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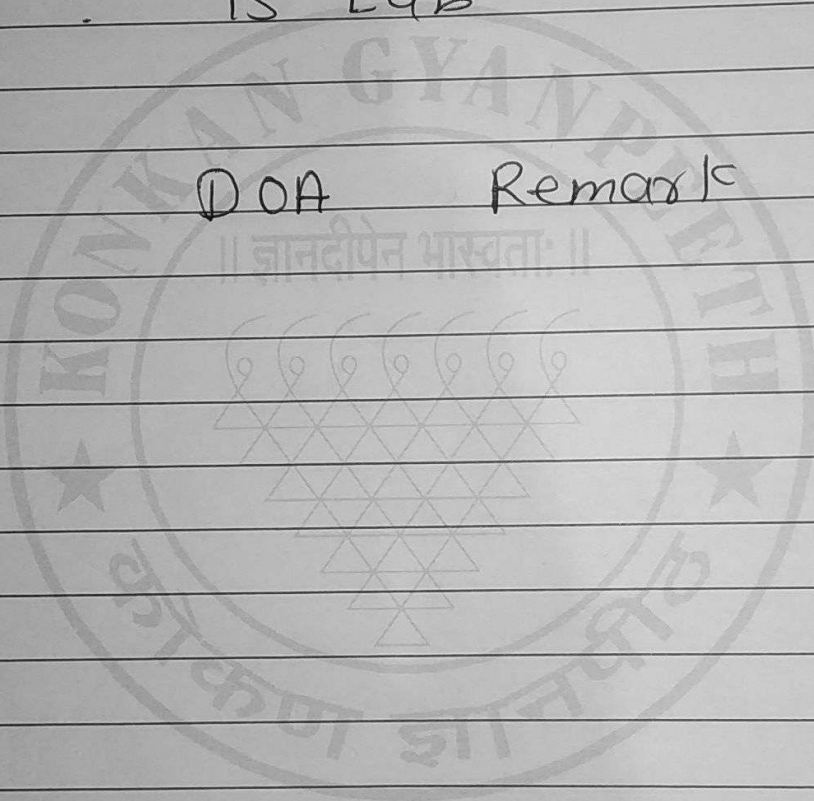
Sub :- IS Lab

DOP

DOA

Remarks

Sign



Min-max algorithm:-

Min-max algorithm is a recursive of backtracking algo which is used in decision-making and game theory. It provides an optimal move for the player assuming that opponent is also playing optimal.

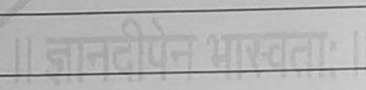
Min max algo uses recursion to search through the game tree.

In this algo two players play the game, one is called Max & other is called MIN.

MIN-max algo is mostly used for game playing in AI.

Step 1 :-

Lets take A is the initial state of the tree. Suppose, maximise takes just first turn (when or) which has worst-case initial value = $-\infty$ and min minimizes will take next to two which has worst-case initial value = $+\infty$.



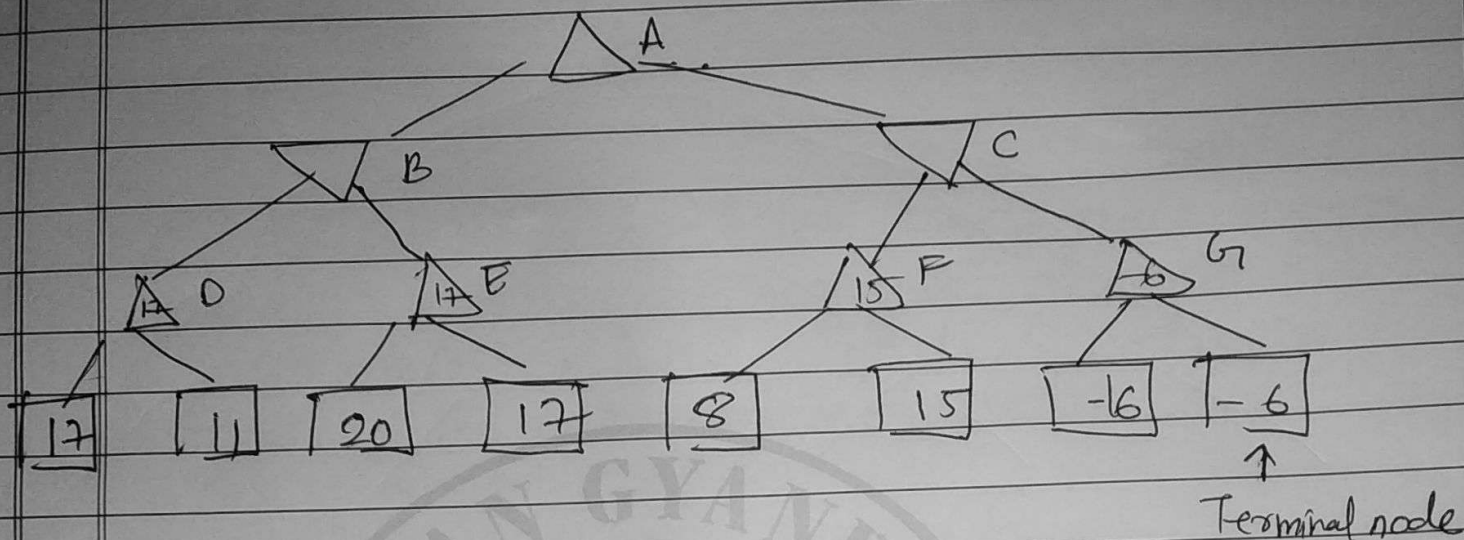
Next we find the
 maximizes, its initial
 will compare each
 state with initial
 and determine
 value - its will
 sum and all

For node D: $\max(17, -\infty) \rightarrow \max(17, 11) = 17$

for node E: $\max(-20, 0) \rightarrow \max(20, 17) = 17$

for Node F: $\max(8, 10) \Rightarrow \max(8, 15) = 15$

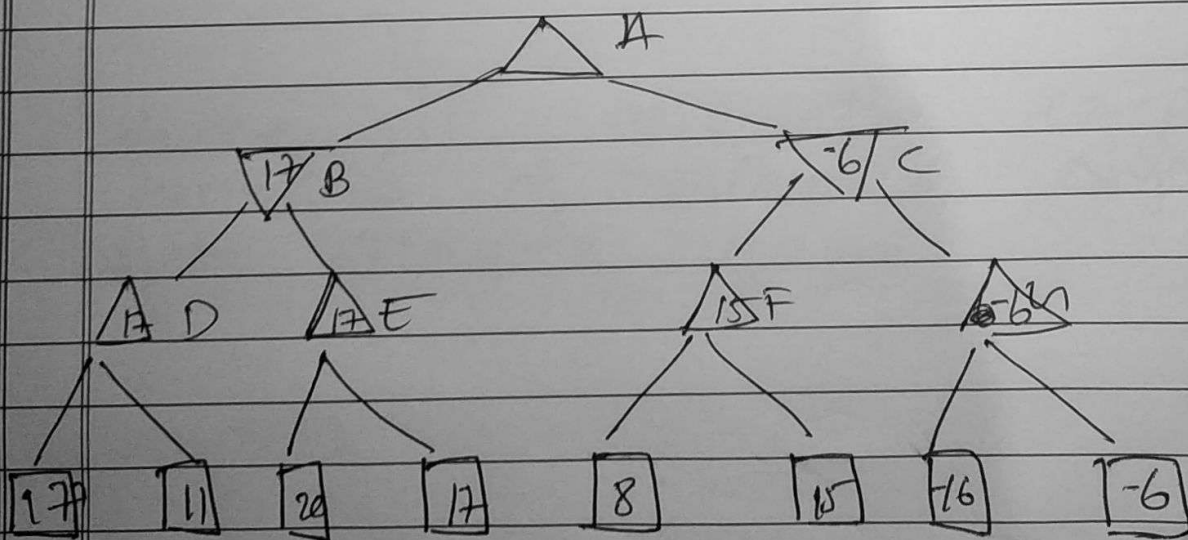
for Node 6: $\max(-16, \infty) \rightarrow \max(16, -6) = -6$



Step 3 :

In the next step it's turn for minimize so it will compare to node value with two and will find the 3rd layer node value.

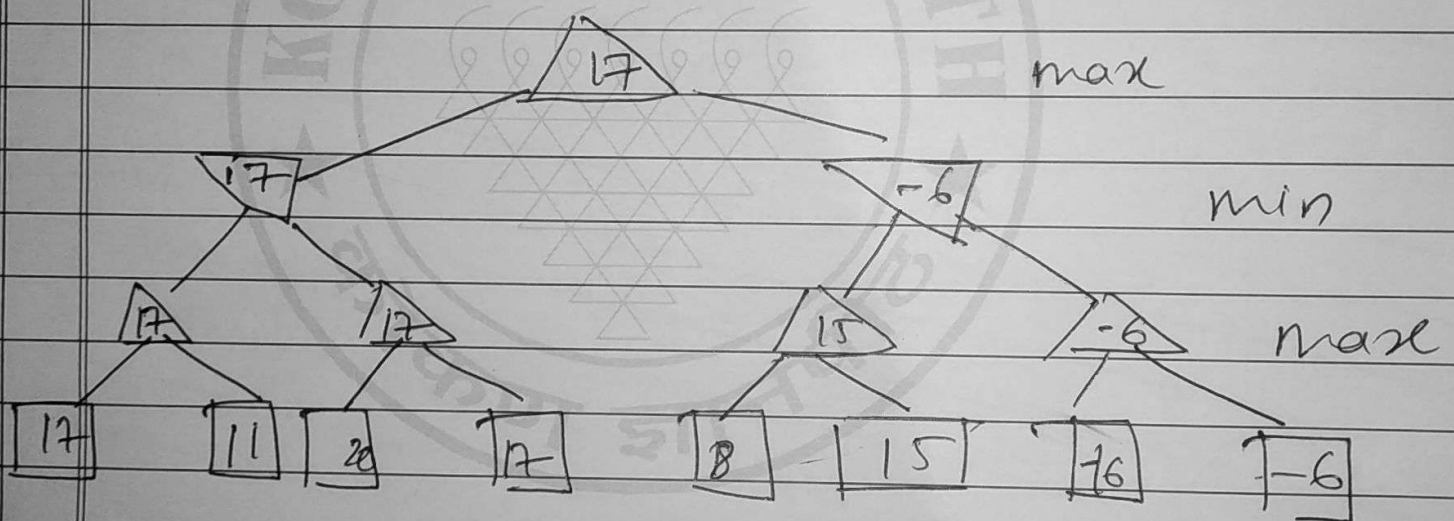
for Node B $\min(17, 17) = 17$
 for Node C $\min(15, -6) = -6$



Step 4

Now it's a turn for maximize and it will again choose the maximum of all node value and find the maximum value for the root node.

For node A: $\max(17, -6) = 17$



Hence, it was the complete workflow of minimax algorithm with two player - game