Lab Experiment: 05 **Batch: 1 & 2**
Subject: Data Structures Lab **MCA**
Semester: 1st

Lab Assignment 1: Queue Implementation Using Arrays

Problem Statement:

Implement a queue data structure using arrays. Your program should support the following queue operations:

1. Enqueue: Add an element to the rear of the queue.
2. Dequeue: Remove an element from the front of the queue.
3. Peek: Display the front element without removing it.
4. IsEmpty: Check if the queue is empty.
5. IsFull: Check if the queue is full (assume a fixed size).

Assignment Tasks:

- Write a C program that defines a queue using arrays.
- Implement the queue operations mentioned above.
- Demonstrate queue overflow and underflow conditions.
- Write a main program to test all queue operations.

Lab Assignment 2: Queue Implementation Using Linked Lists

Problem Statement:

Implement a queue data structure using a linked list. Your program should support the following operations:

1. Enqueue: Add an element to the rear of the queue.
2. Dequeue: Remove an element from the front of the queue.
3. Peek: Display the front element without removing it.
4. IsEmpty: Check if the queue is empty.

Assignment Tasks:

- Write a C program that defines a queue using a singly linked list.
- Implement the queue operations mentioned above.
- Demonstrate queue operations using linked lists.
- Write a main program to test all queue operations