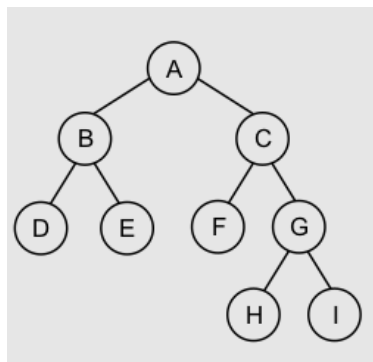


TUTORIAL II

Due Date: **Aug 23, 2024.**

1. Consider the binary tree given below.



- What are the leaves of the tree.
 - What are the non-leaves(internal nodes) of the tree.
 - Find the height of the tree.
 - Write the siblings of node C
 - Write the ancestors of node F
 - Write the descendants of node C
 - What is the length of the path from *A* to *H*.
 - Find the in-order, pre-order, and post-order traversal.
- What is the maximum height of a binary tree that contains n nodes? justify.
 - What is the minimum height of a binary tree that contains n nodes? justify.
 - Let D, B, E, A, F, C, G and A, B, D, E, C, F, G are In-order and pre-order traversal sequences of a binary tree T respectively. Draw the tree T .
 - Let $B, D, A, E, H, G, I, F, C$ and $D, B, H, I, G, F, E, C, A$ are In-order and post-order traversal sequences of a binary tree T respectively. Draw the tree T .
 - Show how to implement a queue using two stacks. Analyze the running time of the queue operations.
 - Show how to implement a stack using two queues. Analyze the running time of the stack operations.
 - Show how to implement a stack using SINGLE queue. Analyze the running time of the stack operations.