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class : BE (I.T)

Roll no : 70

Subject: IS lab

DOP	DOA	Remark	Sign

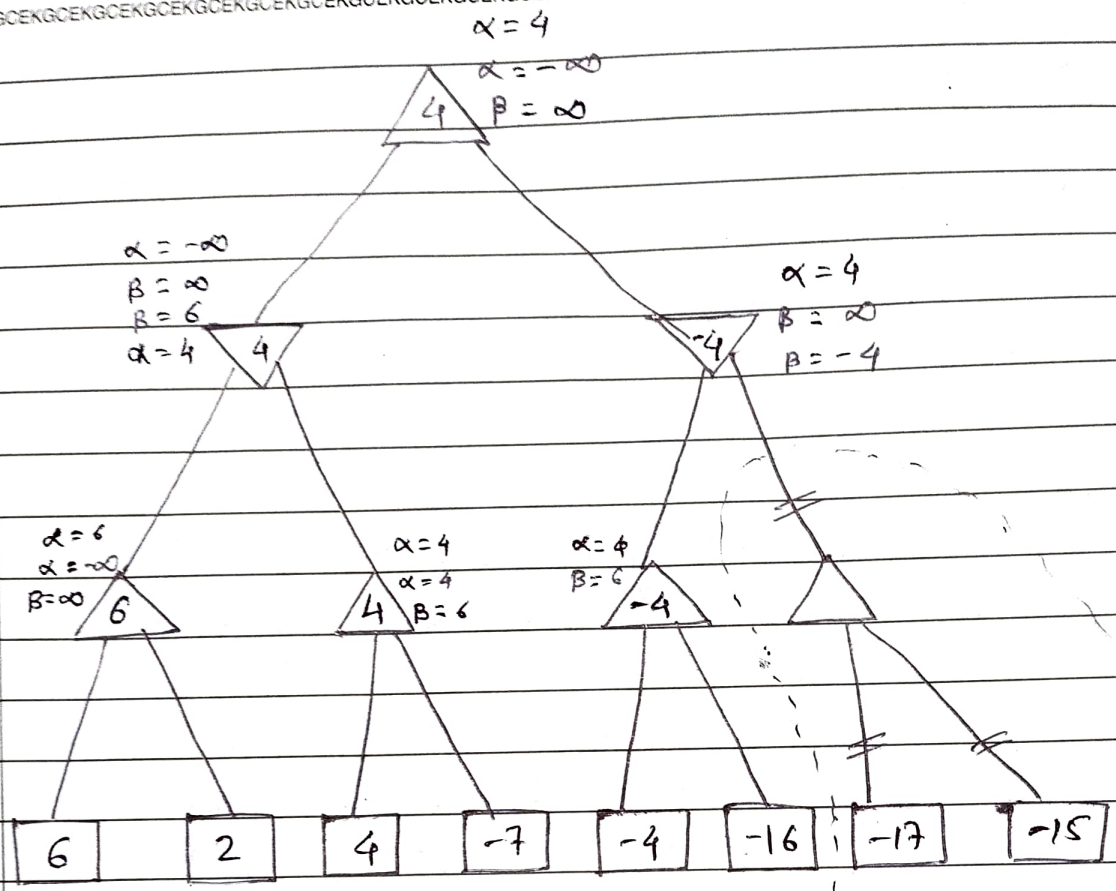
Alpha - Beta Pruning :-

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

- Alpha (α) = The best (high value)
  = Initial value of alpha is -∞
- Beta (β) = The best (highest value)
  = Initial value is Beta is +∞.
- Rules and condition

1) The max plays will only update the value of alpha.
2) The min plays will only update the value of B.
3) We will only pass the alpha, beta values to the child nodes.
4) Node values will be passed 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) $\alpha(-\infty, 6) = 6$
$\alpha(-\infty, 2) = 2$
$\alpha(6, 2) = 6$
— Max (Bottom left)

2) $\beta(\infty, 6) = 6$ — Min (left)

3) $\alpha(-\infty, 4) = 4$
$\alpha(-\infty, -7) = -7$
$\alpha(4, -7) = 4$
— Max (Bottom left) (left node)

4) $\alpha(4, -4)$ — Top (max)

5) $\beta(6, 4) = 4$ — Min (right)

6) $\beta(-\infty, 4) = 4$ — Max (Bottom right) (right node)

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7) $\alpha(4,4) = 4$

$\alpha(4, -16) = 4$

$\alpha(-4, -16) = -4$

8) $\beta(\infty, -16) = -16$ — min (right)

$\alpha = 4$

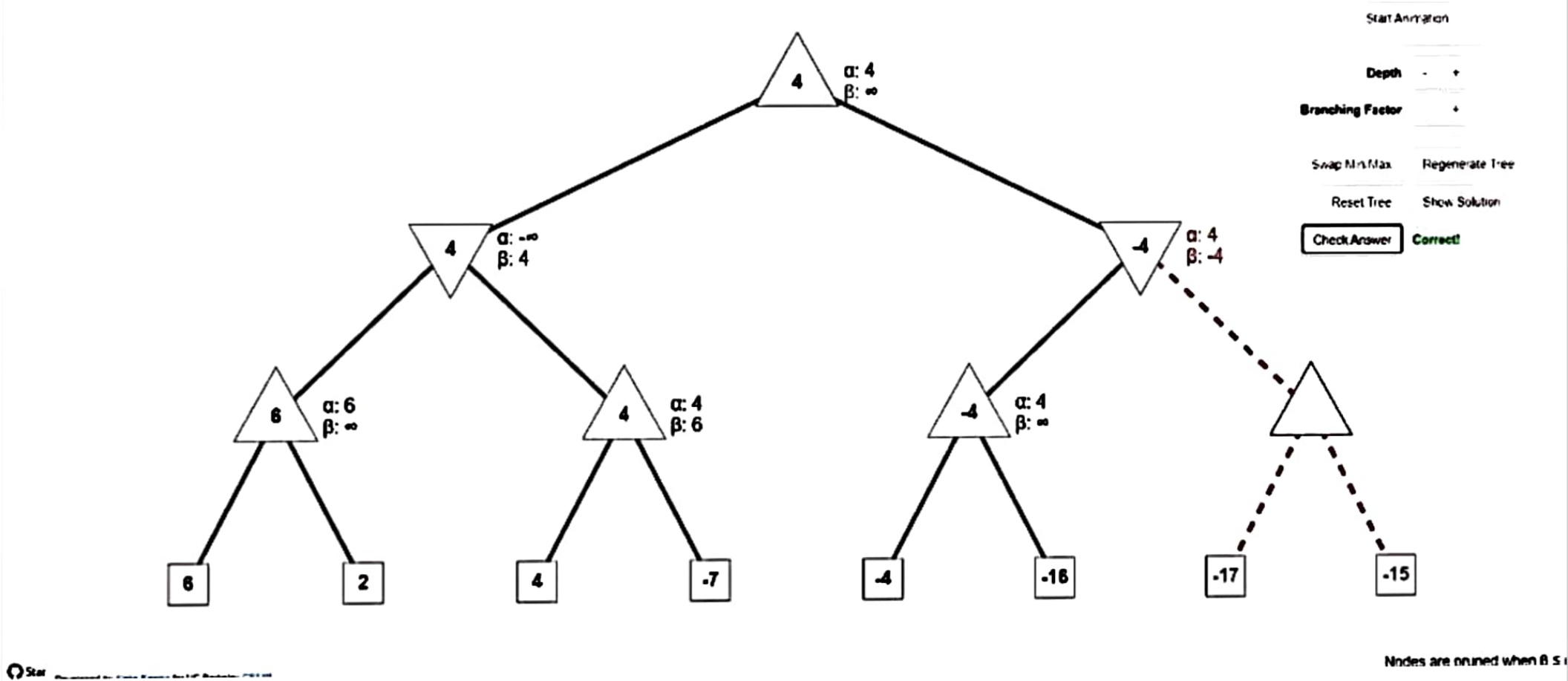
$\beta = -4$

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

9) $\alpha = 4$ Max

$\beta = \infty$

$\alpha(4, -4) = 4$ Soln



Nodes are pruned when β ≤