Name:- Harikrishna B. Padhi

Class:- BE-IT

Rollno:- 40

Subject :- IS Lab

DOP	DOA	Remark	Sign

Alpha-Beta Pruning :-

-> 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.

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

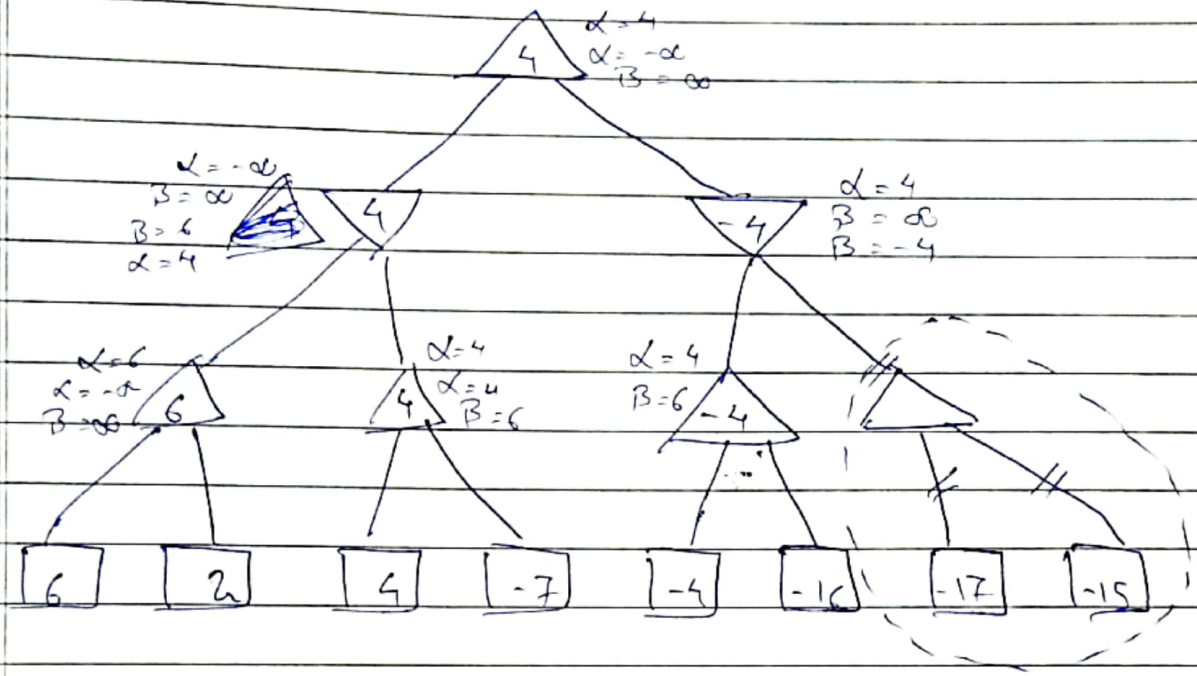
- Beta(β) : The best (highest value)
  : Initial value is Beta is $+\infty$

- Rules & conditions

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



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

2) $\beta(\infty, 6) = 6$ - Min (left)

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

4) $\alpha(4, 4)$ ~~Top (right)~~ 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) $\beta(\infty, -16) = -16$ - Min (right)

$\alpha = 4$

$\beta = -4$

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

9) $\alpha = 4$

$\beta = \infty$ Max

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