Sukkur IBA University
Kandhkot Campus
Lab Task - II
Fall 2022

Course: Data Structures   **Class**: BS (CS) – III
Date: September 30, 2022   **Time**: 2 hour
Instructor: Syed Muzamil Hussain Shah

General Instructions:

You will implement Stack 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 Stack 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 push(AnyType data) method.
5. Add pop() 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 Stack.
11. Add isEmpty() method that returns true if there node in the Stack and false if there is at least one node.
12. Add meregeStacks(Stacks s1, Stack s2) method that merges two queues and returns new queue.
13. Add contains(AnyType data) method that returns true if node is in stack else false
14. Add addAll(Linkedlist q) method that adds a list of nodes to current stack.
15. Add remove(int index), which removes the node of a given index.