Institute for Advancing Intelligence, TCG CREST
(TCG Centres for Research and Education in Science and Technology)

Introduction to Programming and Data Structures, 2023-24, Semester-II
Assignment 04

Maximum Marks: 100
Topic: using Linked list

Submission Deadline: **2023-Oct-01**
Clarification Deadline: **2023-Sep-29**

[**AP0401**:] *Linked list operations:*

- **Problem:** Implement a singly linked list with the following functionalities:
  1. Insertion at the beginning of the list.
  2. Insertion at the end of the list.
  3. Insertion at a specific position.
  4. Deletion of a node by value.
  5. Reverse the linked list.
  6. Display the linked list.
  7. Exit the program.
- Create a menu-driven program that allows users to choose operations from the menu.
  1. Display a menu with options for each operation.
  2. Accept user input for selecting an option.
  3. Perform the selected operation.
  4. Continue until the user chooses to exit the program.
- Give the user option to
  1. Create a loop at specific location. Given k, this operation assign address of the kth node to the last node.
  2. Display the linked list, irrespective of presence of loop or not.
- **Output:** Just display the outputs in the terminals.

[50+30]

- Good programming practice:
  - Indentation, name of files, variables, etc. should be inappropriate.
  - Each function should handle input errors.

[10+30]