**National University of Computer and Emerging Sciences**



Laboratory Manual 06

for

Data Structures Lab

|  |  |
| --- | --- |
| Course Instructor | Mr. Uzair Naqvi |
| Lab Instructor(s) | Ms. Marwa Khan  Ms. Maryam Rehman |
| Section | BCS-3B |
| Semester | Fall 2022 |

**Department of Computer Science**

FAST-NU, Lahore, Pakistan

**Objectives:**

In this lab, students will practice:

1. Queues using Linked List

# Queues

**Task 1:**

Implement a template-based queue using **Linked List**. The required member methods are:

1. **void enqueue()**: Adds an element to queue
2. **void dequeue()**: Removes an element from queue
3. **int size()**: returns the count of total element stored in the stack.
4. **bool isEmpty()**: returns true if the stack is empty else false.
5. **int front()**: returns the element on Front of queue
6. **int rear()**: return the element on Rear of queue

**Task 2:**

Given a Queue of integers (Based on **Linked List**). The task is to check if the elements in the queue are consecutive triples after every ‘k’ element. The queue will not be change after calling this function.

**Example:**

**Input: 1 2 3 5 7 11 12 13 k = 2**

**Output:** Yes

**Input: 1 2 3 4 5 12 14 15 k = 2**

**Output:** No