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Name:- Saurabh Shivaji Adore

Class :- BE-IT

Roll No :- 37

Sub :- Is LAB

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Min-Max algorithm

Min-Max algorithm

Min-Max algorithm is a recursive or backtracking algo which is used in dicision-making and game theory.

It provides an optimal move for the player assuming that opponent is also playing optimally.

- Min Max algo uses recursion to search through the game-tree
- In this algo two players play the game, one is called Max and other is called MIN.
- MIN-MAX algo is mostly used for game playing in AI

- Step 1:-

  let's take A is initial state of a tree. Suppose Maximizes takes first turn which has worst-case initial value: infinity, and Minimize will take next turn which has worst case initial value + infinity

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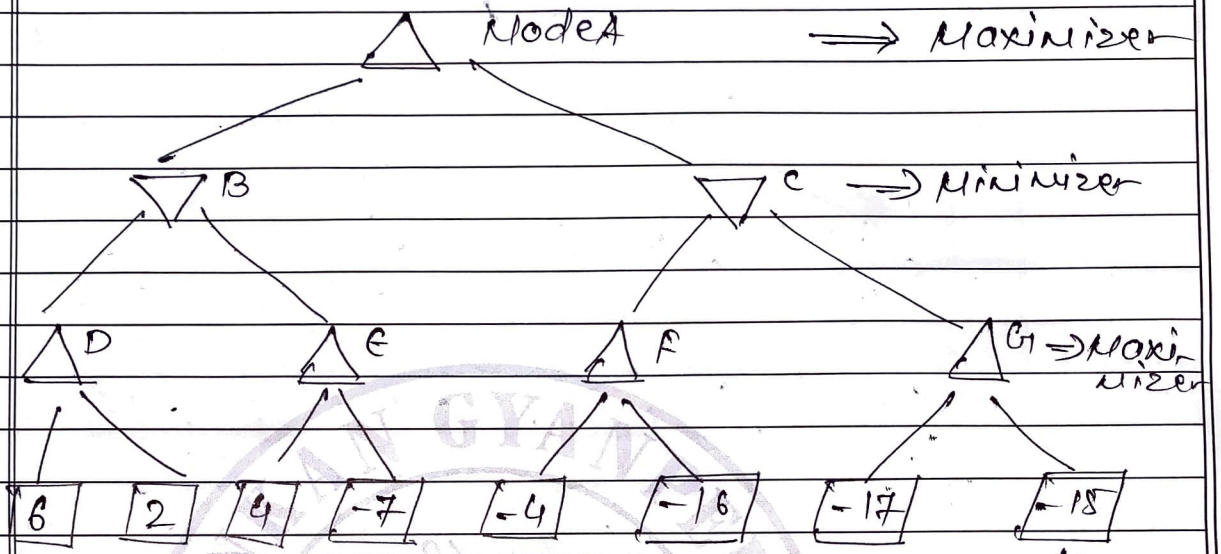


Step 2 :

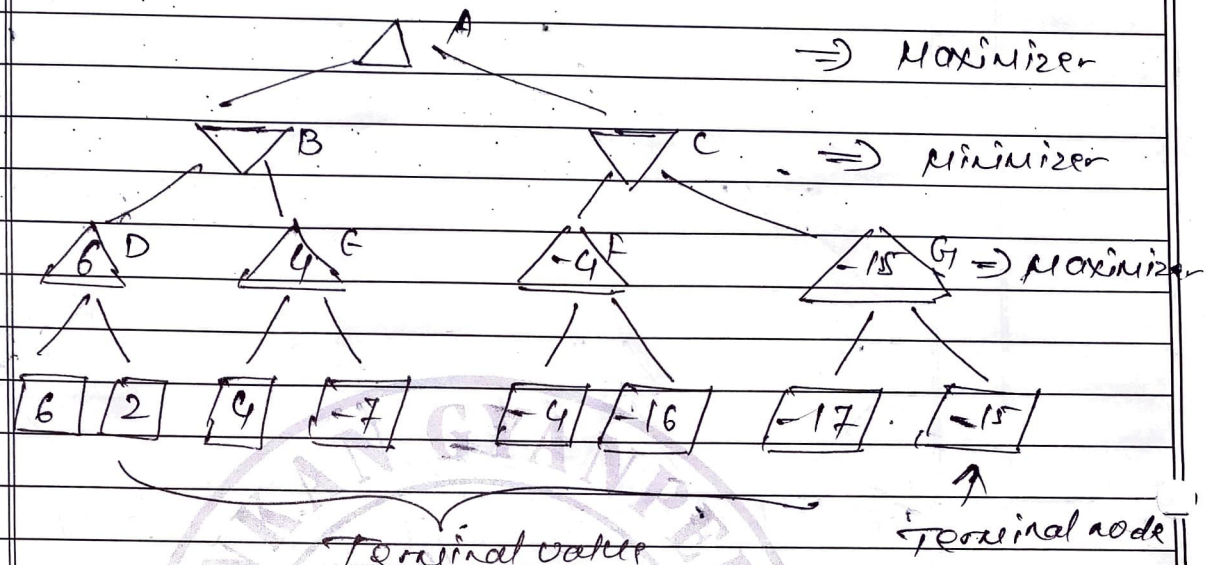
First we find the value for maximizer, its initial value is $-\infty$, so we will compare each value in terminal state with initial value of maximizers and determines the highest nodes value. It will find the maximum among all

For node D : Max $(6, -\infty) \Rightarrow$ Max $(6, 2) : 6$

For node E : Max $(4, -\infty) \Rightarrow$ Max $(4, -7) : 4$

For node F : Max $(-4, -\infty) \Rightarrow$ Max $(-4, -16) : -4$

For node G : Max $(-17, -\infty) \Rightarrow$ Max $(-17, -15) : -15$

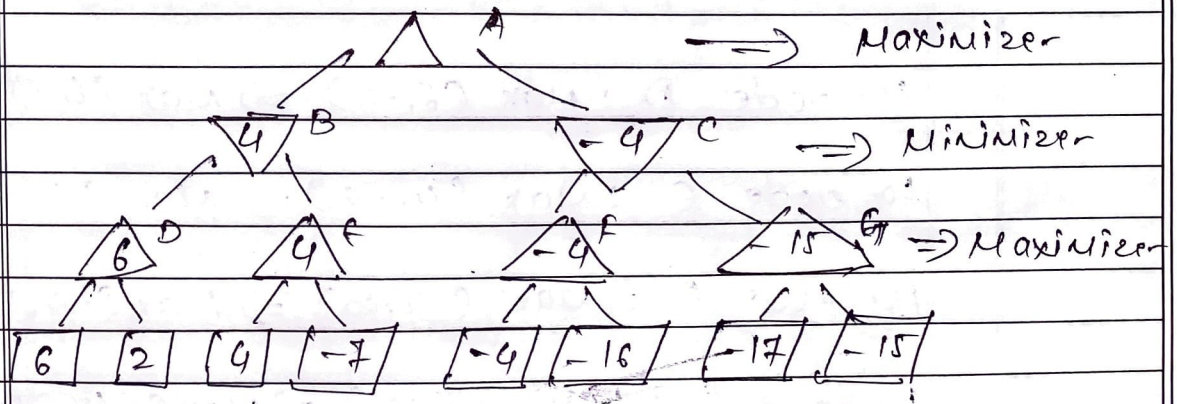


Step 3 :-

In the next step, it's a turn for Minimizer. So it will compare all nodes value with two, and will find the 3rd layer node value

For node B - Min (6, 4) = 4

For node C - Min (-4, -15) = -4



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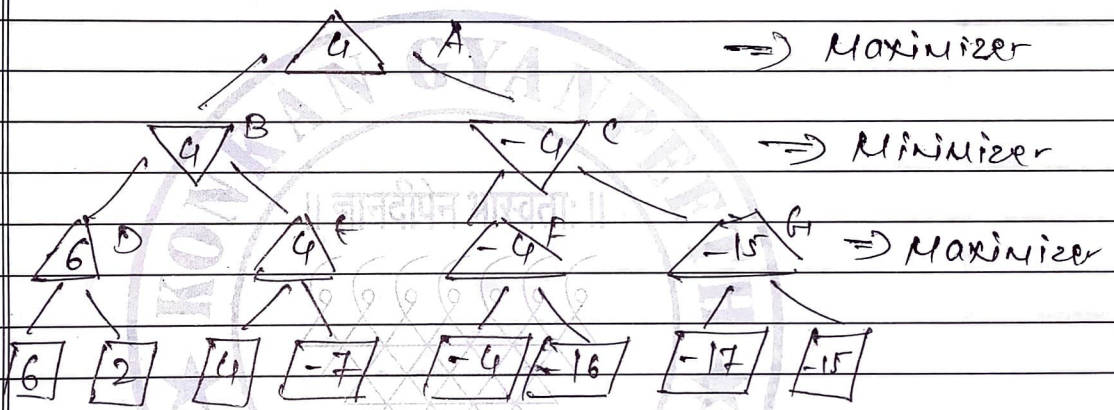
Step 4

Now its a turn for Maximizes and it will again choose the maximum of all nodes value and find the maximum value for the root node

For node A : max (4, -4) : 4



Hence, it is the

Hence, it is the complete coorkflow of the minmax algorithm with two player game.