Name : Ketan V. Choudhari

Class : BE IT

Roll no : 12

Subject : TS lab

DoP	DoA	Marks	Sign

* Alpha Beta Pruning

-> Alpha beta Pruning is a Search algorithm that seeks to decrease the number of nodes that are evaluated by the MinMax algorithm in it Search tree.

-> Alpha is the best value that the Maximizer can guarantee at that level or above

-> Beta is the value that the minimizer wants currently can guarantee at that level or above

Rules and Condition.

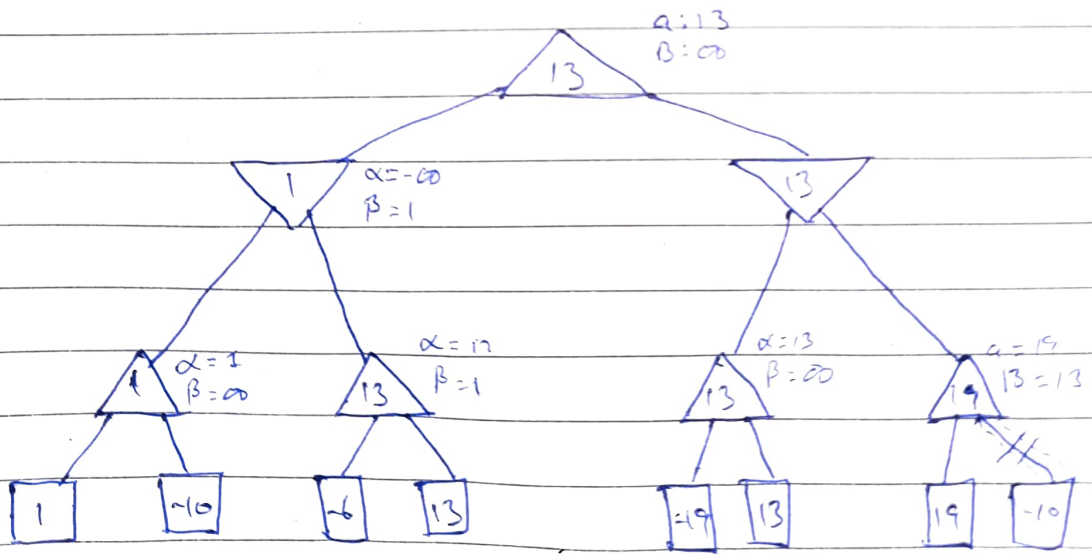
-> The max player will only update the value of alpha.

-> The Min Player will only update the value of beta

-> We will only pass the alpha beta values to the child nodes

-> node values will be passed to upper nodes instead of values of alpha and beta values to the child nodes

-> ~~Node values~~ Condition to prune : $\alpha \geq \beta$ or $\beta \leq \alpha$



Max Node at depth level 2

1. $\alpha(-\infty, 1) = 1$
   $\alpha(-\infty, -10) = -10$
   $\alpha(1, -10) = 1$

2 $\beta(\infty, 1) = 1$

3) $\alpha(-\infty, -6) = -6$
   $\alpha(-\infty, 13) = 13$
   $\alpha(-6, 13) = 13$

4 $\alpha(1, 13)$

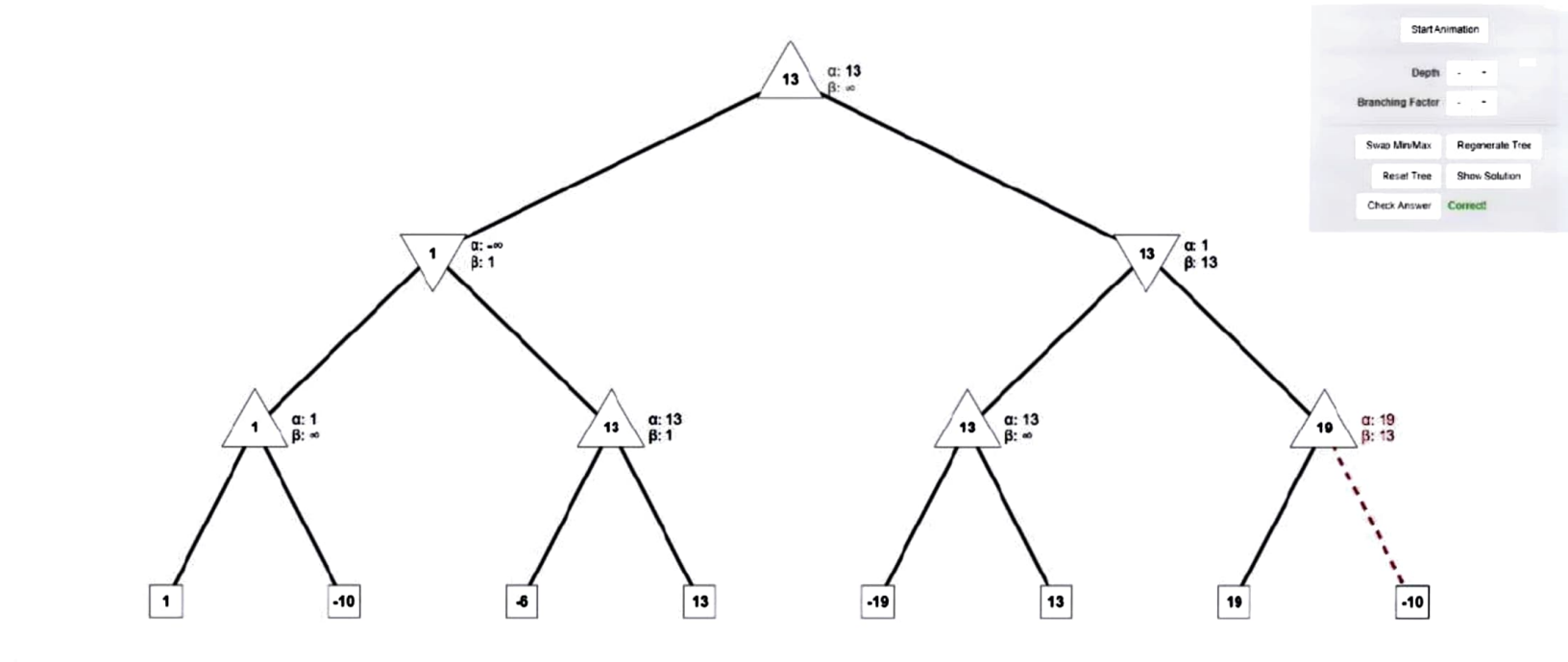
5 $\alpha(-\infty, -19) = -19$
   $\alpha(-\infty, 13) = 13$
   $\alpha(-19, 13) = 13$

6 $\alpha = 19$, $\beta = 13$
   $\because \alpha \geq \beta$ the next child is pruned

7 $\alpha = -\infty$ $\beta = 1$
   β becomes 1 here as it is a Min Node and get the value from the Max Node below.

8 $\alpha = 1$, $\beta = 13$
   β becomes 13 as it is a Min Node and gets the value from the Max node below

9) Max node (top): $\alpha = 13$, $\beta = \infty$)


Start Animation
Depth - -
Branching Factor - -
Swap Min/Max
Regenerate Tree
Reset Tree
Show Solution
Check Answer
Correct!
13
α: 13
β: ∞
1
α: -∞
β: 1
13
α: 1
β: 13
1
α: 1
β: ∞
13
α: 13
β: 1
13
α: 13
β: ∞
19
α: 19
β: 13
1
-10
-6
13
-19
13
19
-10