Name : Twinkle · Rajendra · Dhakate

Class : BE IT

Rollno: 14

Subject : IS LAB

DOP	DOA	Remark	Sign

Alpha - Beta pruning :-

→

Alpha - beta pruning : Alpha beta pruning is a modified Jesion of the min, algo It is an optimization technique for the minmax algo.

- Alpha (α) = The best (highest value)
  = Initial value of alpha is $-\infty$
- Beta (β) = The best (highest value)
  = Initial value is Beta is $+\infty$
- Rules & conditions:

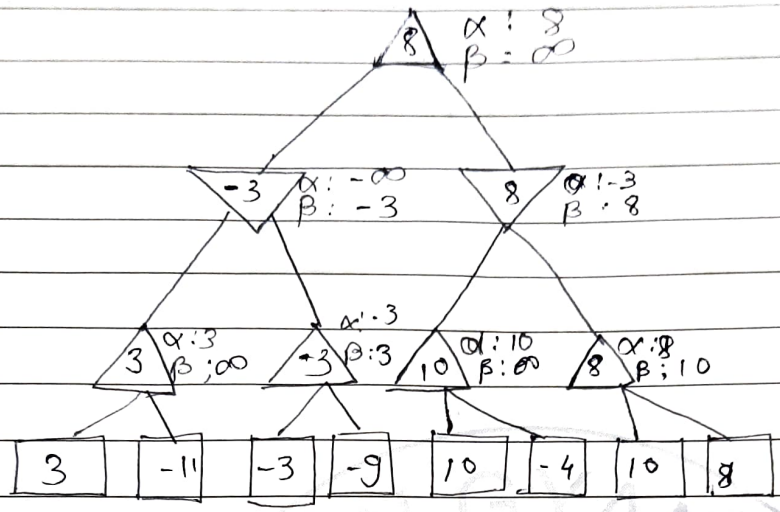
1) The max player will only update the value of alpha.

2) The min plays will only update the value of β.

3) We will only pass the alpha, beta the value of β.

4) Node values will be passed to upper nodes instead of values of alpha and beta.

5) condition to prune : $\alpha \geq b$ or $b \leq a$



max nods at depth level 2

1. $\alpha(-\infty, 10) = 10$ - max (Bottom left)
   $\alpha(-\infty, -3) = -3$
   $\alpha(10, -3) = 10$

2) $\beta(\infty, 3) = 3$ - min (left)

3) $\alpha(-\infty, -3) = -3$ max (Bottom left)(left node)
   $\alpha(-\infty, -9)$
   $\alpha(-3, -9) = -9$

4) $\alpha(8, 8) = 8$ - Top max

5) $\beta(3, -3) = -3$ - min (right

6) $\beta(-\infty, -4) = -4$ max bottom right (right node

7) $\alpha(8, 8) = 8$

$\alpha(10, -4) = -4$

$\alpha(-4, 10) = -4$

$-4 \quad -4$

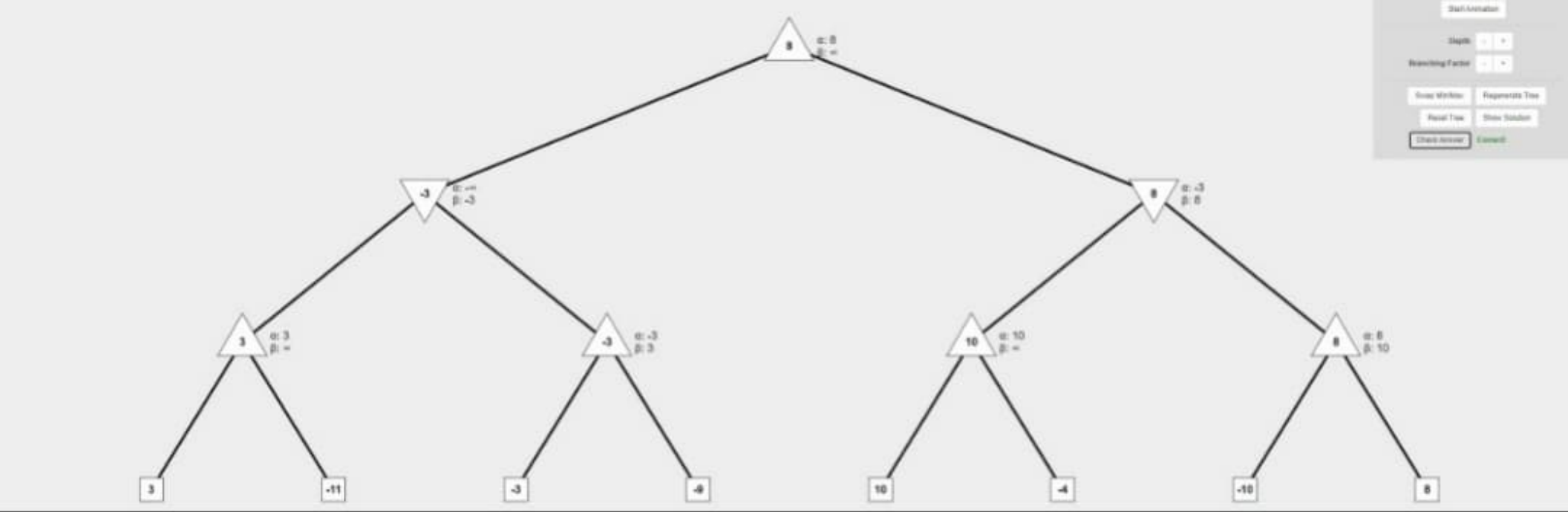
8) $\beta(\infty, \infty) =$ min right

$\alpha >= \beta$ so the next node is pruned

9) $\alpha = 8$ max

$\beta = \infty$

$\alpha(4, -4) = 4$ Answer.


Start Animation
Depth:
Branching Factor:
Swap Min/Max
Regenerate Tree
Reset Tree
Show Solution
Check Answer
Correct!
8
α: 8
β: ∞
-3
α: -∞
β: -3
8
α: -3
β: 8
3
α: 3
β: ∞
-3
α: -3
β: 3
10
α: 10
β: ∞
8
α: 8
β: 10
3
-11
-3
-9
10
-4
-10
8