# Sukkur IBA University
# Kandhkot Campus

## Lab Task - II
## Fall 2022

**Course:** Data Structures
**Class**: BS (CS) – III
**Date**: September 22, 2022
**Time**: 2 hour
**Instructor**: Syed Muzamil Hussain Shah

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## General Instructions:

You will implement Queue using LinkedList from scratch with some basic functionalities in this lab task. if you could not complete this task in the lab then take it as HW.

## Question 01 Queue Code

Create a Generic Queue class and add the following:

1. Add private Node class with self-referencing node class variables, data variable( Generic type), and a 2 argumentative constructor.
2. define front/head, rare/tail and length global variables of node class in the Queue class.
3. Add constructor in Queue class initialize head and tail.
4. Add enqueue(AnyType data) method.
5. Add dequeue() method that returns node.
6. Add display() method
7. Add peek() method
8. Add Main() method
9. Add getSize() method that total number of nodes.
10. Add a clear() method that deletes all nodes of the queue.
11. Add isEmpty() method that returns true if there node in the linked list and false if there is at least one node.
12. Add meregeQueues(Queue q1, Queue q2) method that merges two queues and returns new queue.
13. Add contains(AnyType data) method that returns true if node is in queue else false
14. Add addAll(Linkedlist q) method that adds a list of nodes to current queue.
15. Add remove(int index), which removes the node of a given index.