Week #3

Objectives:

- To learn writing, executing and debugging programs related to Single Linked List.
- To learn writing, executing and debugging programs related to Double Linked List.
- To learn writing, executing and debugging programs related to Circular Linked List.
- To learn writing, executing and debugging programs related to Operations of Linked List.

Outcomes:

- After completing this, the students would be able to develop, compile, debug, and fix errors of C programs based on a Single Linked List, Double Linked List, and Circular Linked List.

LAs:

- Write a **menu-driven** program to perform the following operations in a **Single Linked List** by using suitable user-defined functions for each case.
  a) Traversal of the list.
  b) Check if the list is empty.
  c) Insert a node at a certain position (at beginning/end/any position).
  d) Delete a node at a certain position (at beginning/end/any position).
  e) Delete a node for the given key.
  f) Count the total number of nodes.
  g) Search for an element in the linked list.
  h) Reverse the sequence elements in a list

- Write a menu-driven program to perform the following operations in a **Double-Linked List** using suitable user-defined functions for each case.
  a) Traverse forward,
  b) Traverse backward,
  c) Check if the list is empty
  d) Insert node at a certain position like beginning/end/any position.
  e) Delete node at a certain position like beginning/end/any position
  g) Count Nodes
  g) Reverse List
  h) Search List

- WAP to create a **Circular Doubly Linked List** of n nodes and display the linked list by using suitable user-defined functions to create and display operations.