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Subject : IS LAB

DOP	DOA	Remark	Sign

Alpha beta pruning :-

Alphabeta pruning = Alpha beta pruning is a modified version of the min max algo. It is an optimization technique for the minmax algo.

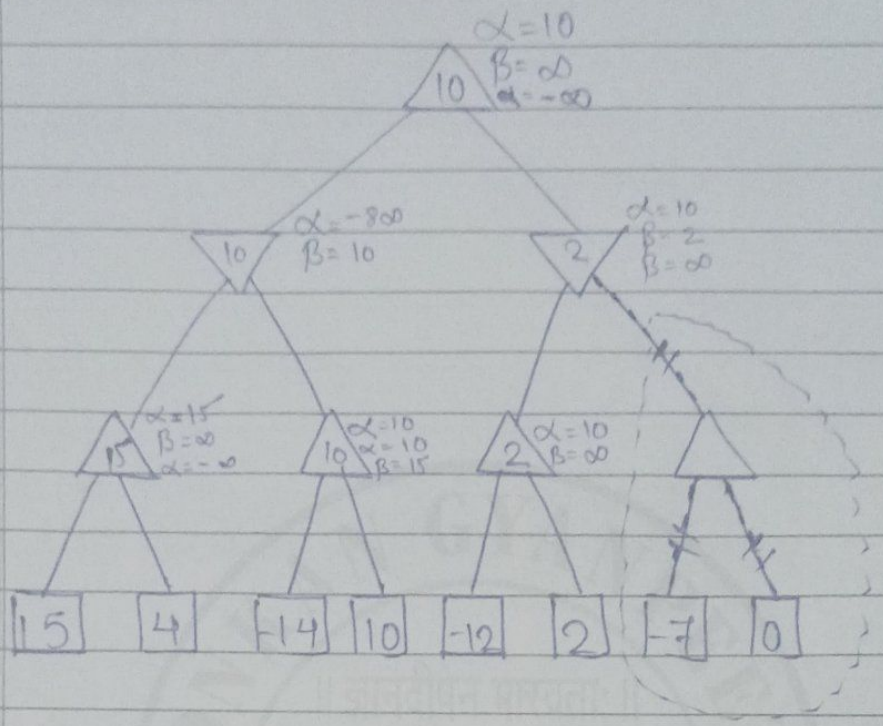
- Algo (α) = The best (high value)
  = Initial value is Beta is $-\infty$

- 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 player will only update value of β
3) We will only pass alpha, beta values to child nodes
4) Node values will be passed to upper nodes 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 beta.



1) $\alpha(-\infty, 15) = 15$
$\alpha(-\infty, 4) = 4$ max (Bottom left)
$\alpha(-15, 2) = 15$

2) $\beta(\infty, 15) = 15$ min left

3) $\alpha(-\infty, -14) = -14$
$\alpha(-\infty, 10) = 10$ max (Bottom left) (left node)
$\alpha(-14, 10) = 10$

4) $\alpha(10, 10)$ Top (max)

5) $\beta(15, 10) = 10$ Min (right)

6) $(-\infty, 10) = 10$ Max (Bottom right) (right node)

7) $\alpha(10, -12) = 10$

$\alpha(10, 2) = 10$

$\alpha(-12, 2) = 2$

8) $\beta(\infty, 2) = 2$ — Min (right)

$\alpha = 10$

$\beta = 2$

$\alpha \geq \beta$ so the next node is prune

9) $\alpha = 10$ Max

$\beta = \infty$

$\alpha(10, 2) = 10$ Solution

Alpha-Beta Pruning Practice

αβ Cutoff

Start Animation

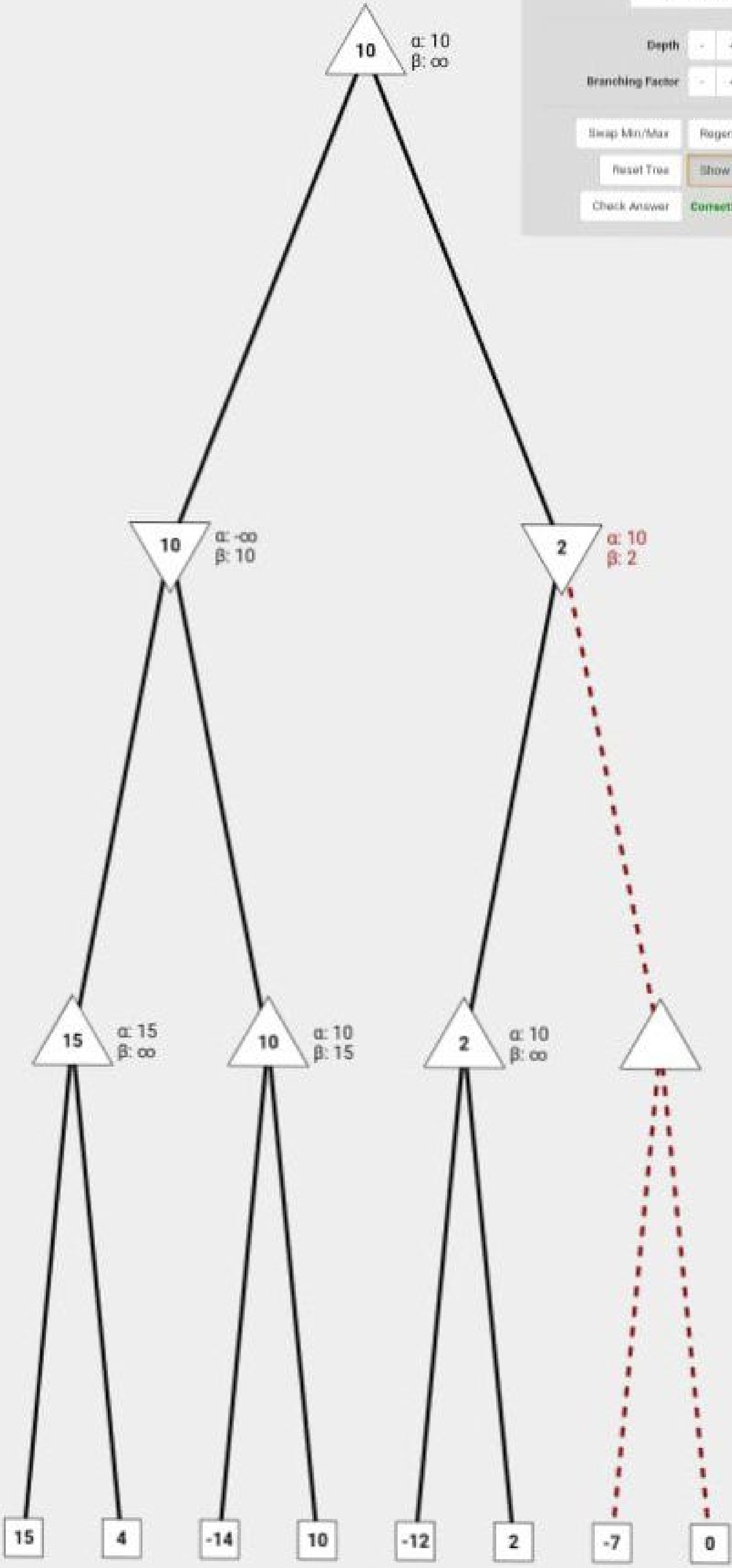
Depth - +

Branching Factor - +

Swap Min/Max | Regenerate Tree

Reset Tree | Show Solution

Check Answer | Correct!



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