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class- BEIT

Roll No - 54

subject- IS Lab

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Alpha - Beta Pruning-

→ Alpha beta pruning - Alpha Beta pruning is a modified version of min max algorithm. It is an optimization technique for the min-max algorithm.

- Alpha(α) - The best (high) value
 - Initial value of alpha is $-\infty$.

Beta(β) = The best (highest) value

- Initial value is Beta is $+\infty$.

- Rules and conditions-

1. The max player will only update the value of alpha.
2. The ~~min~~ 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 nodes instead of values of alpha and beta.

- Condition to prune

$$\alpha \geq \beta \quad \text{or} \quad \beta \leq \alpha$$

- When alpha is greater than or equal to beta.

$$\alpha = -\infty$$

$$\beta = \infty$$

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

$$\beta(\infty, 1) = 1$$

$$\beta(-8, 1) = -8$$

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

$$\min \beta(\infty, 20) = 20$$

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

$$\beta(20, 4) = 4$$

$$(\max) \alpha(-8, 4) = 4$$

$$(\min) \beta(\infty, 14) = 14$$

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

$$\beta(14, -4) = -4$$

$$(\max) \alpha(-\infty, -4) = -4$$

$$(\min) \beta(\infty, 13) = 13$$

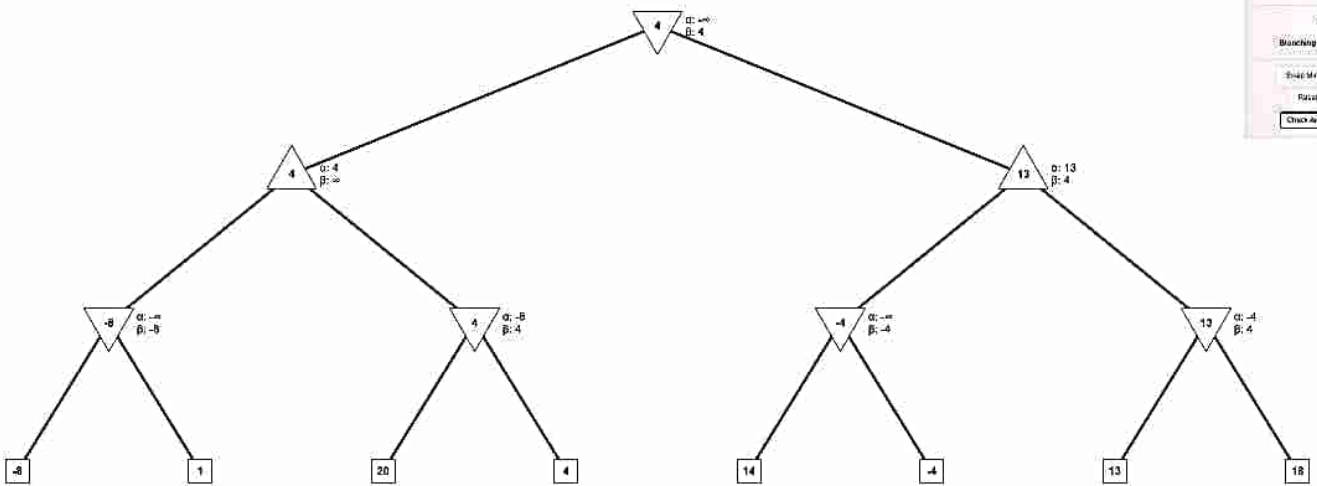
$$\beta(\infty, 18) = 18$$

$$\beta(13, 18) = 13$$

$$(\max) \alpha(-4, 13) = 13$$

$$(\min) \beta(4, 13) = 4$$

↑ solution.



Start/End Node:

Depth:

Branching Factor:

Show Min Node: ☐ Maximize Tree

Root Tree: ☐ Show Solution