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Class: BE IT

Roll no: 67

Subject: IS LAB.

D.O.P	D.O.A	Remark	Sign

Alpha-Beta Pruning :-

It is a modified version of the min max algorithm. It is an optimization technique for the minmax algorithm.

- alpha (α) : The best (highest value)
  Intial value of alpha is $-\infty$

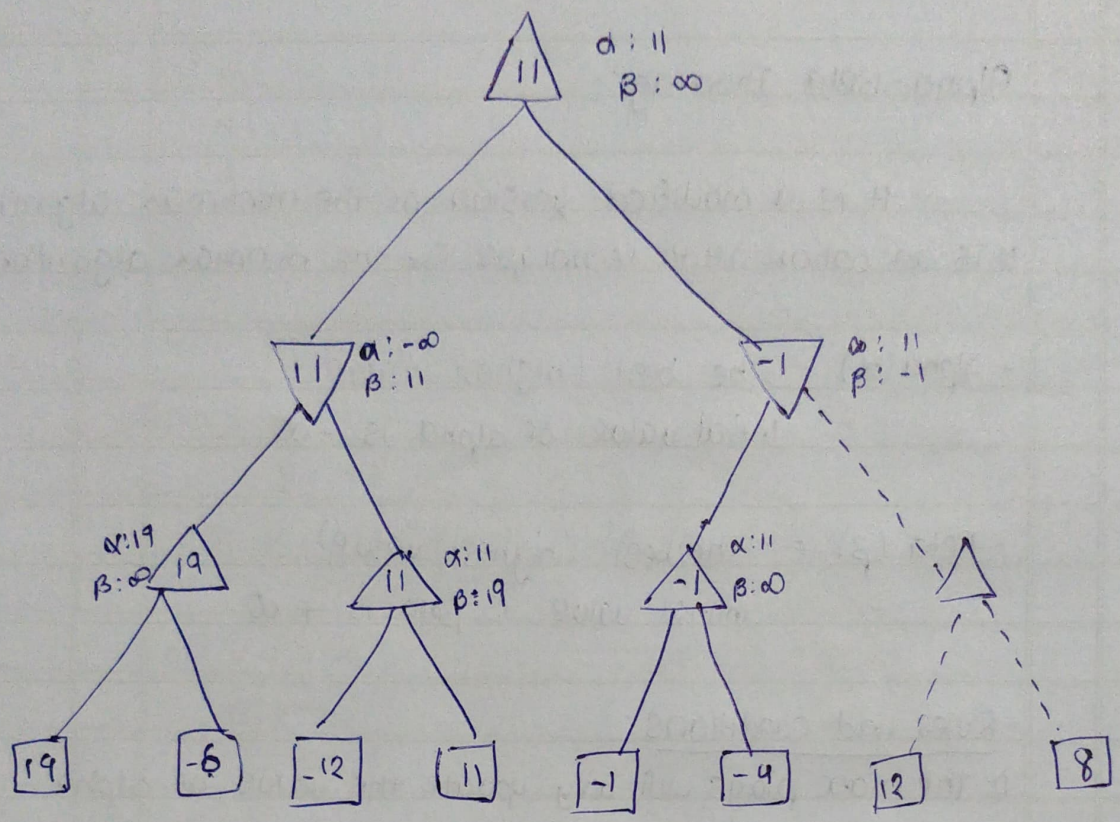
- Beta (β) = The best (highest value)
  - Initial value is Beta is $+\infty$

- Rules and conditions :

1) The max plays will only update the value of alpha.
2) The min plays will only update the value of B.
3) we will only pass the alpha, beta values to the child nodes.
4) Node values will be passed to upper nods instead of values of alpha and beta.

- condition to prune : $a \geq b$ or $b \leq a$

- when alpha is greater than or equal to β.



1) $\alpha(-\infty, 19) = 19$
$\alpha(-\infty, -6) = -6$ - MAX
$\alpha(19, -6) = 19$

2) $\beta(\infty, 19) = 19$ - MIN

3) $\alpha(-\infty, -12) > -12$ - MAX
$\alpha(-\infty, 11) = 11$
$\alpha(-12, 11) = 11$

4) $\alpha(11, 11)$ - TOP

5) $\beta(19, 11) = 11$ - MIN

6) $\beta(-\infty, 11) = 11$ - MAX

7) $\alpha(-1, -1) = -1$

$\alpha(-1, -4) = -4$

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

8) $\beta(\infty, -4) = -4$ - min.

$\alpha = -1$

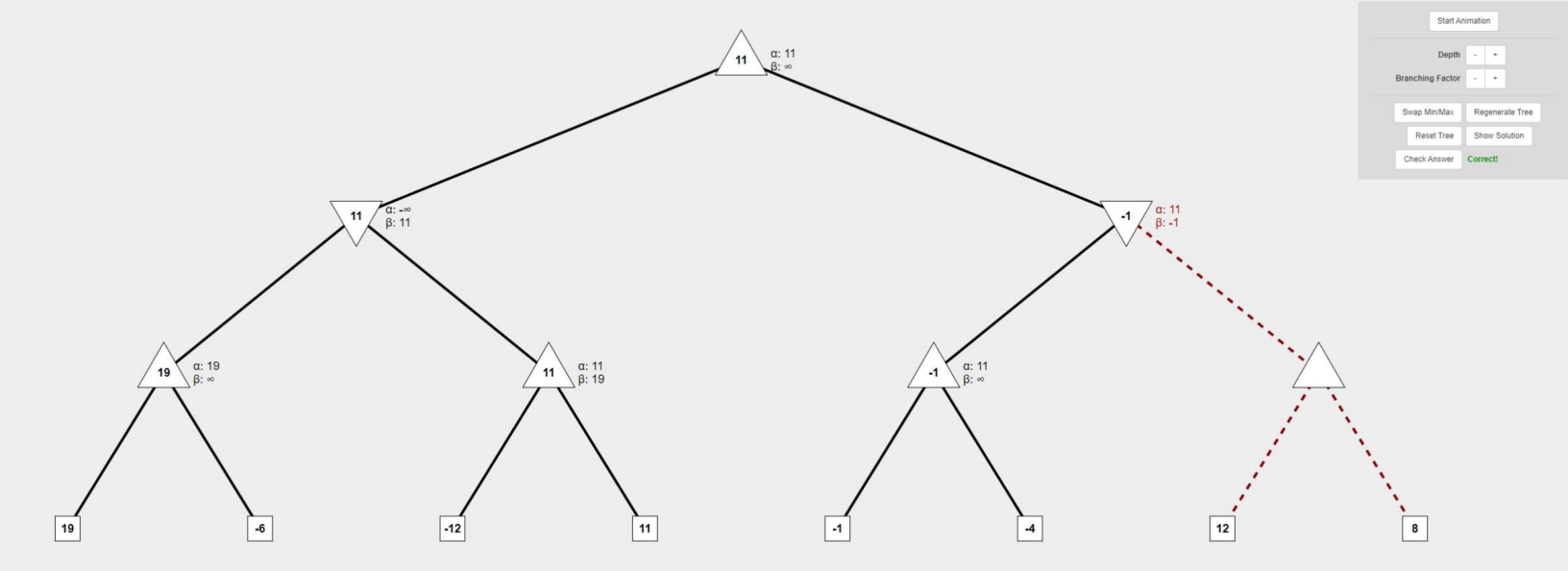
$\beta = +1$

$\alpha > \beta$. So the next node is pruned.

9) $\alpha = 11$ Max

$\beta = -1$

$\alpha(11, -4) = 11$ Soln.


Start Animation
Depth - +
Branching Factor - +
Swap Min/Max
Regenerate Tree
Reset Tree
Show Solution
Check Answer
Correct!
11
α: 11
β: ∞
11
α: -∞
β: 11
-1
α: 11
β: -1
19
α: 19
β: ∞
11
α: 11
β: 19
-1
α: 11
β: ∞
19
-6
-12
11
-1
-4
12
8