Indian Institute of Technology (Indian School of Mines) Dhanbad
Data Structures Lab (NCSC104)
B.Tech (CSE)

Assignment-7 (Linked List & Binary Tree) [3+3+2+2]

1.Given a **binary tree**, the task is to find the **maximum depth** of the tree.

Hint: The maximum depth or height of the tree is the **number of edges** in the tree from the root to the deepest node.

2. Given a **Doubly linked list** containing **n** nodes. The task is to **reverse** every group of **k** nodes in the list. If the number of nodes is not a multiple of **k** then left-out nodes, in the end should be considered as a group and must be **reversed.**

Input: 1 <-> 2 <-> 3 <-> 4 <-> 5 <-> 6 <-> NULL, k = 2
Output: 2 <-> 1 <-> 4 <-> 3 <-> 6 <-> 5 <-> NULL.

3. Given two **binary trees**, the task is to find if both of them are **identical** or not.
Hint: Two trees are **identical** when they have the same **data** and the **arrangement** of data is also the same.

or

Given **two numbers** represented by linked lists, The task is to return the **multiplication** of these two linked lists.

Input : **head1** : 3->2, **head2** : 2
Output: 64

4. Given a **singly linked list,** the task is to remove every kth node of the linked list. Assume that k is always less than or equal to the length of the Linked List.

Input: LinkedList: 1 -> 2 -> 3 -> 4 -> 5 -> 6 -> 7 -> 8 -> 9 -> 10, k = 4
Output: 1 -> 2 -> 3 -> 5 -> 6 -> 7 -> 9-> 10