



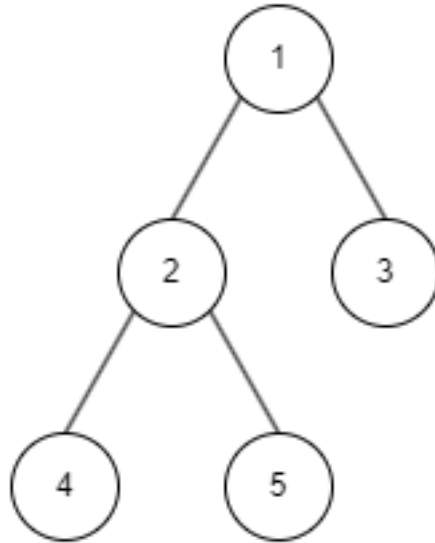
University of Colombo School of Computing

SCS 1208 - Data Structures and Algorithms II

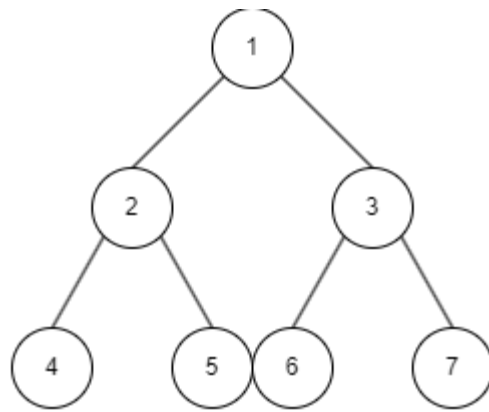
Lab Sheet 08

1. Given a binary tree, the task is to create a C program to find the height of the tree. The height of the tree is the number of vertices in the tree from the root to the deepest node.

Note: The height of an empty tree is 0 and the height of a tree with a single node is 1.



2. Implement a function in C language to determine whether a binary tree is balanced or unbalanced. A balanced tree is defined as a tree in which the depth of the two subtrees of every node never differs by more than one.
3. We have Given a binary tree, implement a C program to find and display the following properties:
 - i. Height of the Tree:
Calculate and print the height of the binary tree. The height of a binary tree is the length of the longest path from the root node to the leaf node.
 - ii. Depth of Each Node:
For each node in the binary tree, calculate and print its depth. The depth of a node is the length of the path from the root to that node.
 - iii. Degree of Freedom (DOF):
The degree of freedom of a node in a binary tree is defined as the number of children it has. Calculate and print the degree of freedom for each node in the tree.



4. Create a simple C program that demonstrates the traversal of an AVL tree. The program creates an AVL tree, inserts some nodes, and then performs inorder, preorder, and postorder traversals.