

Lab Assignment: Implement a Queue using Linked List

Problem Statement:

Implement a queue using a singly linked list. The queue should support the basic operations: enqueue, dequeue, peek (front element), and display.

Learning Objectives:

- Understand how linked lists can be used to represent dynamic data structures.
- Learn how to implement a queue with dynamic memory allocation.
- Implement standard queue operations without size restrictions.

Function Signatures:

```
void enqueue(int data);           // Insert an element at the rear of the queue
int dequeue();                  // Remove and return the front element of the queue
int peek();                      // Return the front element without removing it
void display();                 // Display all elements in the queue
```

Example:

```
Enqueue(10)  Queue: 10
Enqueue(20)  Queue: 10 20
Enqueue(30)  Queue: 10 20 30
Dequeue()    Returns 10, Queue: 20 30
Peek()       Returns 20
```