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Class :- B.E / I.T

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Subject :- IS Lab

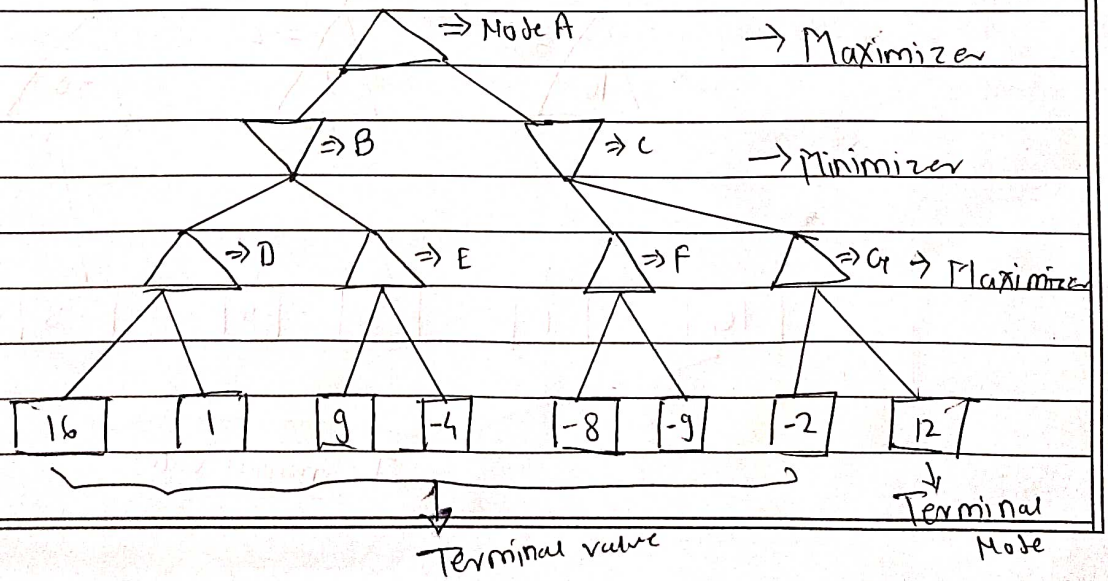
Min - Max Algorithm

Min - Max algorithm is a recursive or backtracking algo which is used in decision - making and game theory It Provides an optical move for the player assuming that opponent is also playing optimally

- Min - max algo use recursive 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 maximizer take first turn (when ord which has worst - case initial value = - ~~initially~~ infinity and minimizer will take next turn which has worst case initial value = + infinity



Step 2 :-

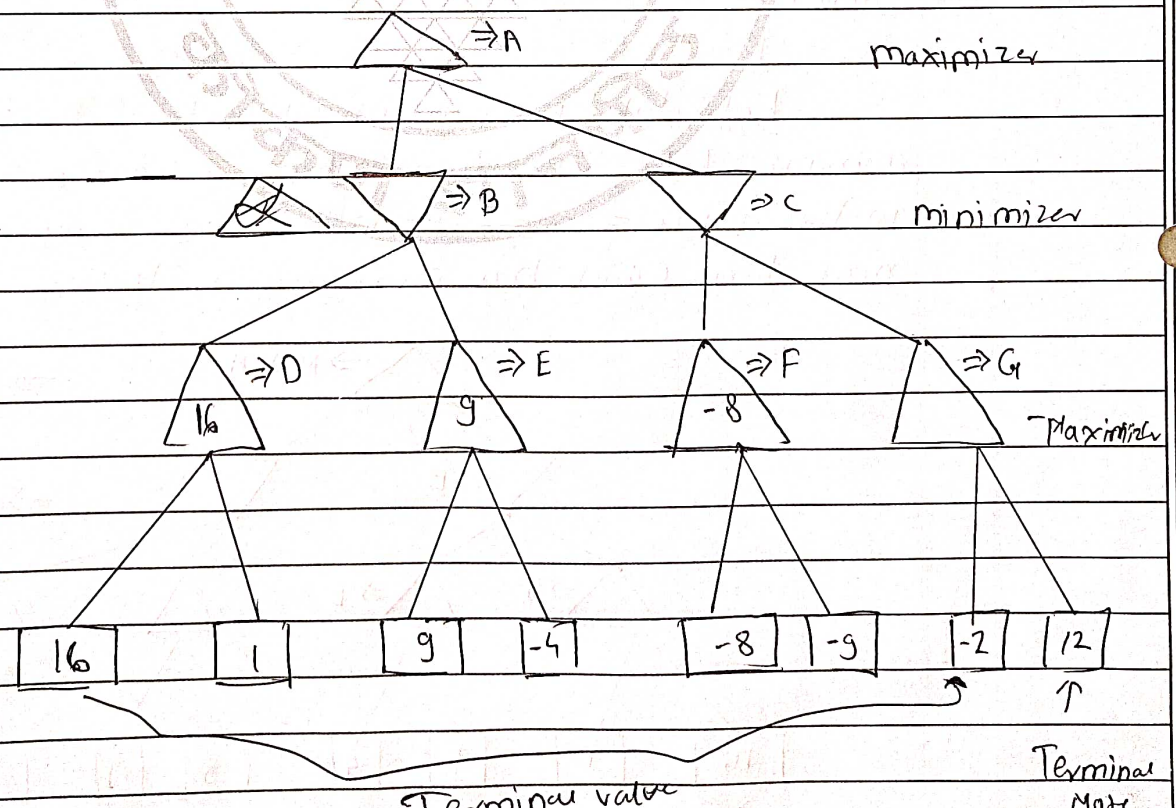
First we find the utilities value for maximizer, its initial value is $-\infty$ So, we will compare each value in terminal state with initial value of maximizer and determines the higher nodes values It will find the maximum among all

For node D : $\max(16, -\infty) \Rightarrow \max(16, 1) = 16$

For node E : $\max(9, -\infty) \Rightarrow \max(9, -4) = 9$

For node F : $\max(-8, -\infty) \Rightarrow \max(-8, -9) = -8$

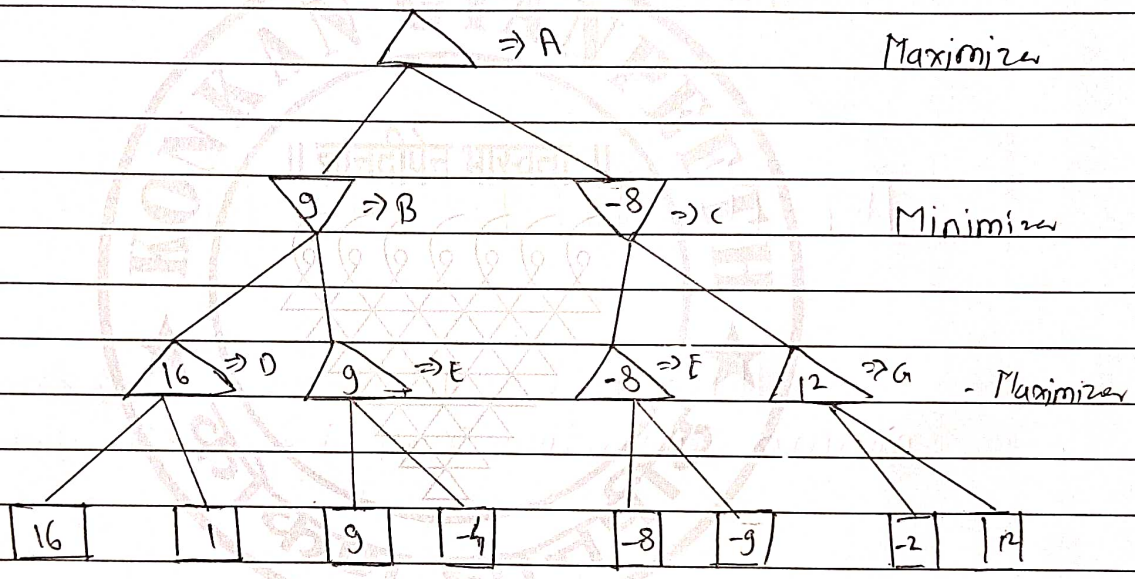
For node G : $\max(-2, -\infty) \Rightarrow \max(-2, 12) = 12$



Step 3 :-

In the next step, it's a turn for minimize, So it will compare all node value with two, and will find the third layer node value

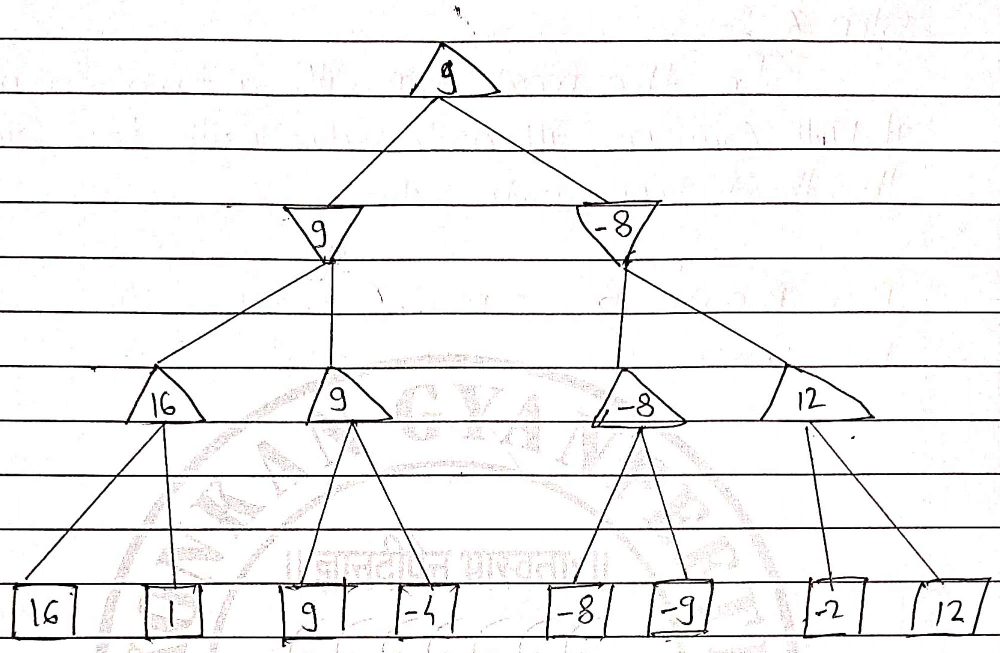
For node B - min (16, 9) = 16
For node C - min (-8, 12) = 12



Step 4 :-

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

For node A : max (9, -8) = 9



Hence, it was the complete work flow of the minmax algorithm with two Player game.