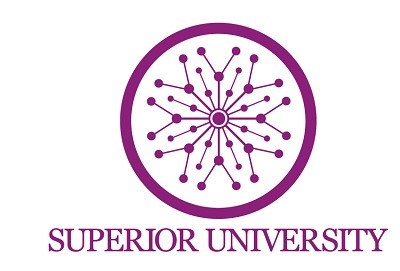
**Lab Tasks**



Submitted to

:

Sir Rasikh Ali

rR

Submitted by

:

Arooj Fatima

Roll No

:

SU92-BSSEM-S24-091

Subject:

DSA (Lab)

Class:

BS – Software Engineering

# **Lab # 09**

**- Circular Linked List (Insert and Display Nodes)**

This lab shows the functions to insert node at first, last, Nth location, and Centre of a **Circular linked list** and also display the nodes in order and reverse order.

A **Node** class is defined to represent each node in the list, containing an integer data, a pointer next to the next node, and an unused previous pointer.

The **LinkedList** class manages the circular linked list, with a head pointer indicating the start of the list.

The program includes several insertion functions:

* insert\_at\_start inserts a new node at the beginning,
* insert\_at\_last adds a node at the end,
* insert\_at\_pos places a node at a specific position.
* insert\_at\_mid calculates the middle of the list and inserts a node there.

Since the list is circular, all nodes are linked back to head, ensuring continuous traversal.

For displaying the list, the display function prints elements in order until it loops back to head.

The printReverse function is intended to print the list in reverse using recursion, but due to the incorrect stopping condition in printReverseUtil, it does not properly handle circular structures.

In main (), a list is created, and nodes are inserted in different positions before displaying the list both in normal and reverse order.

