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Alpha - Beta Pruning

Page No. :
Date :

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DOP	DOA	Marks	Sign

Alpha - Beta Pruning :-

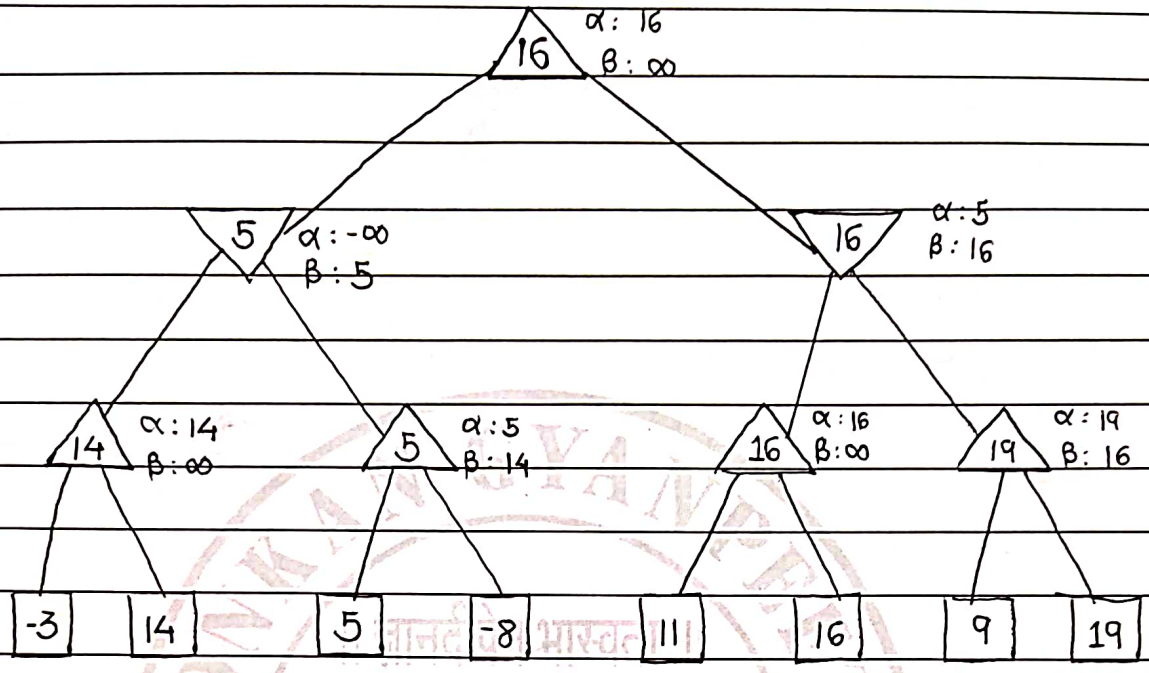
Alpha - beta pruning = Alpha beta pruning is a modified session of the min max sign. It is an optimization technique for the min max algorithm.

- Alpha (α) = The text (high value)
  = Initial value of alpha is $-\infty$
- Beta (β) = The test (highest value)
  = Initial value is Beta is $+\infty$
- Rules and Conditions

1) The max players will only update the value of the alpha.
2) The min players will only update the value of the Beta.
3) We will only pass the alpha, beta values to the child nodes.
4) Node values will be passed to the upper nodes instead of values of alpha & beta.

- Condition to prune : $a \geq b$ or $b \leq a$
- When alpha is greater than or equal to beta

Date :



1) $\alpha(-\infty, -3) = -3$
   $\alpha(-\infty, 14) = 14$ - Max (Bottom left)
   $\alpha(-3, 14) = 14$

2) $\beta(\infty, 14) = 14$ - Min (left)

3) $\alpha(-\infty, 5) = 5$
   $\alpha(-\infty, -8) = -8$ - Max (Bottom left)
   $\alpha(5, -8) = 5$ (left node)

4) $\alpha(5, 16)$ - Top (max)

5) $\beta(14, 5) = 5$ - Min (right)

6) $\beta(-\infty, 5) = 5$ - Max (Bottom right)
   (right node)

7) $\alpha(5, 16) = 5$

$\alpha(5, 16) = 5$

$\alpha(16, 16) = 16$

8) $\beta(\infty, 16) = 16$ min(right)

$\alpha = 5$

$\beta = 16$

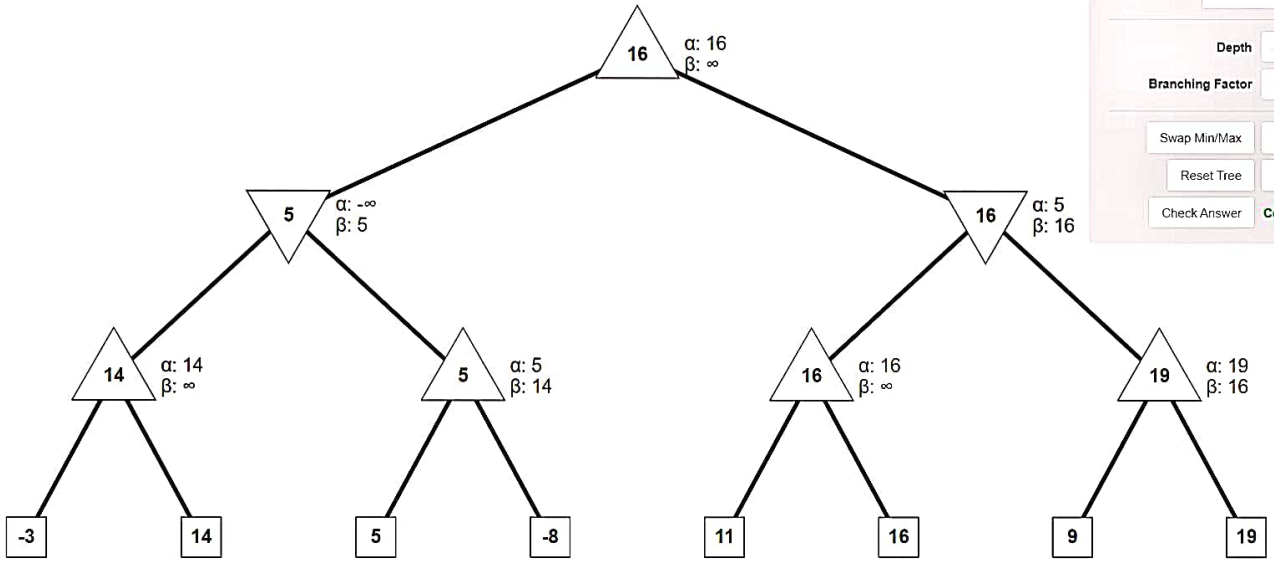
9) $\alpha = 16$ Max

$\beta = \infty$

$\alpha(5, 16) = 16$ Solution

Alpha-Beta Pruning Practice

αβ Cutoff



Start Animation

Depth - +

Branching Factor - +

Swap Min/Max | Regenerate Tree

Reset Tree | Show Solution

Check Answer | Correct!

Star Developed by Aleks Kamko for UC Berkeley CS61B

Nodes are pruned when β ≤ α