K.G.C.E.
Karjat - Raigad

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Min Max Algorithm :-

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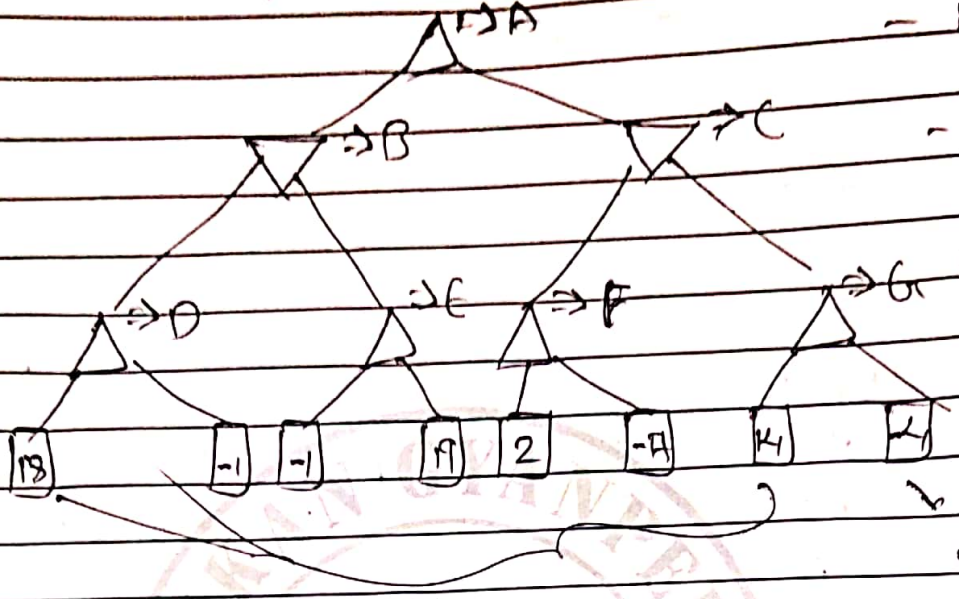
Min Max algorithm

min max algorithm is a recursive a backtracking algo which is used in decision making and game Theory. It provides an optimal move to 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 maximizer takes first turn (which is a) which the worst case initial value = - infinity and max minimizer will take next turn which has worst case initial values : + infinity



Step 2

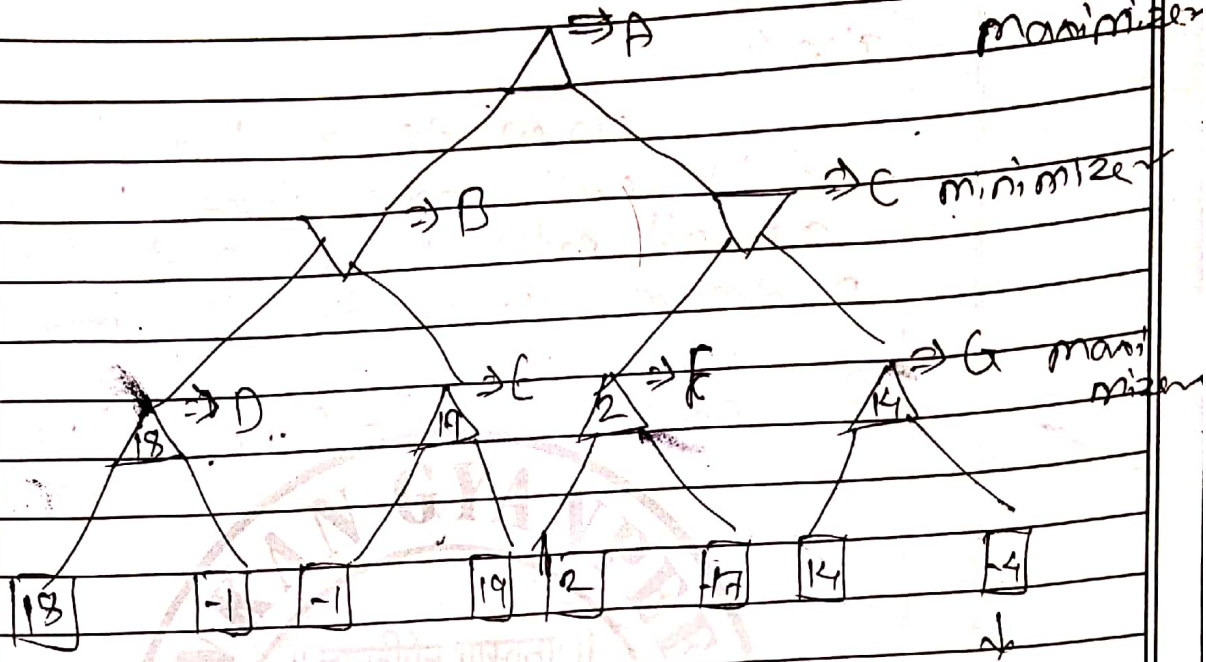
first we find the utilities value for the maximizer its initial value is -∞ so we will compare each value in terminal state with initial value of maximizer and determines the higher nodes value it will find the maximum among all

for node D : max(18, -∞) ⇒ max(18, -1) = 18

for node E : max(-1, -∞) ⇒ max(-1, 19) = 19

for node F : max(2, -∞) ⇒ max(2, -19) = 2

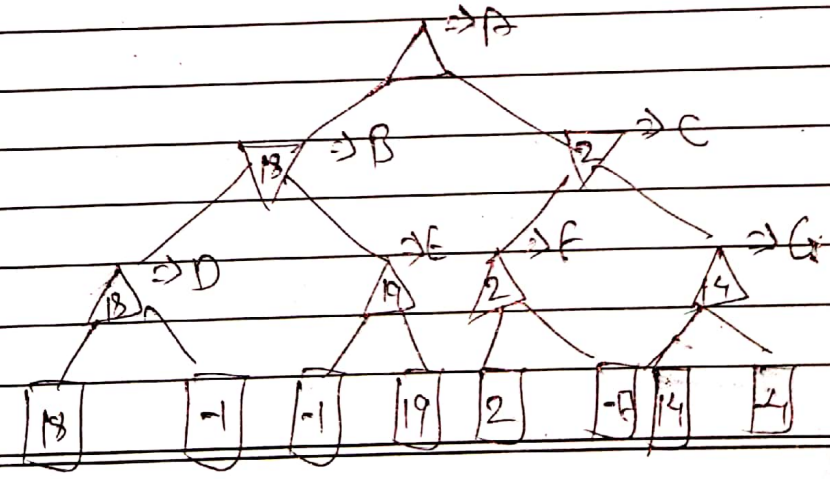
for node G ⇒ max(14, -∞) ⇒ max(14, -4) = 14



step 3 :

In the next step its a turn for minimizer so it will compare all nodes value with two, and will find the 3rd layer node value

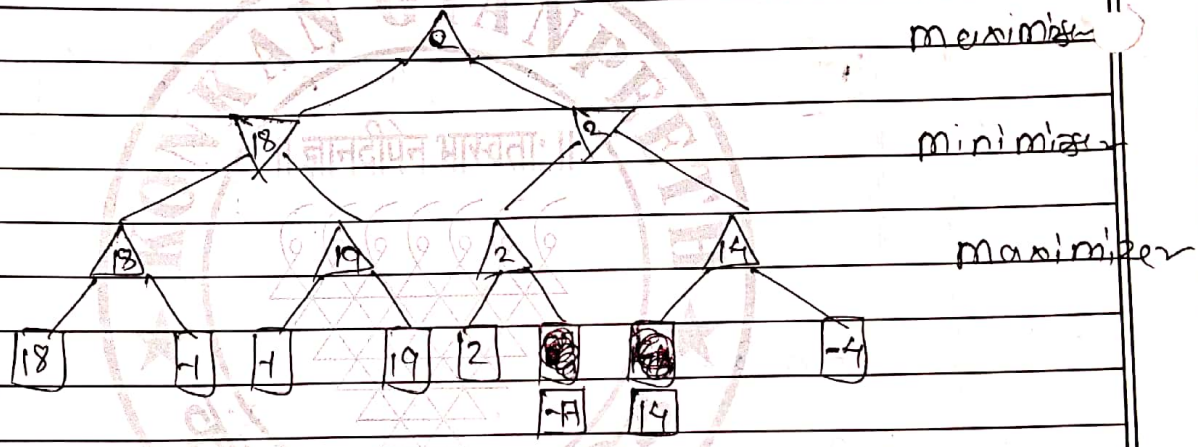
for node B - min (18, 19) = 18
for node C - min (2, 14) = 2



Step 4 :-

Now its a two for maximizer and its will again choose the maximum of all nodes values and find the maximum values for the root nodes

for node A = max (18, 2) 18



Hence it was the complete work flow of the minimax algorithm with two player game