WEEK 2 ASSIGNMENT

Step 1: Define the Node class

Purpose:

Represents a single element (node) in the linked list.

Each node stores:

- The actual data
- A pointer (next) to the next node in the list

Step 2: Define the LinkedList class

Purpose:

Manages the overall linked list and provides the following functions:

- Adding a node
- Printing the list
- Deleting the nth node

Step 3: Add nodes to the end of the list

Method: add_node(data)

Logic:

- Create a new node.
- If the list is empty, set head to the new node.
- Otherwise, traverse to the last node and attach the new node there.

Step 4: Print the linked list

Method: print_list()

Logic:

- Start from the head
- Traverse each node and print the data until None is reached

Step 5: Delete the nth node (1-based index)

Method: delete_nth_node(n)

Logic:

- Check if list is empty
- Handle case where n <= 0
- If n == 1, update head to the second node
- Traverse to the nth node and adjust pointers to remove it

Step 6: Test the linked list implementation

OUTPUT:

```
[Running] python -u "f:\CSI INTERNSHIP\CELEBAL\WEEK_2_ASSIGNMENT\Linked_List.py"

Original Linked List:
10 -> 20 -> 30 -> 40 -> 50 -> None


Deleting node at position 3 with value 30

Linked List after deleting 3rd node:
10 -> 20 -> 40 -> 50 -> None

Error: Index out of range.

Error: Cannot delete from an empty list.
```