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ROLL NO : 52

Batch : I3

SEM : 7/I.T.

SUBJECT : IS LAB.

DOP	DOA	REMARK	SIGN

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Alpha - Beta Pruning.

→ Alpha - beta pruning → Alph beta pruning is a modified version of min-max algo it is an optimization technique to the minmax algo.

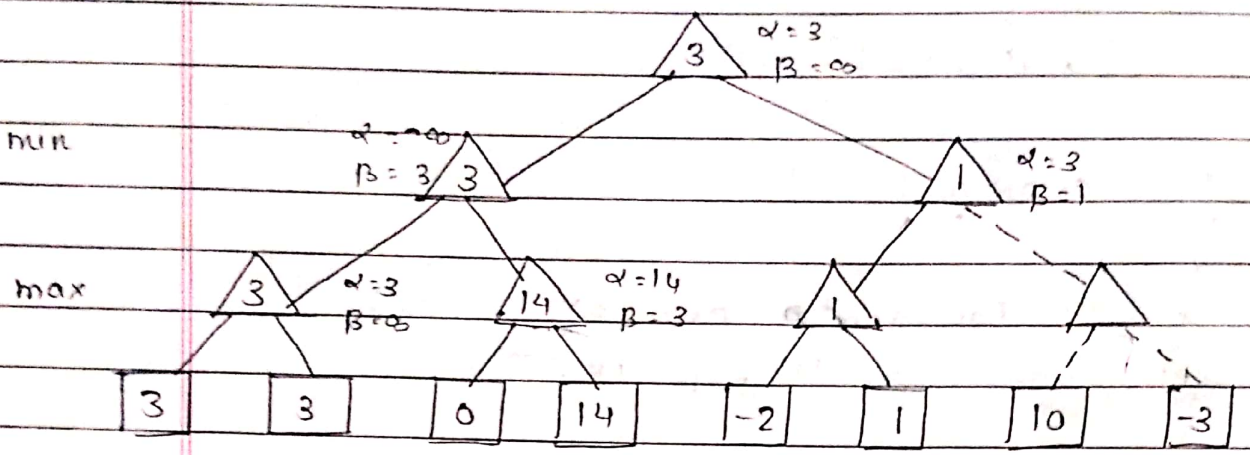
- Alpha (α) : The least (highest-value)
  : Initial value of alpha is $-\infty$

- 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 node
  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) $\alpha(-\infty, 3) = 3$ — max (Bottom left)

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

$\alpha(3, 3) = 3$

2) $\beta(\infty, 3) = 3$ — min (left)

3) $\alpha(-\infty, 0) = 0$ — max (Bottom left) (left node)

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

$\alpha(0, 14) = 14$

4) $\alpha(3, 1) = 3$ — Top (max)

5) ~~$\beta(-\infty, 14) = 4$~~ — min (right)

$\alpha(-\infty, 0) = 0$

$\alpha(14, 0) = 14$

6) $\beta(-\infty, 14) = 14$ — max (Bottom) right (right node)

7) $\alpha(1, -2) = 1$

$\alpha(1, 1) = 1$

$\alpha(1, 1) = 1$

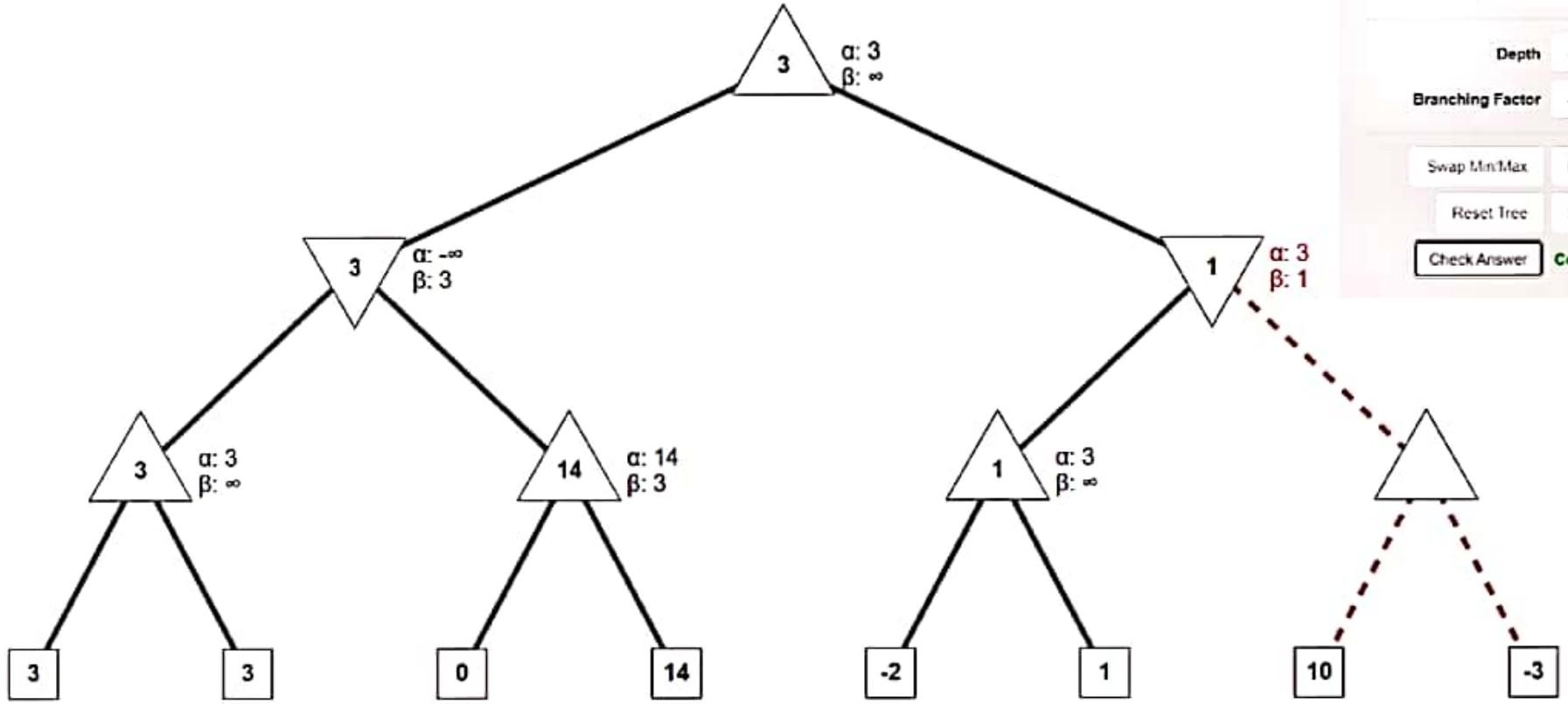
8) ~~$\beta(\infty$~~, $\beta(\infty, 1) = 1$ — min (right)

~~$\alpha(3, 1)$~~ $\alpha = 3$

$\beta = 1$

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

9) $\alpha(3, 1) = 3$



Start Animation

Depth - +

Branching Factor - +

Swap Min/Max | Regenerate Tree

Reset Tree | Show Solution

Check Answer | Correct!

Star

Developed by Alvika Kamba for UC Berkeley CS61B

Nodes are pruned when $\beta \leq \alpha$.