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Subject : IS Lab

min-max Algorithm

min max algorithm

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

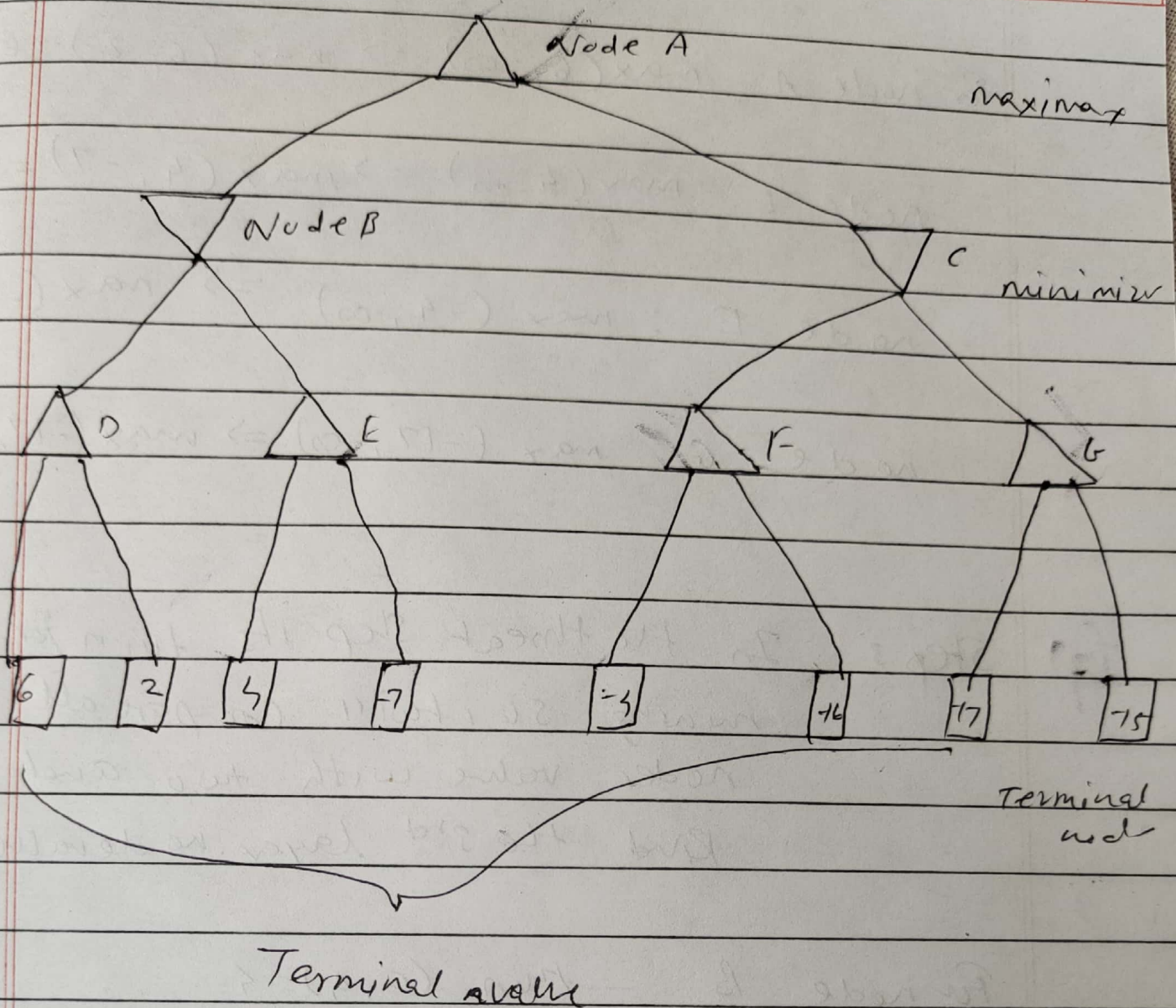
min max also uses recursion to search through the game tree.

In this, two players play the game. One is called max and the other is called min.

min max is mostly used for game playing in AI.

Step 1:

Let's take A is the initial value infinity and min.



Step 2 - First we find the multiple values for the maximize its initial value is $-\infty$ we will compare each value in terminal state with initial value it maximizes and determines the highest nodes of win find the maximum among all.

For node A: $\max(6, -\infty) \Rightarrow \max(6, 2) = 6$

node E: $\max(4, -\infty) \Rightarrow \max(4, -7) = 4$

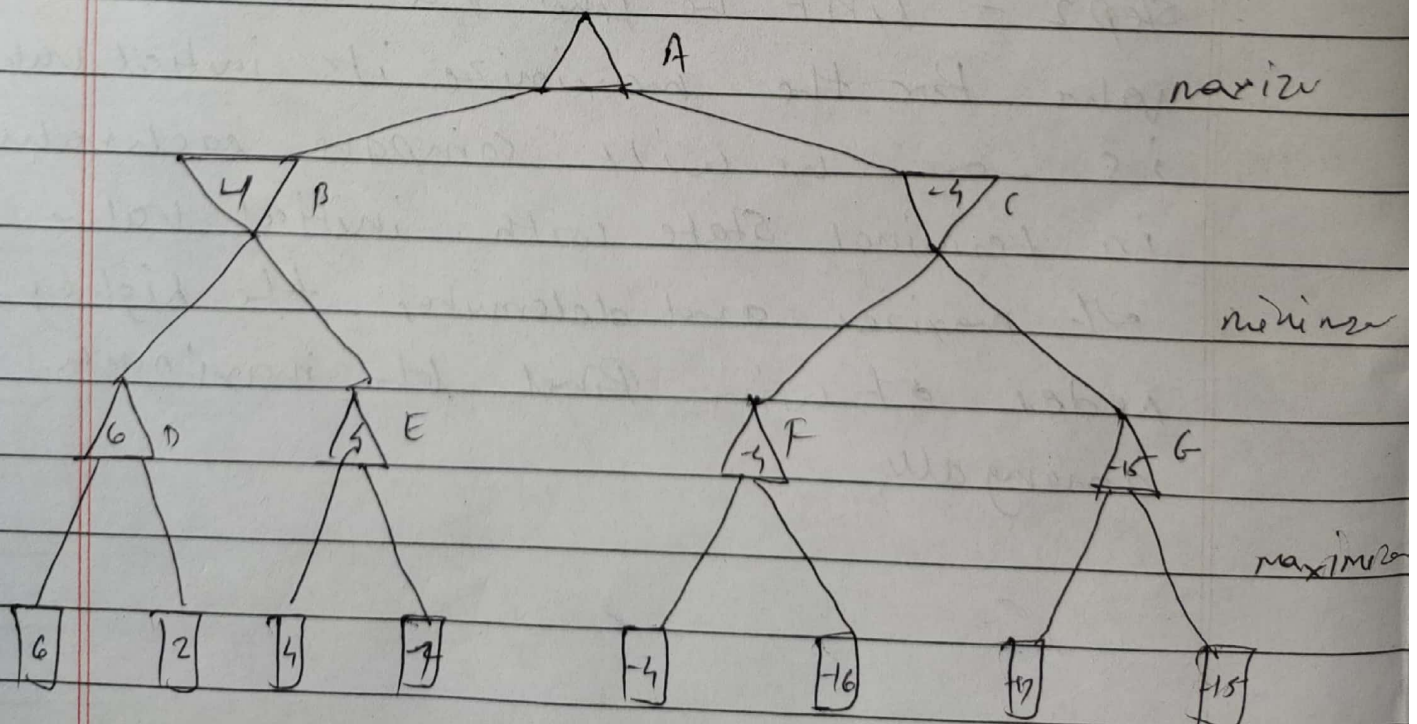
node F: $\max(-4, -\infty) \Rightarrow \max(-4, -16) = -4$

node G: $\max(-17, -\infty) \Rightarrow \max(-17, -15) = -15$

Step 3: In the threat step its turn for
mining so it will compare all
nodes value with two and
find the 3rd layer node value

For node B - $\min(6, 4) = 4$

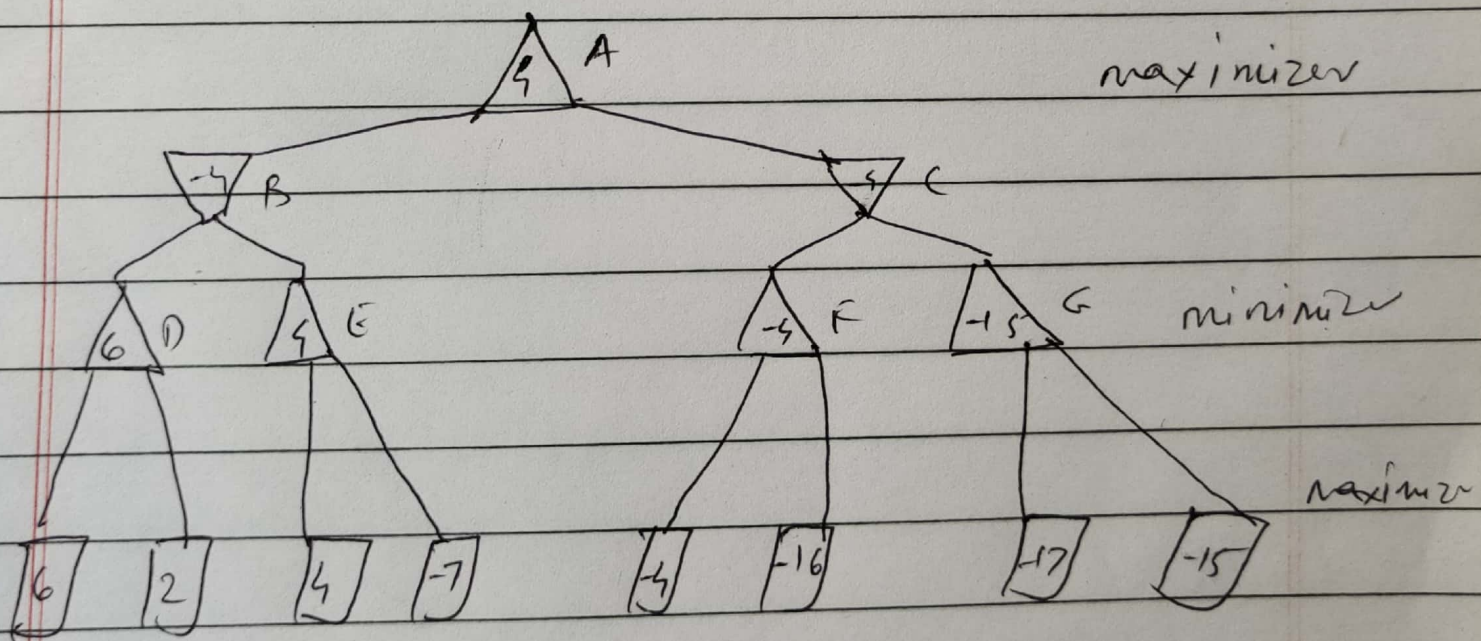
For node C = $\min(-4, -15) = -15$



step 4:

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

$$\text{For node A} = \max(4, -4) = 4$$



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