

Name- Geeta Pramod Salepal

Roll No- 54

Class - BEIT

subject . IS Lab

P.O.P	D.O.C	marks	sign

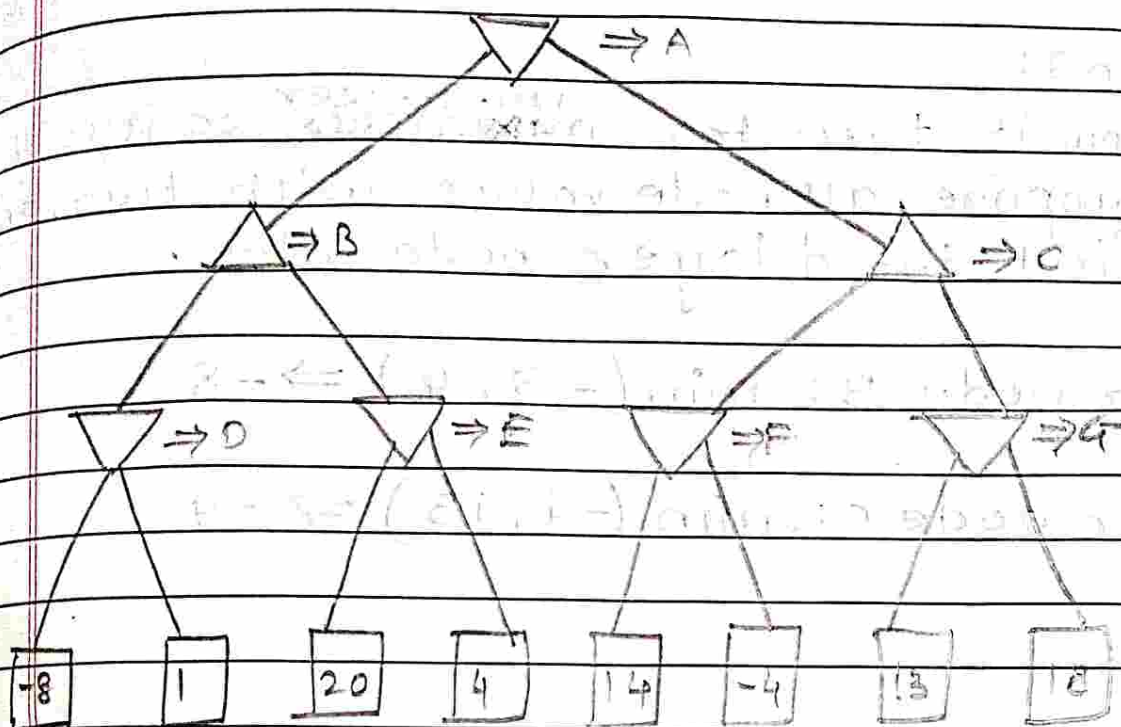
Min Max Algorithm

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

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

- Step1:

Lets take A is the initial state of the tree. suppose ~~maximizer~~ ^{maximizer} takes first turn (when or) which has worst case initial value = $-\infty$, and ~~minimizer~~ ^{minimizer} will take next turn which has worst case initial value = $+\infty$.



Step 2:

first we find the utilities value for the minimizer, its initial is ∞ , so we will compare each value in terminal state with initial value of minimizer and determines the smaller value nodes. It will find ~~min~~ ^{minimum} ~~value~~ among all.

for node D: $\min(\infty, -8) \Rightarrow \min(1, -8) = -8$

for node E: $\min(\infty, 4) \Rightarrow \min(20, 4) = 4$

for node F: $\min(\infty, -4) \Rightarrow \min(14, -4) = -4$

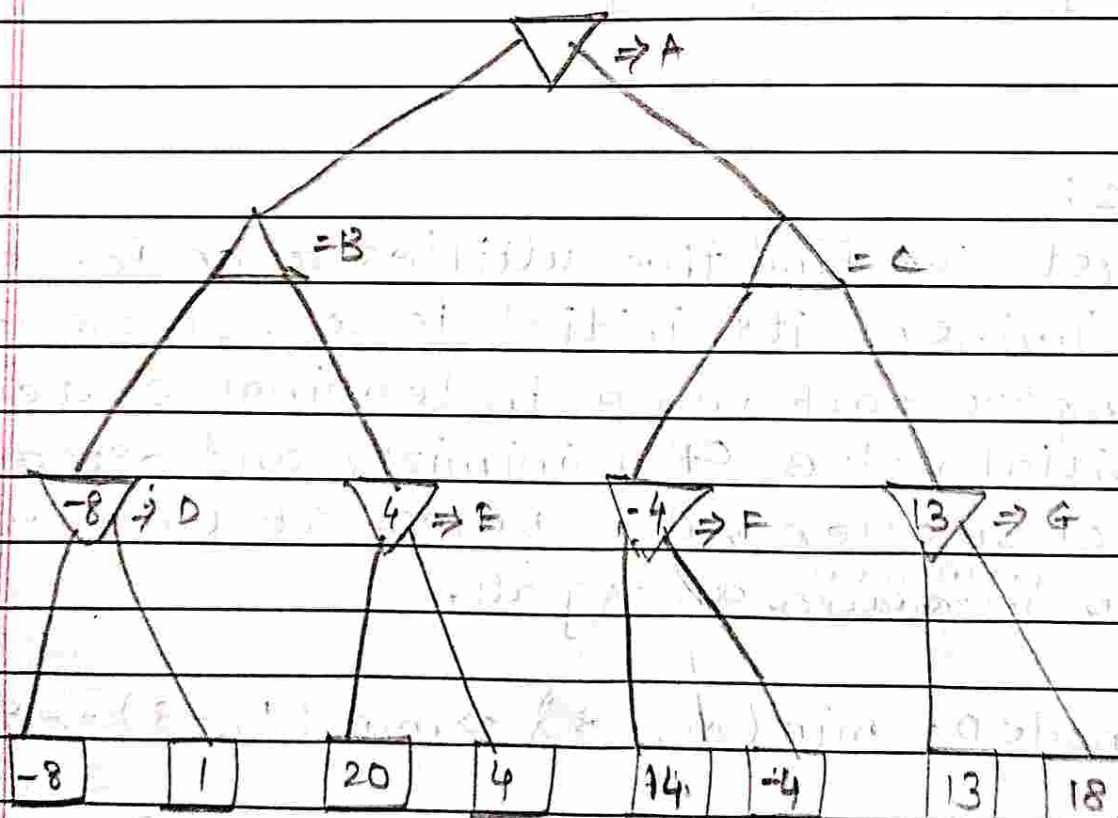
for node G: $\min(\infty, 13) \Rightarrow \min(18, 13) = 13$

Step 3:

Now it turn for ~~maximizer~~ ^{minimizer} so it will compare all node values with two, and find third layer node value.

for node B: $\min(-8, 4) \Rightarrow -8$

for node C: $\min(-4, 13) \Rightarrow -4$

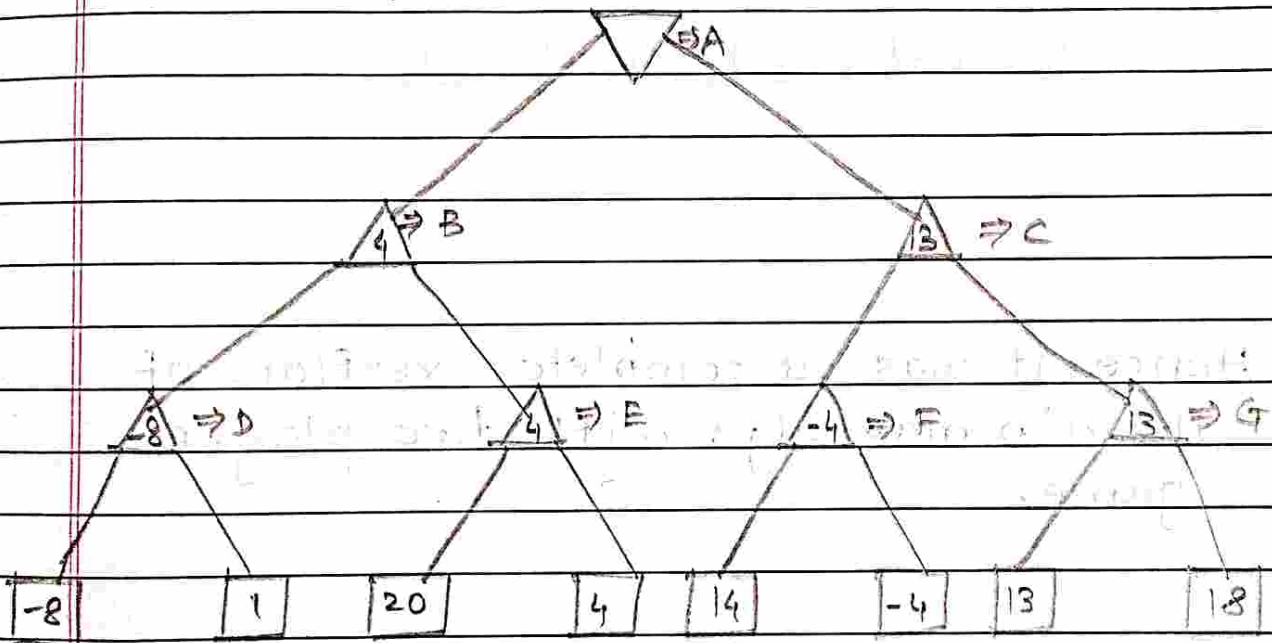


step 3:

Now it turn for maximizer so it will compare all node values with two and find third layer node value.

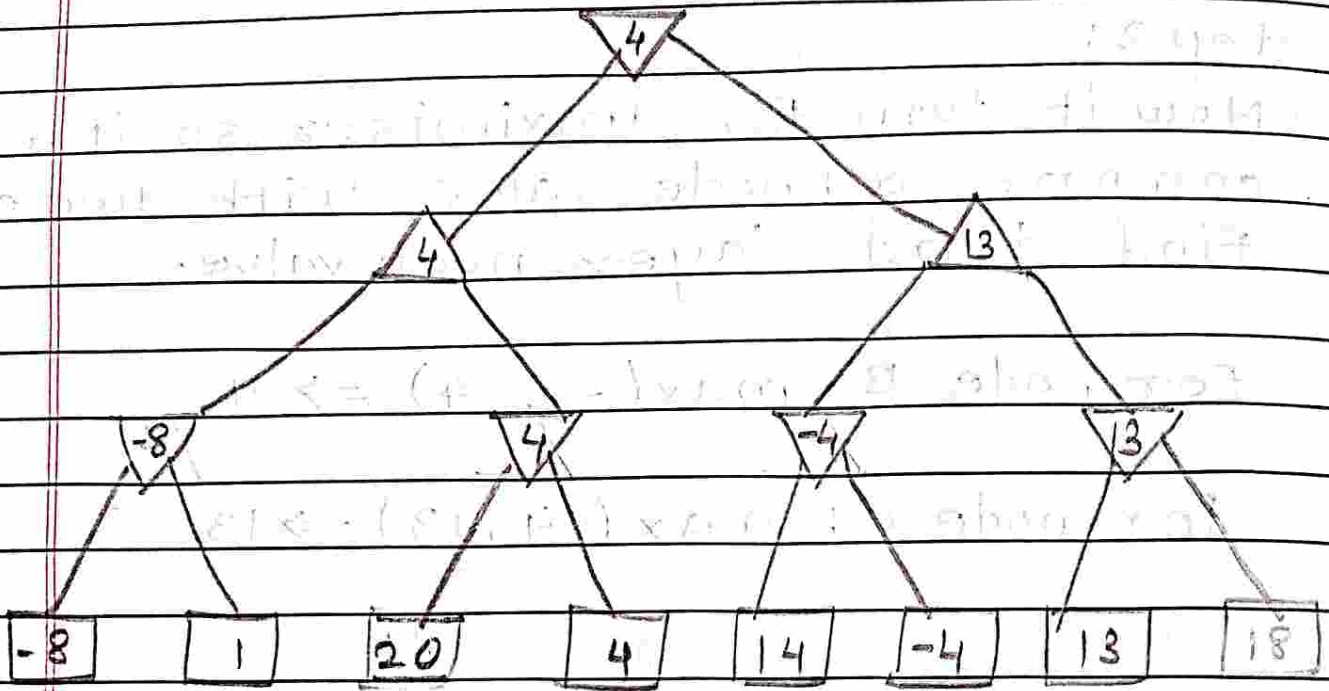
for node B: $\max(-8, 4) \Rightarrow 4$

for node C: $\max(-4, 13) \Rightarrow 13$



Step 4: Now its a turn for minimizer and choose the minimum of all nodes values and find the minimum value for the root node.

for node A $\Rightarrow \min(4, 13) \Rightarrow 4$



Hence, it was a complete overflow of the min max algo with two player game.