K.G.C.E.
Karjat - Raigad

Page No. :

Date :

Name : Rituraj.k.Gharat

Class : BE.IT

Roll No : 18.

Subject : IS LAB

DOP	DOA	MARKS	SIGN

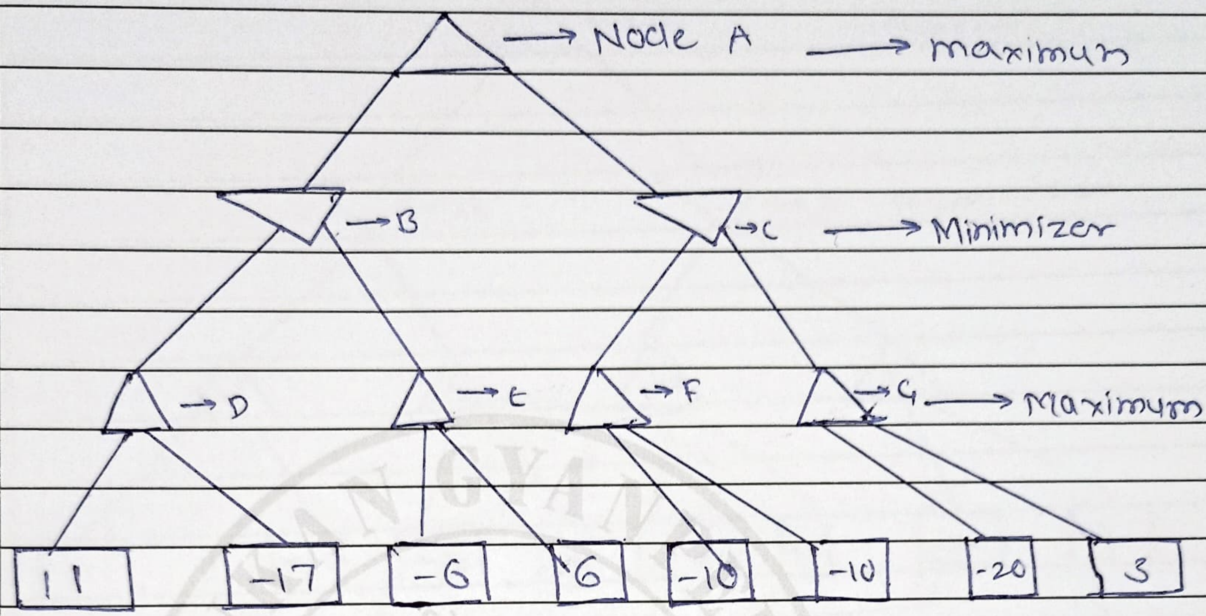
Min Max Algorithm :

Min max algorithm :

- Min-max algorithm is a recursive or backtracking algo which is used in decision-making & game theory It provides 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 players play the game one is called MAX & 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 (when o->) which has worst-case initial value = - infinity, & minimize will take next two ~~next~~ turn which has worst case initial value = +infinity.



Step - 2

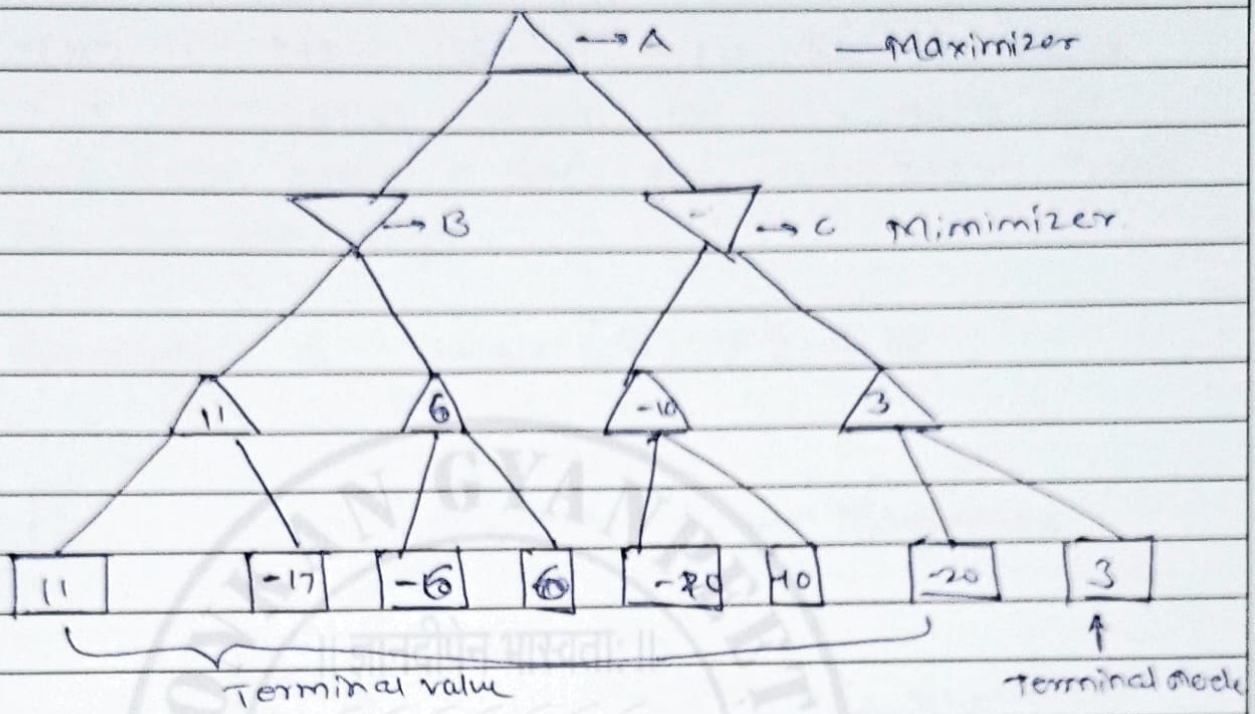
First you find the utilities value for the maximum, its intial value is $-\infty$ so we will compare each value in terminal state with initial value of maximize & determines the higher node value it will find the maximum among all

For node D : max(11, $-\infty$) → max(11, -17) = 11

for node E : max(-6, $-\infty$) → max(-6, 6) = 6.

for node F : max(-10, $-\infty$) → max(-10, -10) = -10

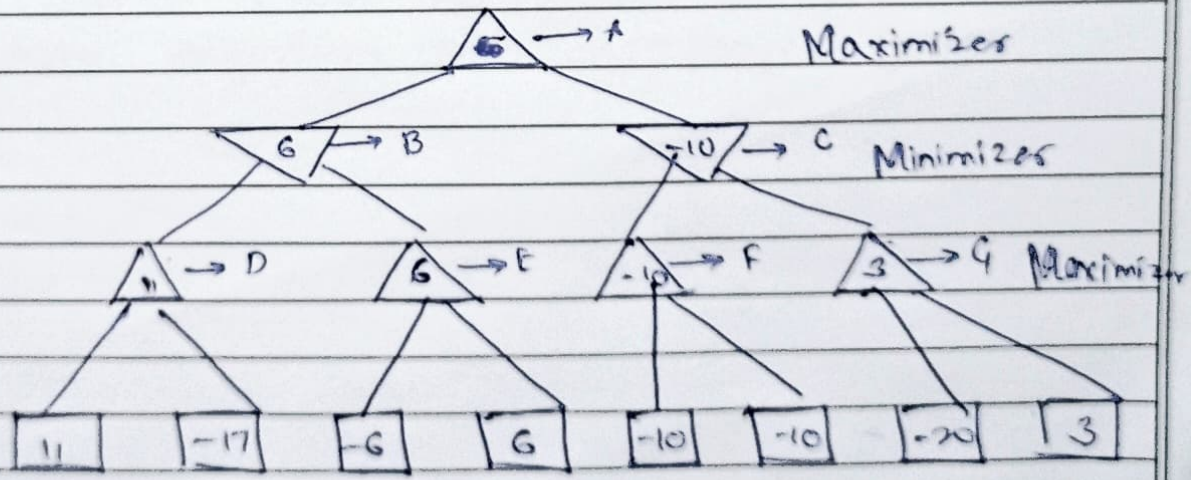
for node G : max(-20, 3) → max(-20, 3) = 3.



Step 3:

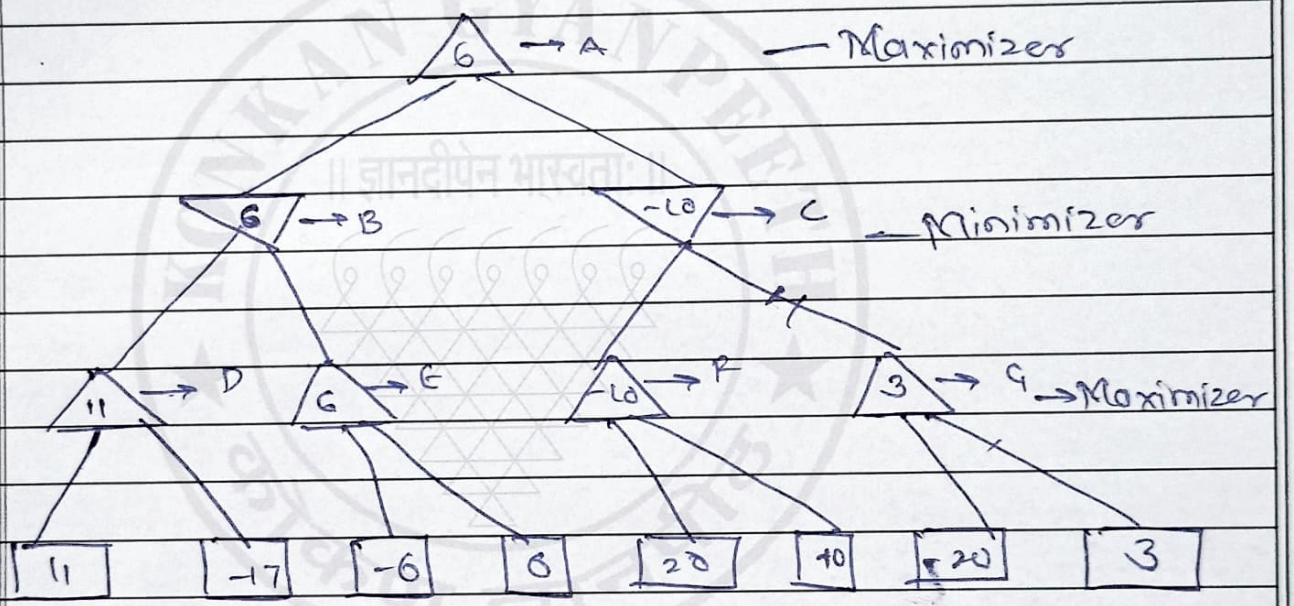
In the next step, its a turn for minimize, so it will compare all nodes value with two, & will find the 3rd layer node value

for node B min (11, 6) = 6
for node C min (-10, ∞) = -10

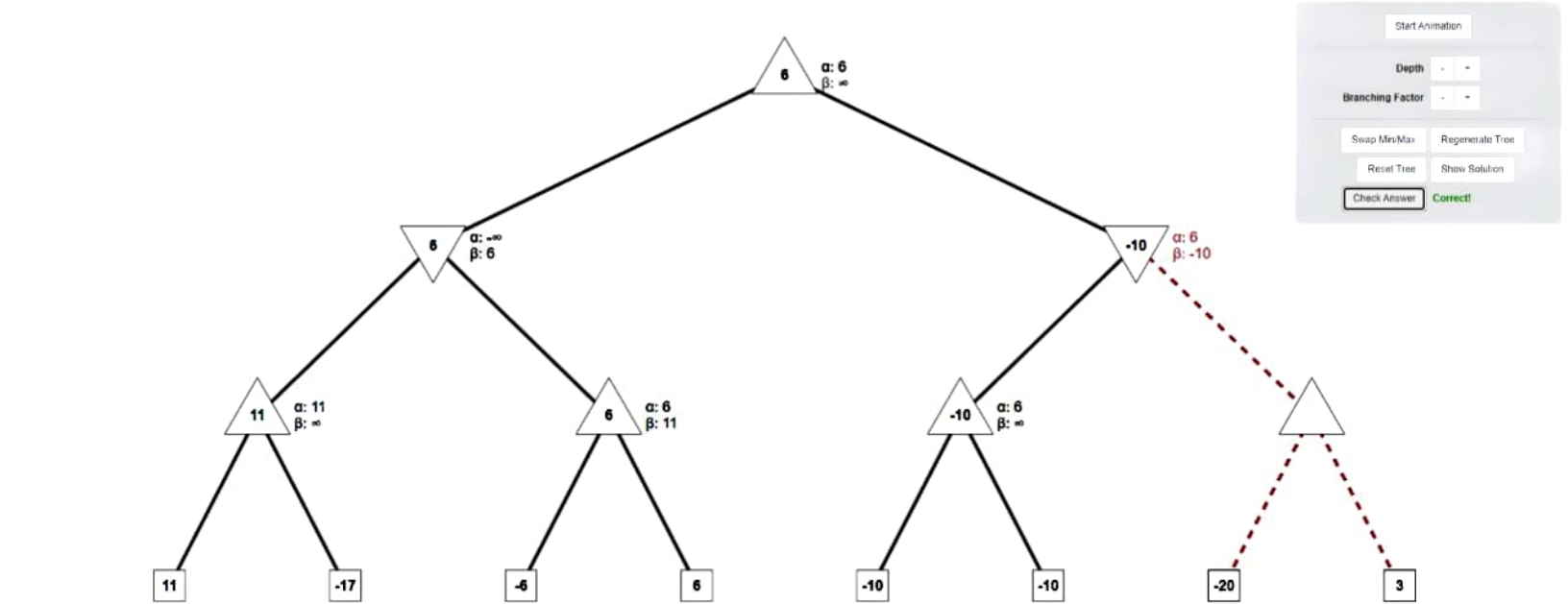


Step 4: Now its a turn for maximize & it will again choose the maximum of all nodes values & find the maximum value for the root angle.

for node A , max (6, -10) = 6



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


Start Animation
Depth
Branching Factor
Swap Min/Max
Regenerate Tree
Reset Tree
Show Solution
Check Answer
Correct!
6
α: 6
β: ∞
6
α: -∞
β: 6
-10
α: 6
β: -10
11
α: 11
β: ∞
6
α: 6
β: 11
-10
α: 6
β: ∞
11
-17
-6
6
-10
-10
-20
3