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Subject : IS Lab

DoP	DoA	Remark	Sign

Min - Max Algorithm:

→ Min max algorithm:

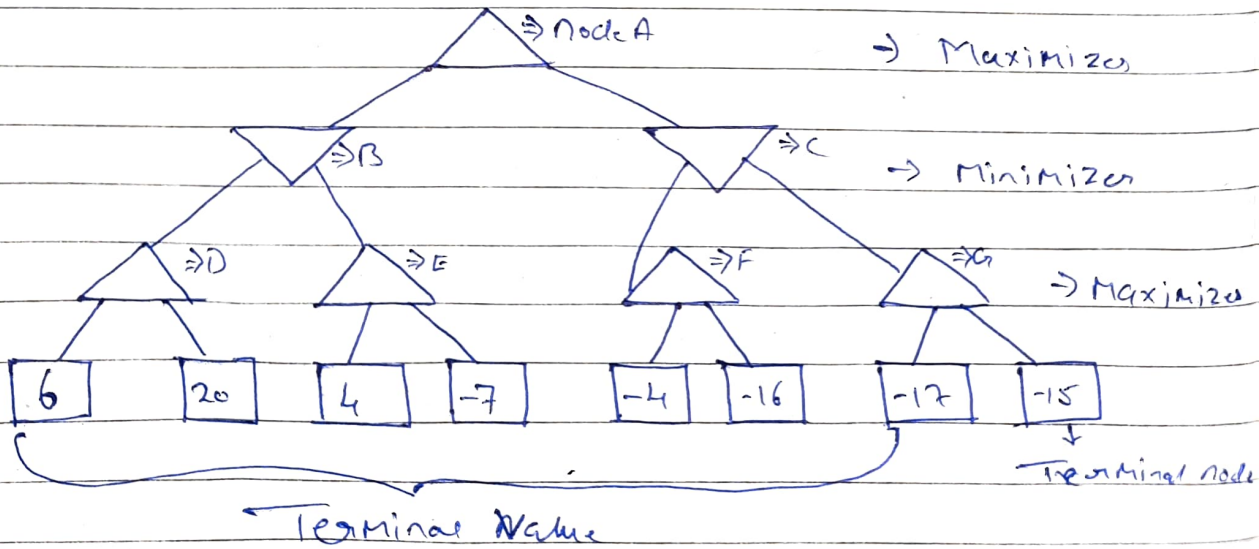
Min-Max Algorithm is a recursive or back tracking Algo which is used in decision-making and game theory it provide an optimal move for the player assuming that opponent is also playing optimally

Min Max algo uses recursion to search through the game tree

In this Algo two player 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:

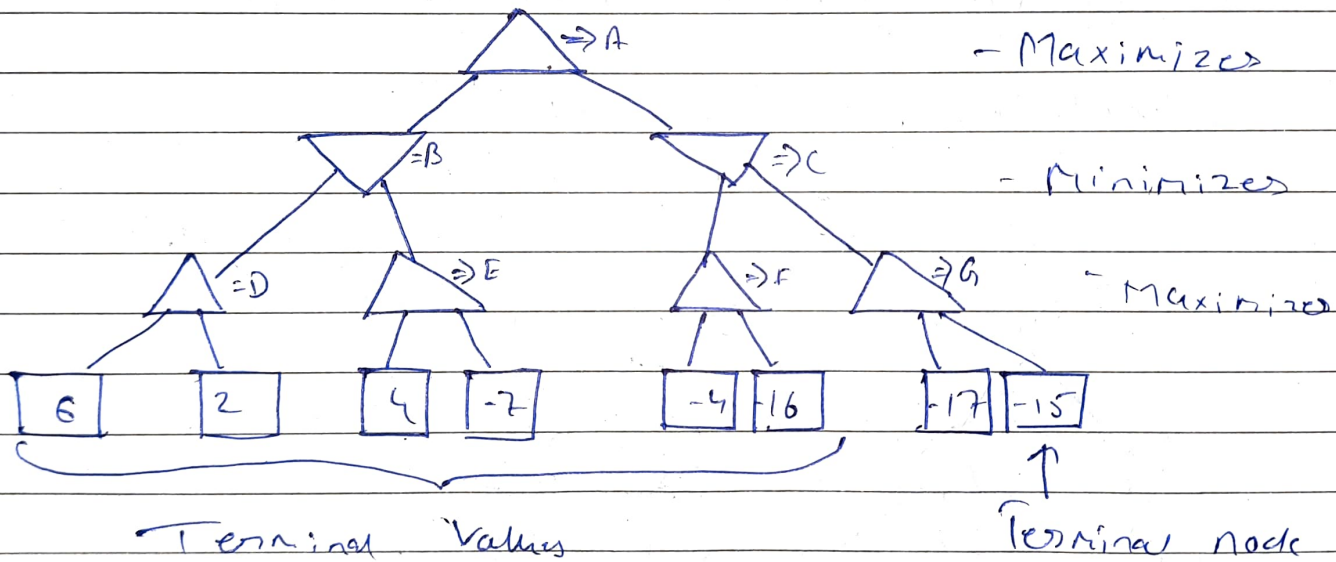
lets take A is the initial state of the tree Suppose maximize takes first turn (which or) which has worst-case initial value = -infinity and minimizer will take next turn which has worst case initial value = infinity



Step 2:

First we find the Utilities Value for the Maximize its initial value is $-\infty$ so we will Compare each value is $-\infty$ so we will initial value of Maximize and determines the highes nodes values it will find the maximum among all

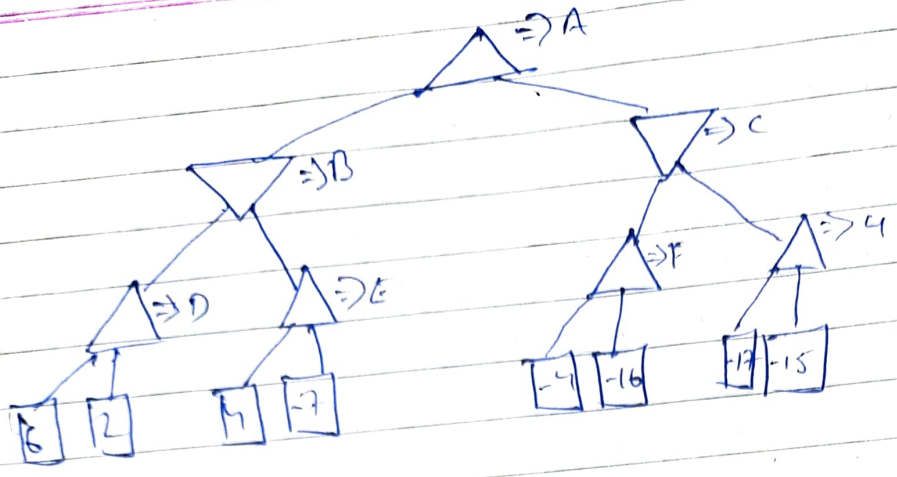
For node D: Max $(6, -\infty) \Rightarrow$ Max $(6, 2) = 6$
For node E: Max $(4, -\infty) \Rightarrow$ Max $(4, -7) = -4$
For node F: Max $(-4, -\infty) \Rightarrow$ Max $(-4, -16) = -4$
For node G: Max $(-17, -\infty) \Rightarrow$ Max $(-17, -15) = -15$



Step 3:

In the next step it's a turn for Minimize So it will compare all nodes values with its and will find the 3rd layer node values

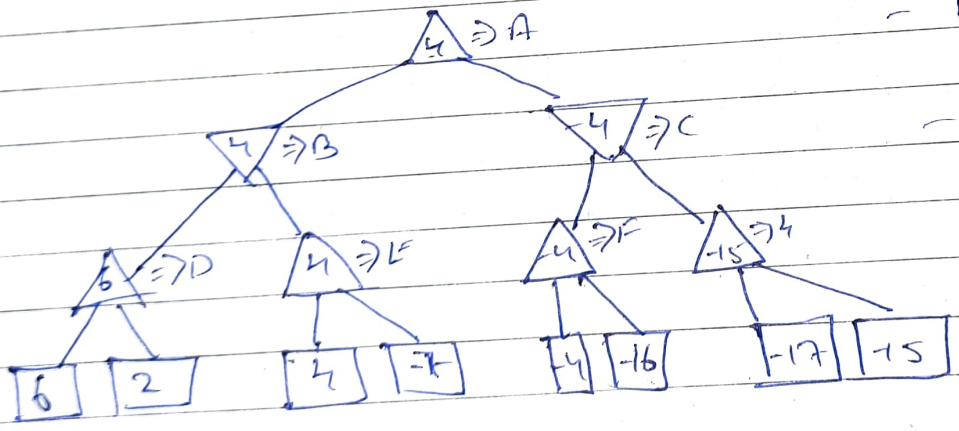
For node B - min $(6, 4) = 4$
For node C - min $(-4, -15) = -4$



Step 4:

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

for node A: Max (4, -4) = 4



Hence it was the Complete workflow of the minmax algorithm with two players game.