**National University of Computer and Emerging Sciences**



Laboratory Manual

for

Data Structures Lab

| Course Instructor | Mr. Uzair Naqvi |
| --- | --- |
| Lab Instructor(s) | Ms. Fariha Maqbool  Ms. Marwa Khan |
| Section | BCS-3H |
| Semester | Fall 2022 |

**Department of Computer Science**

FAST-NU, Lahore, Pakistan

**Objectives:**

In this lab, students will practice:

1. Doubly Linked List
2. Circular Linked List

**Question 1**

Write your code in C++ to implement the following functionality in doubly linked list:

**Insert:** Inserts any given integers at the end of the doubly linked list

**Search:** Search a given integer

**Update:** Updates a given integer with another integer

**InsertSorted:** Make a function **insertSorted** that takes an element as argument and inserts in doubly linked list in sorted order

**Question 2**

Write your code in C++ to implement the following functionality in Circular linked list:

**Insert:** Inserts any given integers at the end of the circular linked list

**InsertBefore:** Take two integers as an argument v1 and v2 and insert v1 before v2.

**Search:** Search a given integer

**Update:** Updates a given integer with another integer

**Check:** Check either the made is circular linked list or not.