Date :

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Subject :- ISLAB

DOA	DOP	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.

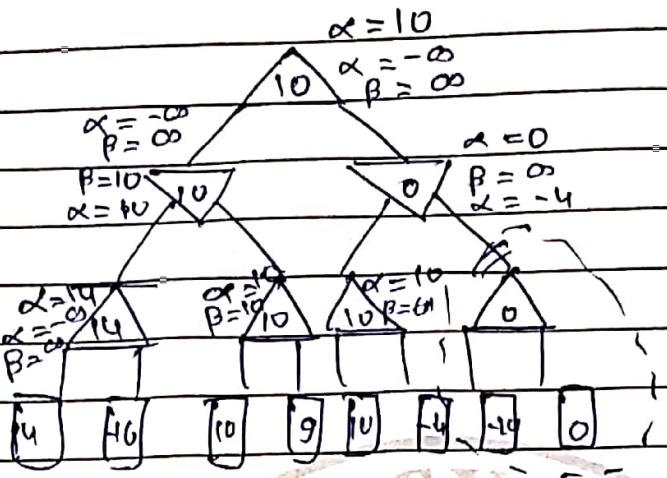
- Alpha(α) = The first (hight-value)
  - Initial value of alpha is -∞

- Beta (β) = The first (highest value)
  - Initial value of Beta is +∞.

- Rules and 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 child nodes
4) Node values will be passed to upper nodes instead of values of alpha and beta

1) condition to prune : $a \geq b$ or $b \leq a$

- when alpha is greater than or equal to beta.



1) $\alpha(-\infty, 14) = 14$

$\alpha(-\infty, -16) = -16$ - max (Bottom left)

$\alpha(\infty 14, -16) = 14$

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

3) $\alpha(-\infty, 10) = 10$

$\alpha(-\infty, 9) = 9$ - max (Bottom left node)

$\alpha(10, 9) = 10$

4) $\alpha(10, 10) = 10$ - Top (max)

5) $\beta(14, 10) = 10$ - min (Right)

6) $\beta(-\infty, 10) = 10$ - max (Bottom right)

7) $\alpha(10, 10) = 10$

$\alpha(10, -4) = 10$

$\alpha(10, -4) = 10$

8) $\beta(\infty, -4) = -4$

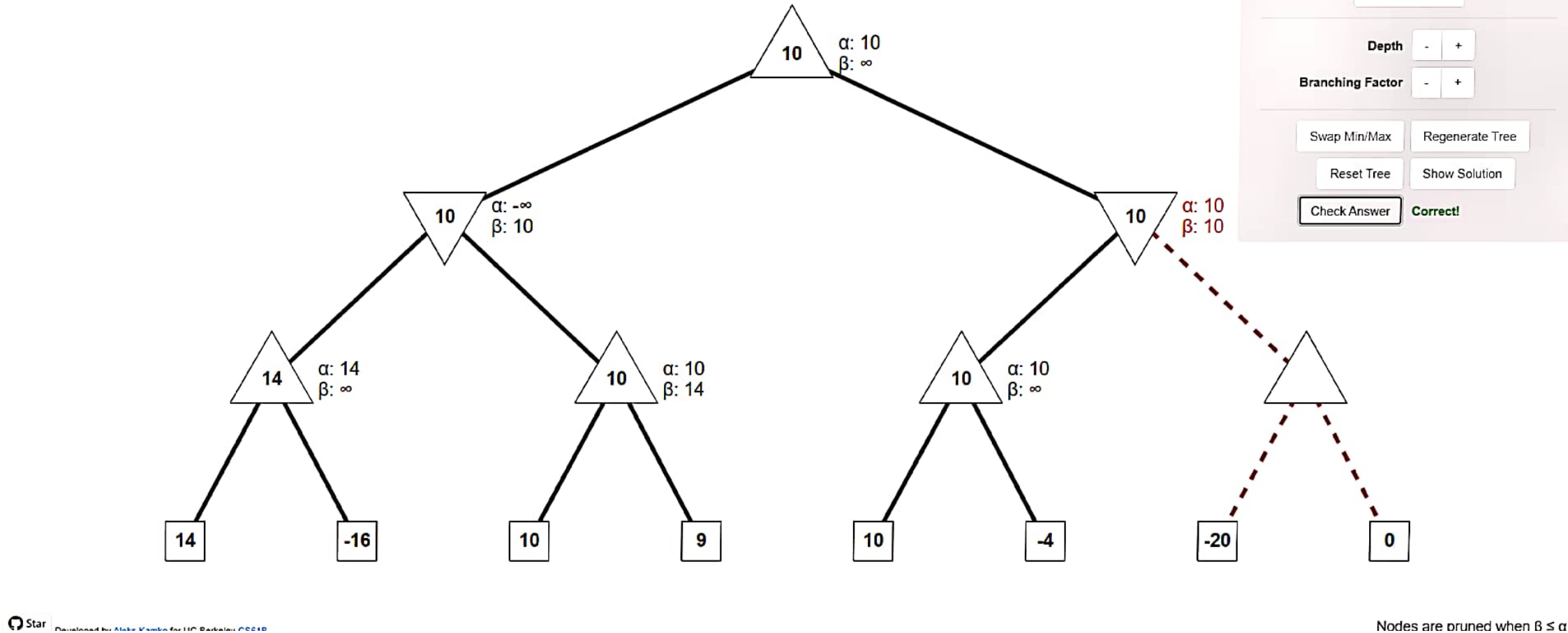
$\alpha = 10$ - min (Right)

$\beta = -4$

$\therefore \alpha \geq \beta$ so the node is pruned

9) $\alpha = 10, \beta = \infty$

$\alpha(10 10) = 10$ solution.



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Nodes are pruned when β ≤ α