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class :- B.E. IT

Subject :- IS LAB

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Date :

2) 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 best (high - value)
= Initial value of alpha is $-\infty$

Beta (β) = The best (highest - value)
= Initial value of beta is $+\infty$

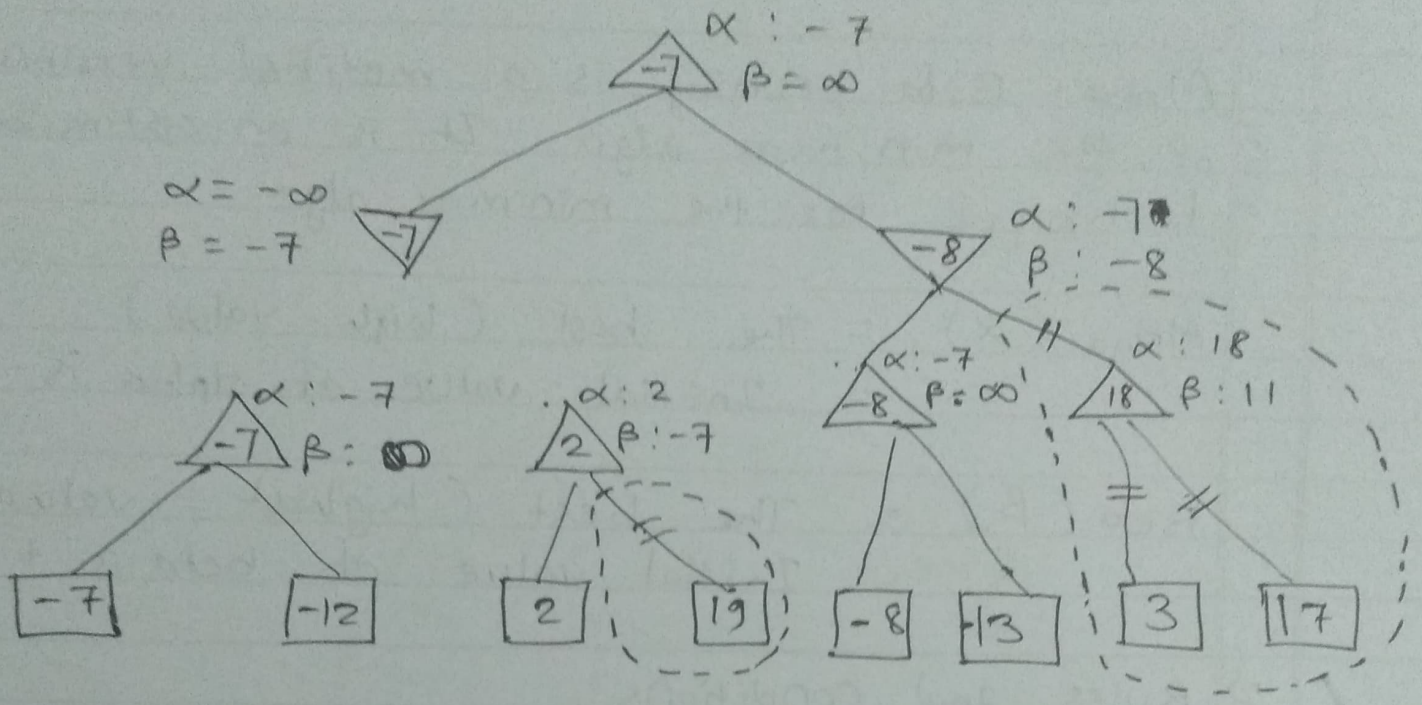
=> Rules and conditions :

1) The MAX player will only update the value of α
2) The MIN player will only update the value of β.
3) we will only pass the alpha, beta values to the child modes
4) Node values will be passed to upper modes insted of α, β value.

- condition of Prune : $\alpha \leq \beta$ or $\beta \leq \alpha$.

Now,

when α is greater than equal to β.



1) $\alpha(-\infty, -7) = -7$
   $\alpha(-\infty, -12) = -12$
   $\alpha(-7, -12) = -7$

   — MAX (Bottom Left)

2) $\beta(\infty, -7) = -7$

   — MIN (Left)

3) $\alpha(-\infty, 2) = 2$
   $\alpha(-\infty, 19) = 19$
   $\alpha(2, 19) = 19$

   — MAX (Bottom Left) (Left node)

4) $\alpha(-7, -8)$

   — TOP (MAX)

5) $\beta(-7, 2) = -7$

   — MIN (right)

6) $\beta(-\infty, -8) = -8$

   — MAX (Bottomright) (right node)

7) $\alpha\ (-7, -8) = -7$

$\alpha\ (-7, -13) = -7$

$\alpha\ (-8, -13) = -8$

8) $\beta = (\infty, -13) = -13$ — MIN (right)

$\alpha = -7$

$\beta = -8$

$(\alpha \geq \beta)$

So, the next node is pruned

9) $\alpha = -7$ — max

$\beta = \infty$

$\alpha(-7, -8) = -7$ (solution)