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Subject : IS Lab.

D.O.P	D.O.A	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 min max algo.

Alpha (α) = the best (highest value)
- Initial value of alpha is $-\infty$

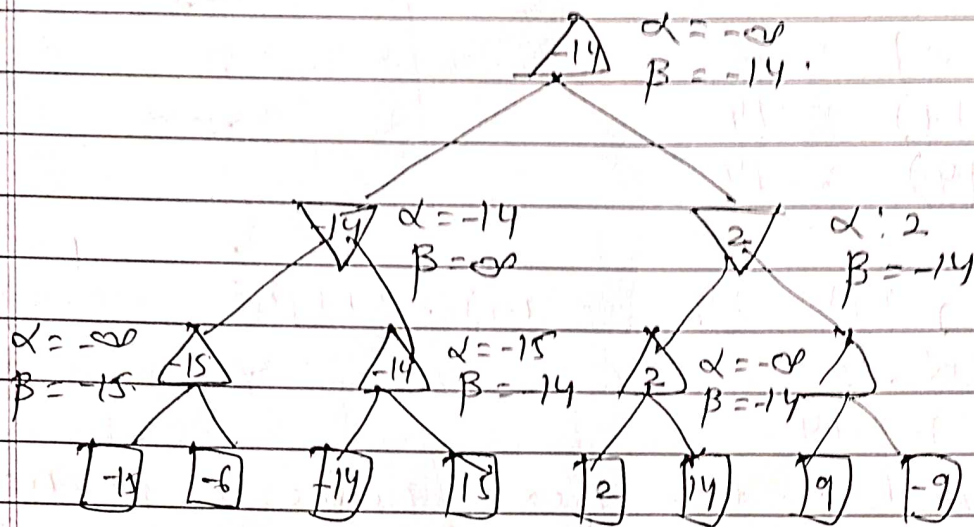
Beta (β) = the best (highest value)
- Initial value is Beta is $+\infty$

- 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 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) $\alpha(-\infty, -14) = -14$
 $\alpha(\alpha -14, \infty) = -14$ — Max (Bottom left).
 $\alpha(2, -14) = 2$
- 2) $\beta(-\infty, -15) = -15$ — Min(left).
- 3) $\alpha(\infty, -14) = -14$ — Move (Bottom left) (left node).
 $\alpha(-\infty, 15) = 15$
 $\alpha(-14, 15) = 15$
- 4) $\alpha(-15, -14) = 14$ — Top (more).
- 5) $\beta(-15, -14) = -14$ — Max(right).
- 6) $\beta(-\infty, -14) = -14$ — Max(Bottom right (right node)).

7.) $\alpha(2, 2) \Rightarrow 2$
 $\alpha(2, 14) \Rightarrow 14$
 $\alpha(2, 14) \Rightarrow 14$

8.) $\beta(2, 14) = 14$ - min (right).

$\alpha = 2$

$\beta = -14$

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

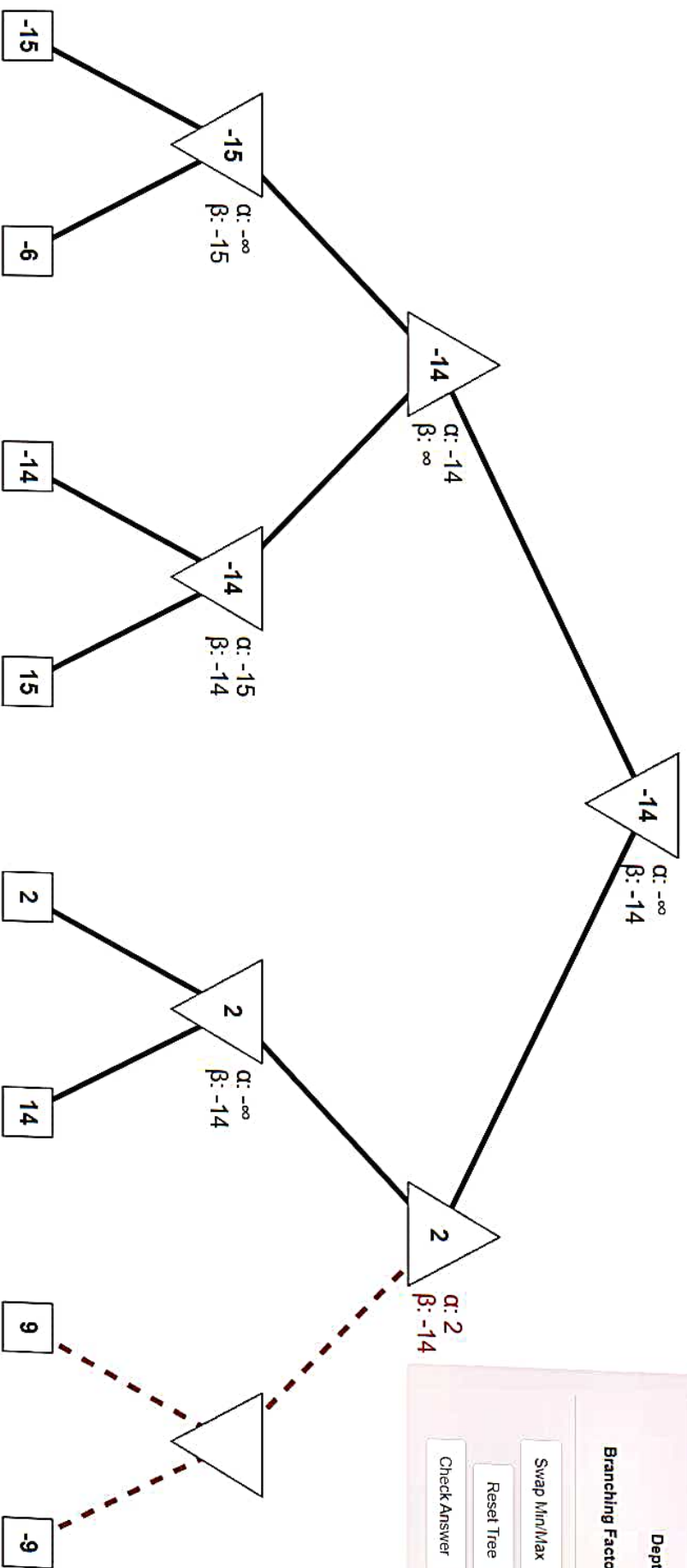
9.) $\alpha = 2$

Max:

$\beta = -14$

$\alpha(2, 14) = 14$

Solution:



Start Animation

Depth - +

Branching Factor - +

Swap Min/Max

Regenerate Tree

Reset Tree

Show Solution

Check Answer

Correct