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class : BE-IT

Roll No : 50

Subject: IS Lab

DOP	DOA	marks	sign.

Alpha - Beta Pruning :-

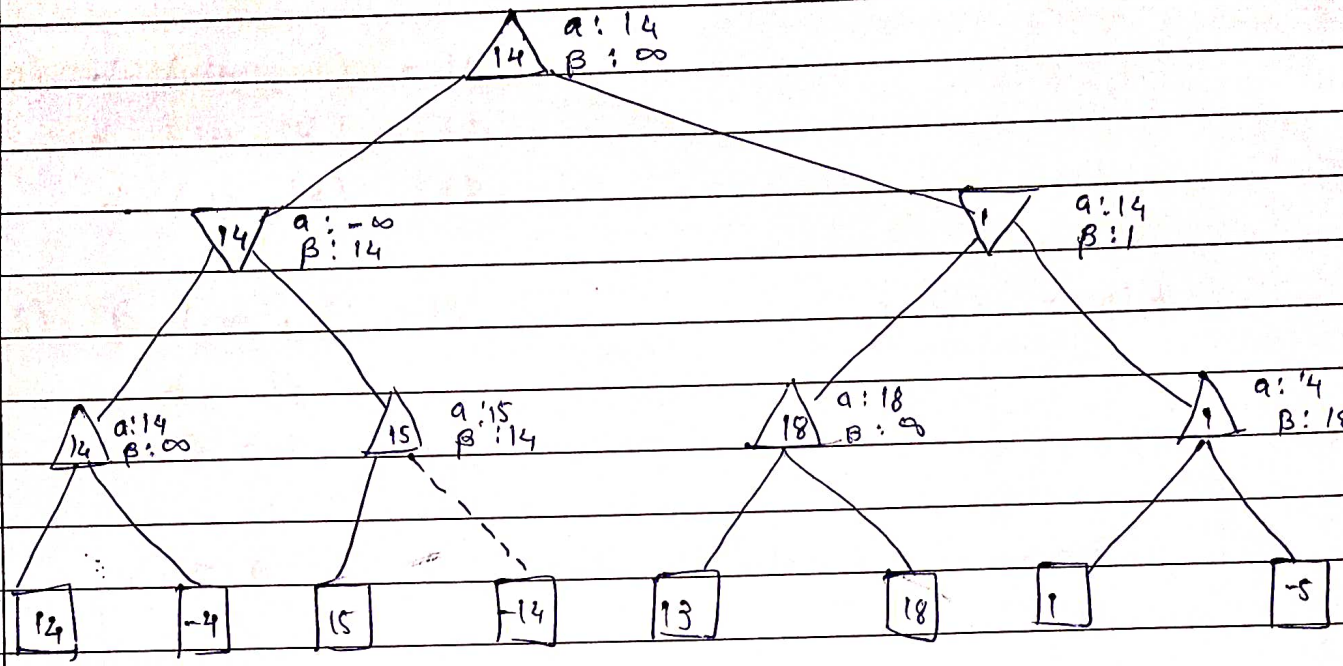
Alpha - Beta pruning : Alpha beta pruning is a modified version of the min max algo It is an optimizatn technique to the minmax algorithm.

- Alpha (α) - The ~~test~~ (highest value)
  : Initial value of alpha is $-\infty$
- Beta (β) - The test (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 values will be proud to upper node instead of values of alpha and beta.

Condition to prune. $a \geq b$ or $b \leq a$

- When alpha is greater than or equal to beta.



1) $\alpha(-\infty, 14) = 14$
   $\alpha(-\infty, -4) = -4$
   $\alpha(14, -4) = 14$ - Max (Bottom left)

2) $\beta(\infty, 14) = 14$ - Min (left)

3) $a(-\infty, 15) = 15$
   $a(-\infty, -14) = -14$
   $a(15, -14) = 15$ - Max (Bottom left node)

4) $\alpha\ a(14, 1)$ - Top (max)

5) $\beta(14, 15) = 14$ - Min right

6) $\beta(-\infty, 14) = 14$ - Max (Bottom Right)

7) $\alpha(14, 1) = 14$

$\alpha(14, 18) = 14$

$\alpha(13, 18) = 18$

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

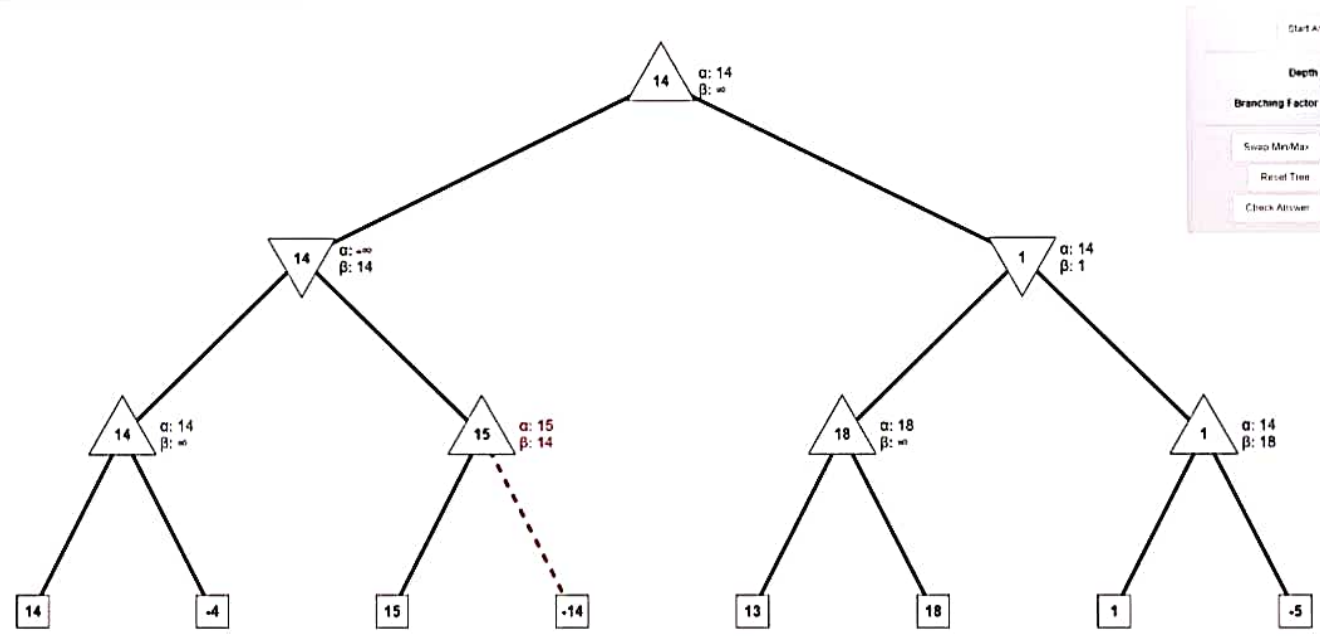
$\alpha = 14$

$\beta = 1$

$\alpha \geq \beta$ So next node is pruned.

9) $\alpha = 14, \beta = \infty$ > Max

$\alpha(14, 1) = 14$ - Solution.


14
α: 14
β: ∞
14
α: -∞
β: 14
1
α: 14
β: 1
14
α: 14
β: ∞
15
α: 15
β: 14
18
α: 18
β: ∞
1
α: 14
β: 18
14
-4
15
-14
13
18
1
-5
Start Animation
Depth
Branching Factor
Swap Min/Max
Regenerate Tree
Reset Tree
Show Solution
Check Answer
Correct!