ASSIGNMENT SET 9

Date: Wednesday, 09/06/2021

Submission Deadline: Monday 14/06/2021

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1. Implement the **graph data structure in form of adjacency list** by using the linked list class & node class (include class header files). Include atleast the following methods for processing
    a. Constructor/destructor
    b. Depth First Search (DFS) [include your stack class header file]
    c. Display
    d. Number of connected components and their sizes

The input to the program should be as following:

4
1 3
1 4
2 4

Where 4 in the 1st line indicates the number of nodes followed by the list of edges each mentioned in form of (n_i, n_j) in a separate line where n_i and n_j are the ith & jth nodes.

2. Implement the **binary tree data structure**. You must write a separate node class with 2 link fields and define the tree class which is composed of a head node (initially). The head will point to the root node which in turn to all other nodes. Include atleast the following methods for processing
    a. Constructor/destructor
    b. Inorder (use recursive method)
    c. Preorder (use recursive method)
    d. Find_depth
    e. Display
    f. Longest path (from root to leaf)