A.Y. 2025-26

MCA I Year-SEM I

ITL- 11 Data Structure and Algorithm using Python

**Practical Assignment-1**

**Singly Linked List**

Q1. Write a program to perform the following operations on a Singly Linked List:

* Append a node at the end of the list. (Easy)
* Print the list. (Easy)
* Insert a node at a specific position. (Medium)
* Delete the last node. (Medium)
* Search for an element in the list. (Medium)
* Find the Minimum and Maximum node value. (Easy)
* Count Even and odd value nodes. (Easy)
* Merge two lists. (Medium)
* Reverse the list. (Hard)

**Doubly Linked List**

Q2. Write a program to perform the following operations on a Doubly Linked List:

* Append a node at the end of the list. (Easy)
* Print the list. (Easy)
* Insert a node at the beginning of the list. (Easy)
* Delete a node at a specific position. (Medium)
* Search for an element in the list. (Medium)
* Count total nodes (Easy)
* Delete middle node (Medium)
* Reverse the list (Hard)

**Stack**

Write a program to perform the following operations on a Stack:

* Push an element onto the stack. (Easy)
* Pop an element from the stack. (Easy)
* Peek the top element of the stack. (Easy)
* Reverse the stack (Medium)

**Linear Queue**

Write a program to perform the following operations on a Linear Queue:

* Enqueue an element into the queue. (Easy)
* Dequeue an element from the queue. (Easy)
* Peek the front element of the queue. (Easy)
* Reverse the queue using stack. (Medium)