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CLASS : BE-IT

ROLL NO. : 34

SUB : IS LAB

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## Alpha - Beta pruning :-

Alpha-beta pruning = Alpha beta pruning is a modified version of the min max algo. It is an optimizat^n technique for the min max algo.

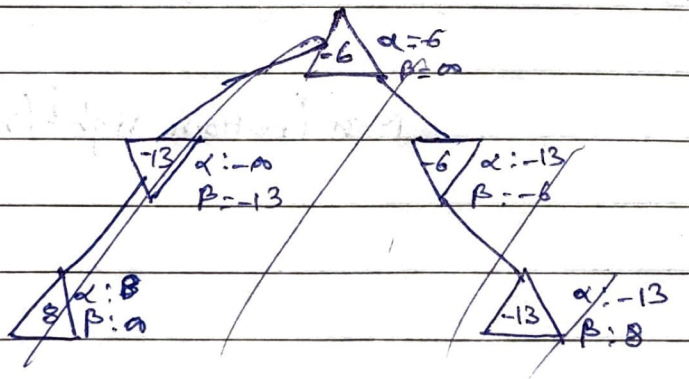
- Alpha ($\alpha$) = The best (hight value)
  = Initial value of alpha is $-\infty$

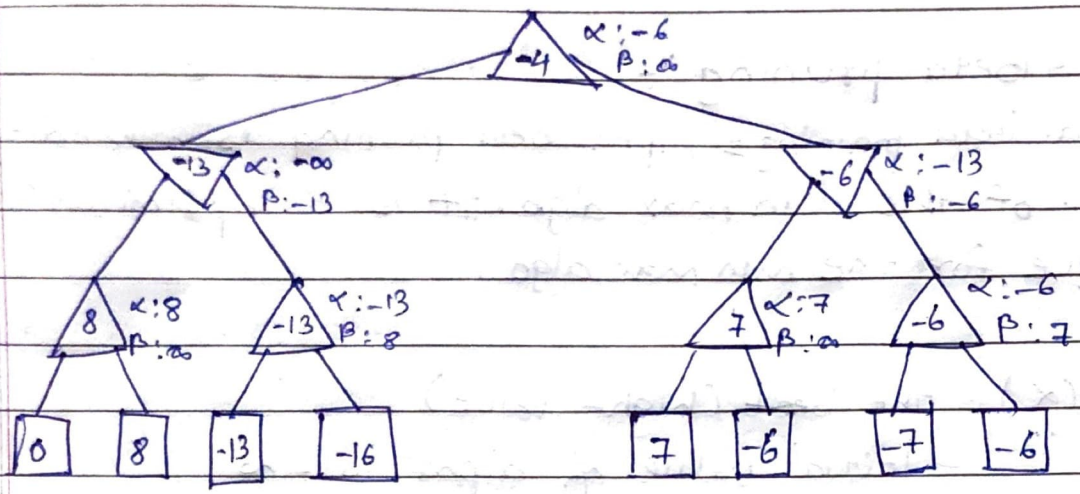
- Beta ($\beta$) = The best (highest value)
  = Initial value of Beta is $+\infty$

- Rules & conditions :
  1) The max player will only update the value of alpha.
  2) The min player will only update the value of $\beta$.
  3) We will only pass $\alpha$, $\beta$ values to the child nodes.
  4) Node values will be passed to upper nods 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) $\alpha(-\infty$~~

1) $\alpha(-\infty, 0) = 0$ - Max(Bottom left)

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

$\alpha(0, 8) = 8$

2) $\beta(\infty, 8) = 8$ - Min (left)

3) $\alpha(-\infty, -13) = -13$ - Max(Bottom left)(left node)

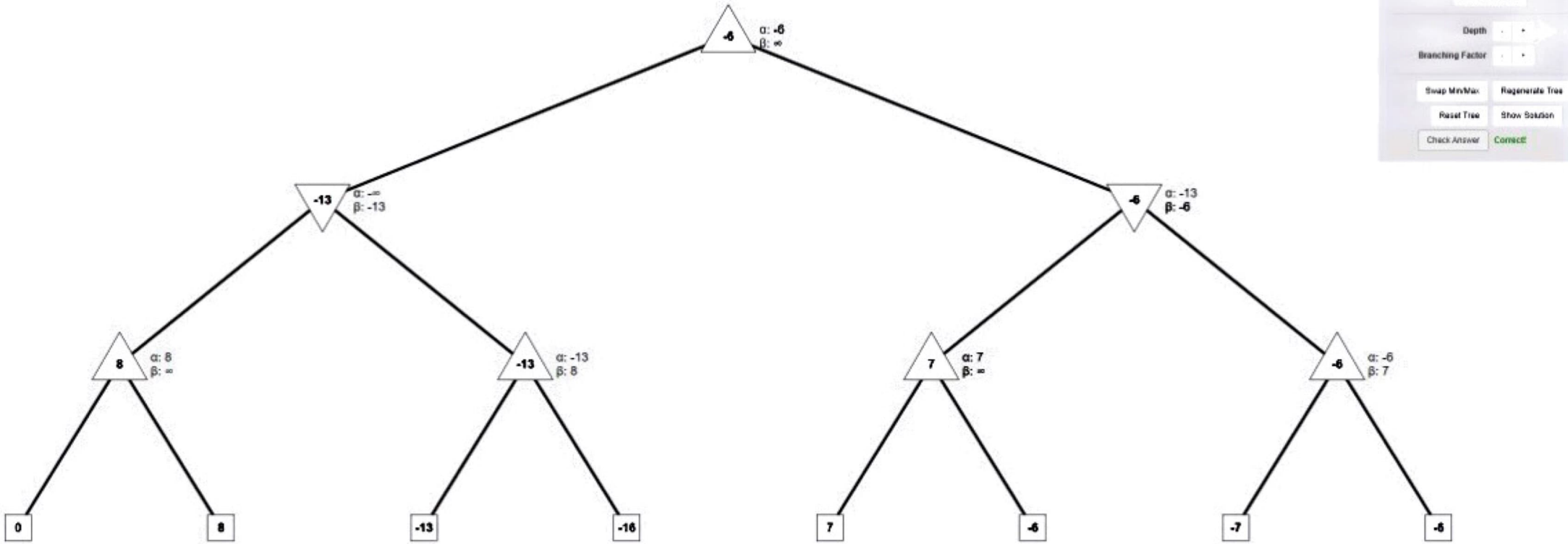
$\alpha(-\infty, -16) = -16$

$\alpha(-13, -16) = -13$

4) $\alpha(-4, -6)$ - Top (max)

5) ~~$\beta(8,4) = 4$~~ $\beta(8, -13) = -13$ - Min (right)

6) $\beta(-\infty, -13) = -13$ - Max (Bottom right)(right node)


-6
α: -6
β: ∞
-13
α: -∞
β: -13
-6
α: -13
β: -6
8
α: 8
β: ∞
-13
α: -13
β: 8
7
α: 7
β: ∞
-6
α: -6
β: 7
0
8
-13
-16
7
-6
-7
-6
Start Animation
Depth
Branching Factor
Swap Min/Max
Regenerate Tree
Reset Tree
Show Solution
Check Answer
Correct!