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CLASS :- BETT

ROLL NO :- 32.

SUBJECT :- ISLAB.

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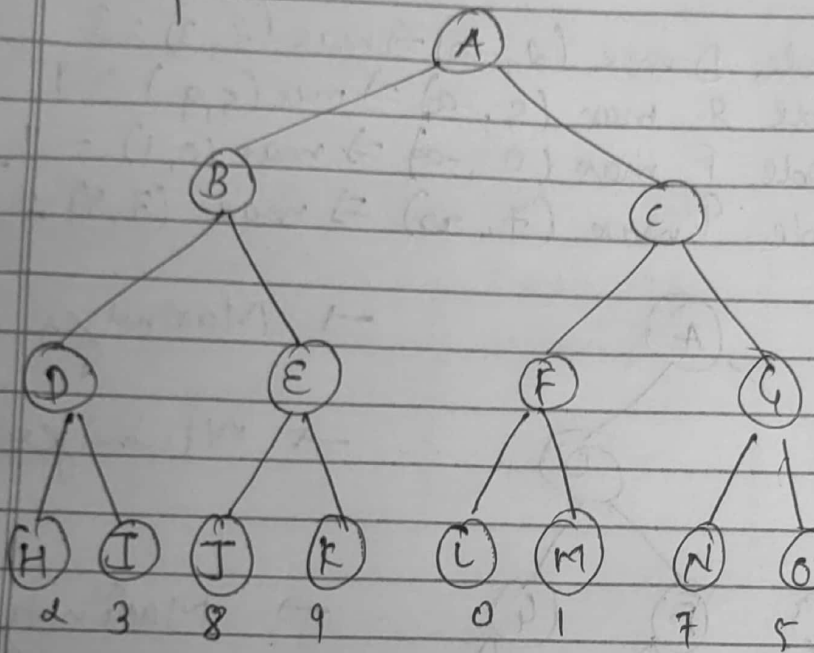
Min-max algorithm

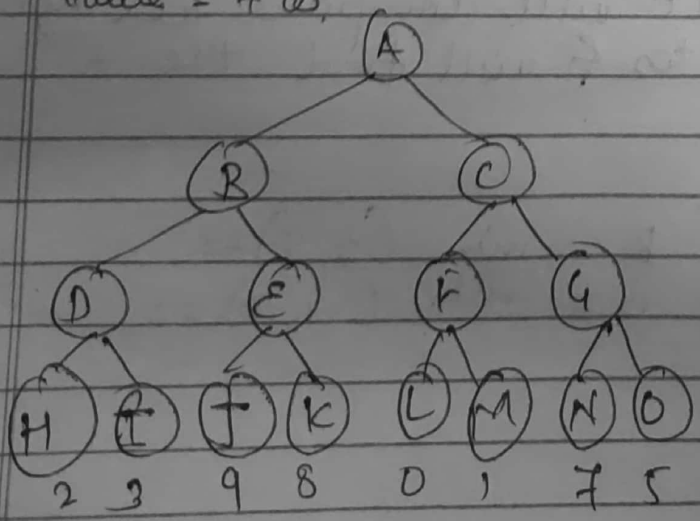
In this example, there are two players, one is called maximizer & other is called minimizer

Example :-



→ Maximizer
- Minimizer
- Maximizer
- Terminal node

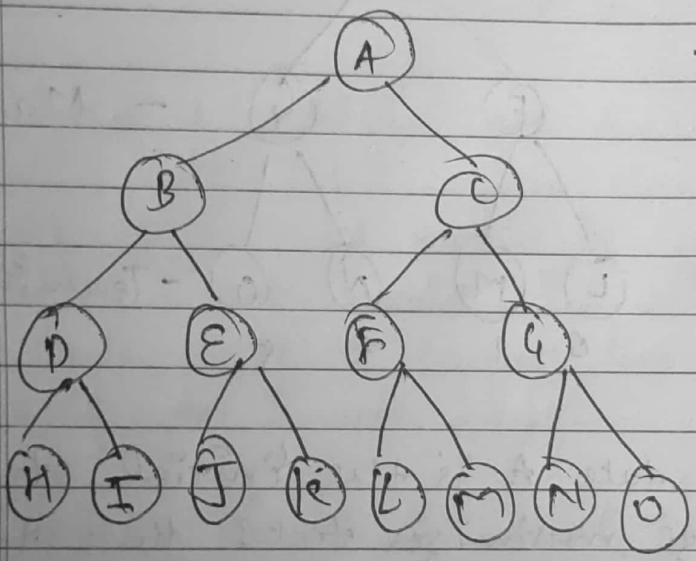
Step 1 :- Let's take A is the initial state of tree. Suppose maximizer takes first turn which has worst-case initial value = -∞ & minimizer will take next turn which has worst-case initial value = +∞.



- Maximizer
→ Minimizer
→ Maximizer
→ Terminal node

Step 2 :- Now, first we find the utilities value for maximizer, its initial value is $-\infty$, so we will compare each value of maximizer & determines higher node values. It will find maximum among the all.

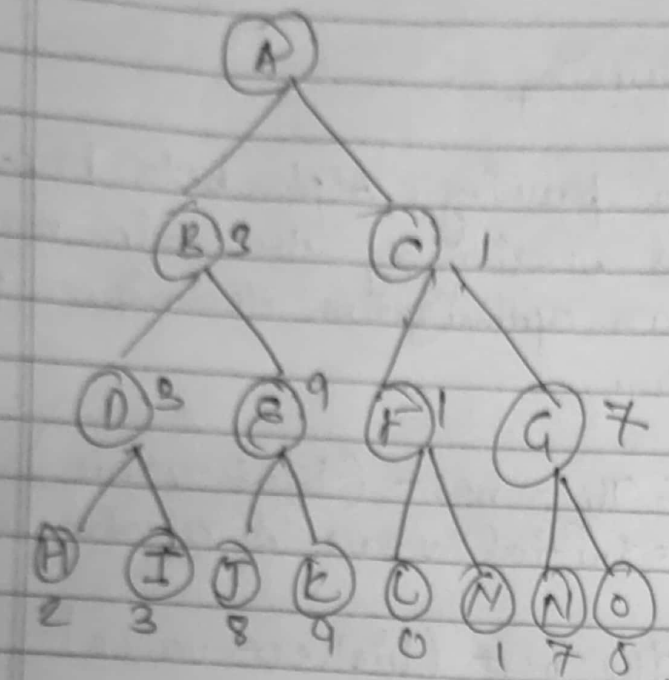
- For node D $\max(2, -\infty) \Rightarrow \max(2, 3) = 3$
- For node E $\max(5, -\infty) \Rightarrow \max(5, 9) = 9$
- For node F $\max(0, -\infty) \Rightarrow \max(0, 1) = 1$
- For node G $\max(7, \infty) \Rightarrow \max(7, 5) = 7$



→ Maximizer
→ Minimizer
→ Maximizer
→ Terminal node.

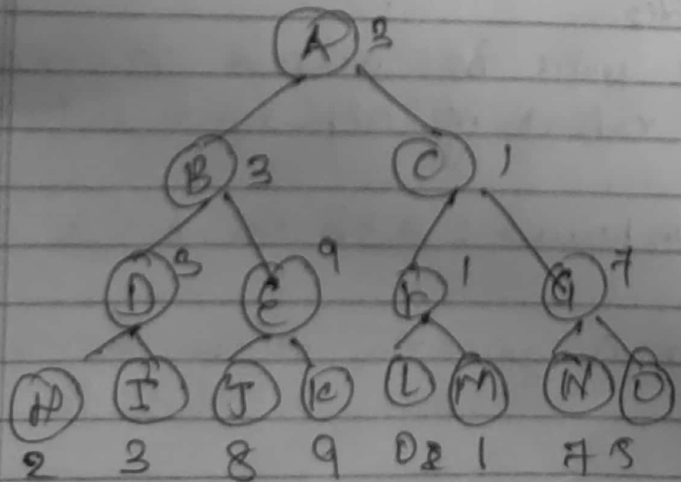
Step 3 : It next step, it's a turn for minimize, so it will compare all nodes values with $+\infty$ & will find the 3rd layer node value.

- For node B = $\min(3, 9) = 3$
- For node C = $\min(1, 7) = 1$



Step 4 :- Now, its turn for maximizer & it will again choose the maximum of all nodes value & find maximum value for root node. In this game tree, there are only 4 layers, hence reach immediately to root node.

→ For node A $\max(3, 1) = 3$



This is a final solution using minmax algorithm