Name : Ruhi R. Shaikh

Class : BE - IT

Roll no : 59

Subject : IS Lab.

DOP	DOA	Remark	Sign.

Alpha - Beta Pruning :-

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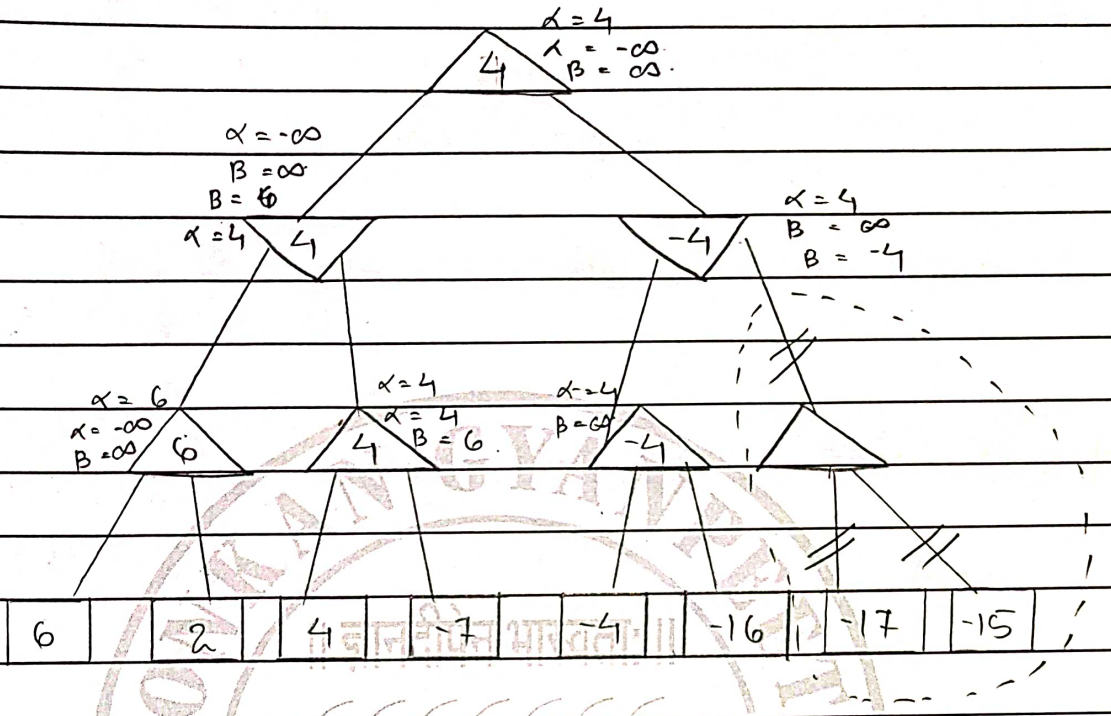
Alpha - beta pruning = Alpha beta pruning is a modified version of the min max algo. It is an optimizat^n technique for the minmax algo.

- Alpha (α) = The best (hight value)
  = Initial value of alpha is −∞.
- Beta (B) = The best (highest value)
  = Initial value is Beta is +∞.
- Rules & conditions :
  1.) The max player will only update the value of alpha.
  2.) The min player 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 nods insted of values of alpha and beta.
- Condition to prune : a ≥ b or b ≤ 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)

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

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

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

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

$\alpha = 4$

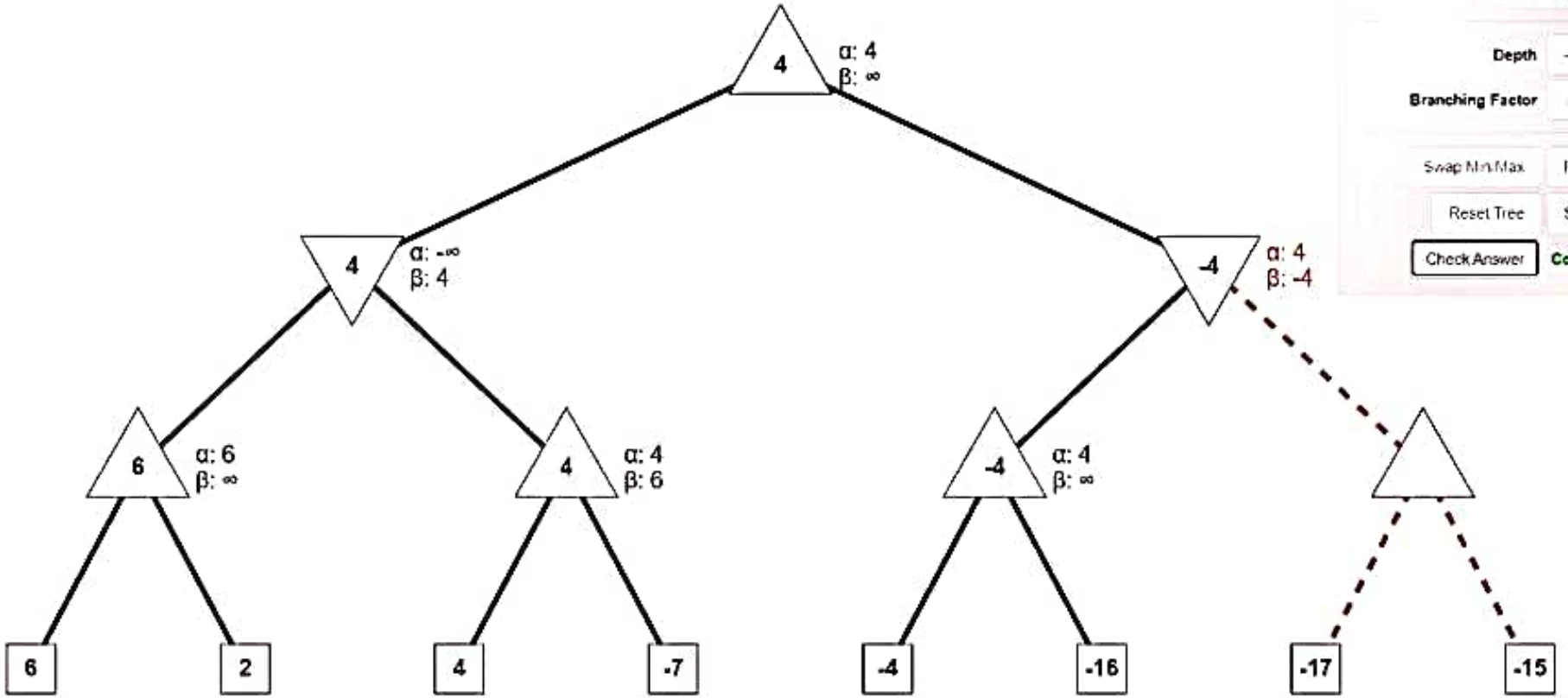
$\beta = -4$

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

9.) $\alpha = 4$ Max.

$\beta = \infty$

$\alpha(4, -4) = 4$ Root.



Start Animation

Depth - +

Branching Factor - +

Swap Min/Max | Regenerate Tree

Reset Tree | Show Solution

Check Answer **Correct!**

Nodes are pruned when β ≤