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Date

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class :- BE - IT

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subject :- AI

D.O.P. D.O.C marks Sign

Alpha - Beta pruning :-

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

- Alpha (α) = The last (high value)
  = Initial value of alpha is $-\infty$

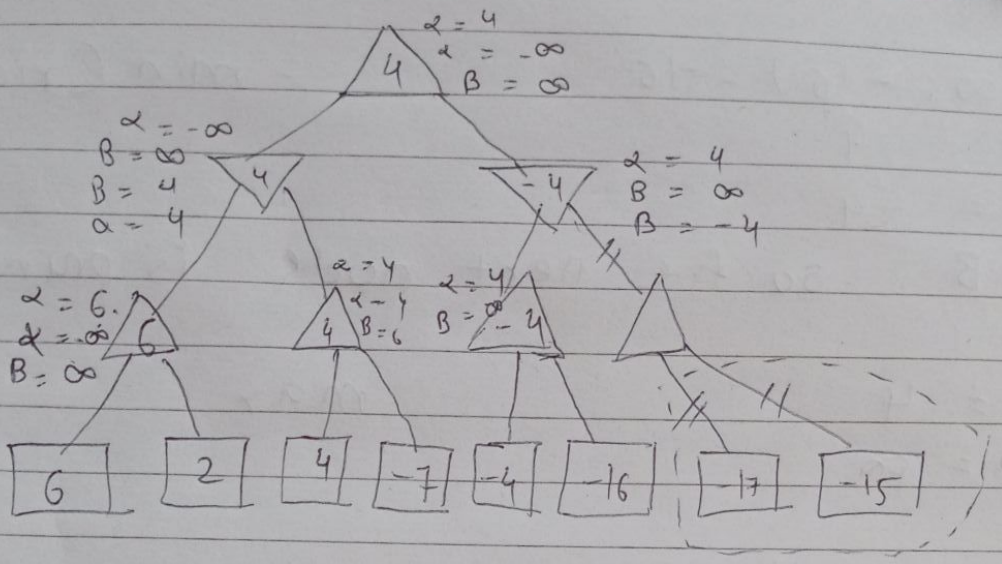
- Beta (β) = The last (higher value)
  = Initial value is Beta $+\infty$

- Rules & conditions :-

1) The max player will only update the value of alpha
2) The min player will only update the value of B
3) we will only have the alpha, beta values to the child nodes
4) nodes values will be passed to upper nodes instead of values of alpha & Beta

- Condition :- $a \geq b$ or $b \leq a$

- When alpha is greater than or equal to Beta.



1) $\alpha(-\infty, 6) = 6$ — max (Bottom left)
$\alpha(-\infty, 2) = 2$
$\alpha(6, 2) = 6$

2) $\beta(\infty, 6) = 6$ — min (left

3) $\alpha(-\infty, 4) = 4$ — max (Bottom left) (left node)
$\alpha(-\infty, -7) = -7$
$\alpha(4, -7) = 4$

4) $\alpha(4, -4)$ — Top (max)

5) $\beta(6, 4) = 4$ — min (right)

6) $\beta(-\infty, 4) = 4$ — max (Bottom right (right node.

7) $\alpha(4, -4) = 4$
$\alpha(4, -16) = 4$
$\alpha(-4, -16) = -4$

8) $B(\infty, -16) = -16$ - min (right)

$\alpha = 4$

$\beta = -4$

$\alpha \geq B$ so the next node is pruned

9) $\alpha = 4$ max

$\beta = \infty$

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