RIGHT WAY

Date

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Class : BE-IT

Roll No :- 16

Subject :- IS Lab

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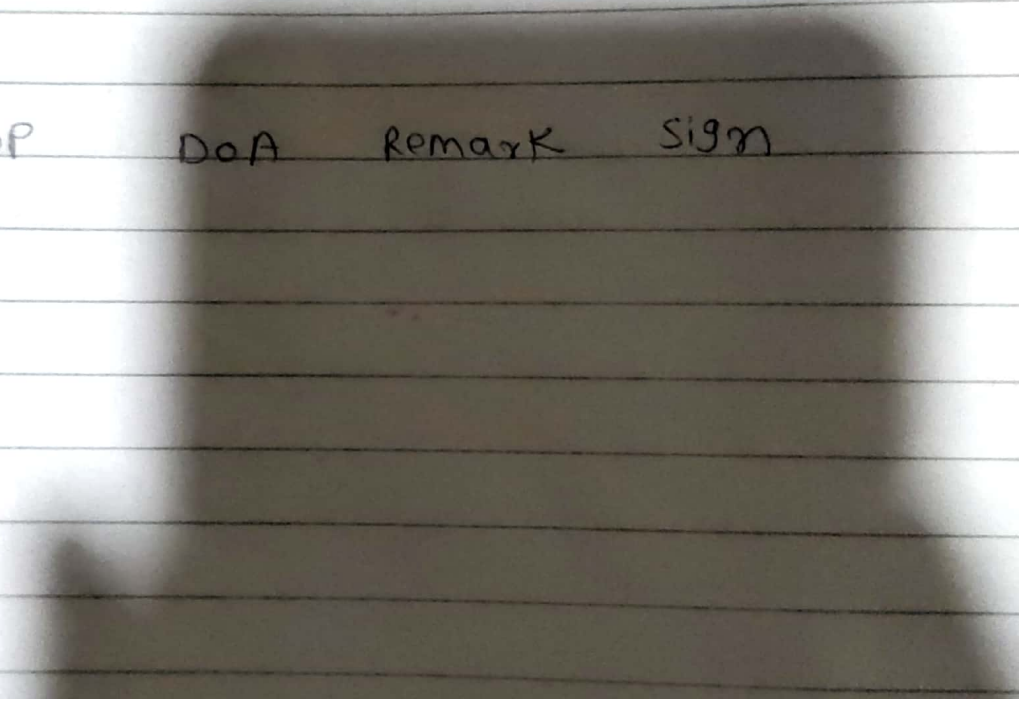

Alpha - Beta Purning :-

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

- Alpha (α) = The best (hight - value)
  = Initial value of alpha is $-\infty$

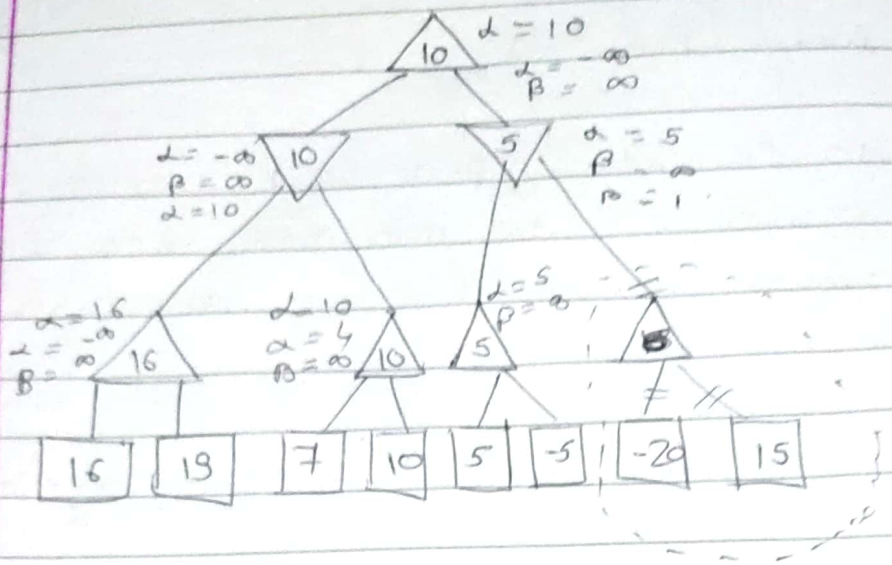
- Beta (β) = The best (highest value)
  = Initial value is Beta is $+\infty$

- 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 child nodes.
4. Node values will be passed to upper node instead of values of alpha and beta

- condition to true : $a \geq b$ or $b \leq a$

- when alpha is greater than or equal to beta.



1) $\alpha(-\infty, 16) = 16$
$\alpha(-\infty, 13) = 13$
$\alpha(16, 13) = 16$
- max (Bottom Left)

2) $\beta(\infty, 16) = 16$
min (Left)

3) $\alpha(-\infty, 7) = 7$
$\alpha(-\infty, 10) = 10$
$\alpha(4, -7) = 4$
- max (Bottom Left) (Left node)

4) $\alpha(10, 5)$
Top (max)

5) $\beta(16, 10) = 10$
min (right)

6) $\beta(-\infty, 10) = 10$
max (Bottom)
right (right node)

7) $\alpha(10, 5) = 10$
$\alpha(5, -5) = 5$
$\alpha(5, -5) = -5$

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8) $\beta(\infty, -20) = -20$ min (right)

$\alpha = 10$

$\beta = 5$

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

9) $\alpha = 10$ max

$\beta = \infty$

$\alpha(10, 5) = 4$ soln