Name :- Rahul Ravindra Shinde

Roll No. :- 64

Class :- BE - IT

Subject :- IS Lab

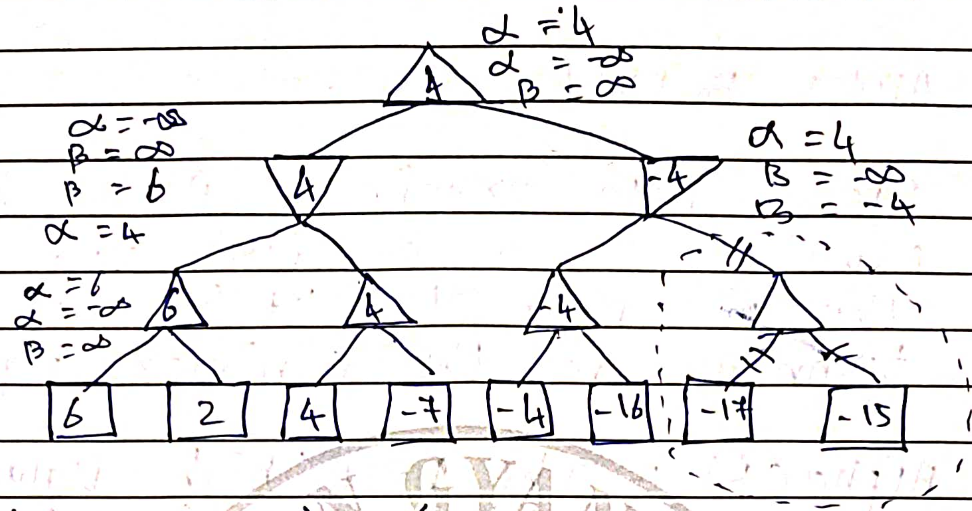
Sem :- VII

DOP	DOC	Mark	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 minimax algo.

- Alpha(α) = The best(high, value)
  = Initial value of alpha is $-\infty$
- Beta (β) = The best (highest value)
  = Initial value is Beta is $+\infty$
- Rules of conditions :-
  1) The max player will only update the value of alpha.
  2) The min player will only update the value of Beta.
  3) We will only pass the alpha, beta values to the child nodes.
  4) Node values will be passed to upper node. insted of values of alpha and beta.
- When alpha is greater than of 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) $\alpha(-\infty, 4) = 4$ — max (Bottom left)
$\alpha(-\infty, -7) = -7$ (left node)
$\alpha(4, -7) = 4$

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) $B(\alpha, -16) = -16$ — min (right)

$\alpha = 4$

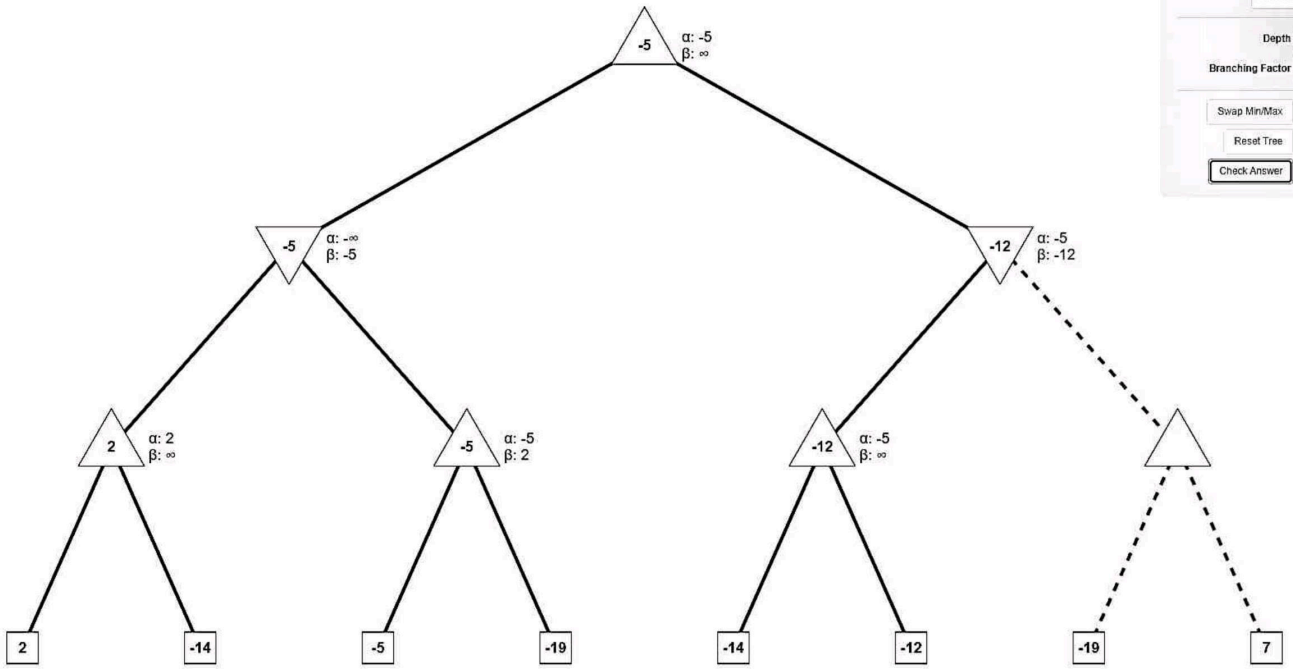
$\beta = -4$

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

9) $\alpha = 4$ — max

$\beta = \alpha$

$\alpha(4, -4) = 4$ — P^0 solution



Start Animation

Depth - +

Branching Factor - +

Swap Min/Max | Regenerate Tree

Reset Tree | Show Solution

Check Answer | Correct!

Nodes are pruned when $\beta \leq \alpha$.