked list 3. Insert the new node after the desired node into the linked list 4. Create a new list by reversing the list

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	5. Concatenates two linked list 6.2 Write a program for stack using linked list for the following operations: Push, Pop, Peek and IsEmpty. 6.3 Write a program for queue using linked list for the following operations: Enqueue, Dequeue, IsEmpty
7	**DOUBLY LINKED LIST** 7.1 Write a program to implement doubly linked list for the following operations: 1. Insert a new node after the desired node 2. Delete the desired note 3. Display the nodes of doubly linked list 7.2 Write a program to implement circular doubly linked list for the following operations: 1. Insert a new node after the desired node 2. Delete the desired note 3. Display the nodes of doubly linked list
8	**TREE** 8.1 Write a program to construct binary search tree. 8.2 Write a program to travers binary search tree. 8.3 Write a program to delete a node from binary search tree. 8.4 Write a program to remove duplicate numbers from binary search tree.
9	**GRAPH** 9.1 Write a program for given a directed graph, and check whether the graph contains a cycle or not. It should print true if the given graph contains at least one cycle, else it should print false. 9.2 Write a program to demonstrate DFS and BFS.
10	**SEARCHING** 10.1 Write a program to implement linear search. 10.2 Write a program to implement binary search.
11	**SORTING** 11.1 Write a program to implement Selection sort 11.2 Write a program to implement Quick sort 11.3 Write a program to implement Insertion sort 11.4 Write a program to Implement Merge Sort
12	**HASHING** 12.1 Write a program to implement the mechanism to handle hash collision by: 1. Separate chaining2. Open addressing