Name: Makarand S. Khadakban

Class: BE-IT

Roll No.: 30

Batch: I2

Sem: VII th

Sub.: IS lab

D.O.P.	D.O.C.	Mark	Sign

Alpha-Beta Puning:

Alpha-beta Punning:

It is a modified version of the min-max algorithm. It is an optimization technique for the minmax algorithm.

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

Beta (β):
The best (highest value)
Initial value of beta is $+\infty$

Rules & conditions:

A] The max player will only update the value of alpha.

B] The min player will only update the value of beta.

C] We will only pass the alpha, beta values to the child nodes.

D] Node values will be passed to upper nodes instead of values of α & β

Condition to prune: $a \geq b$ or $b \leq a$

When alpha is greater than or equal to beta

1] $\alpha(-\infty, 2) = 2$ - Max (Bottom left)
$\alpha(-\infty, -14) = -14$
$\alpha(2, -14) = 2$

2] $\beta(\infty, 2) = 2$ - Min (left)

3] $\alpha(-\infty, -5) = -5$ - Max (Bottom left)
$\alpha(-\infty, -19) = -19$ (left node)
$\alpha(-5, -19) = -5$

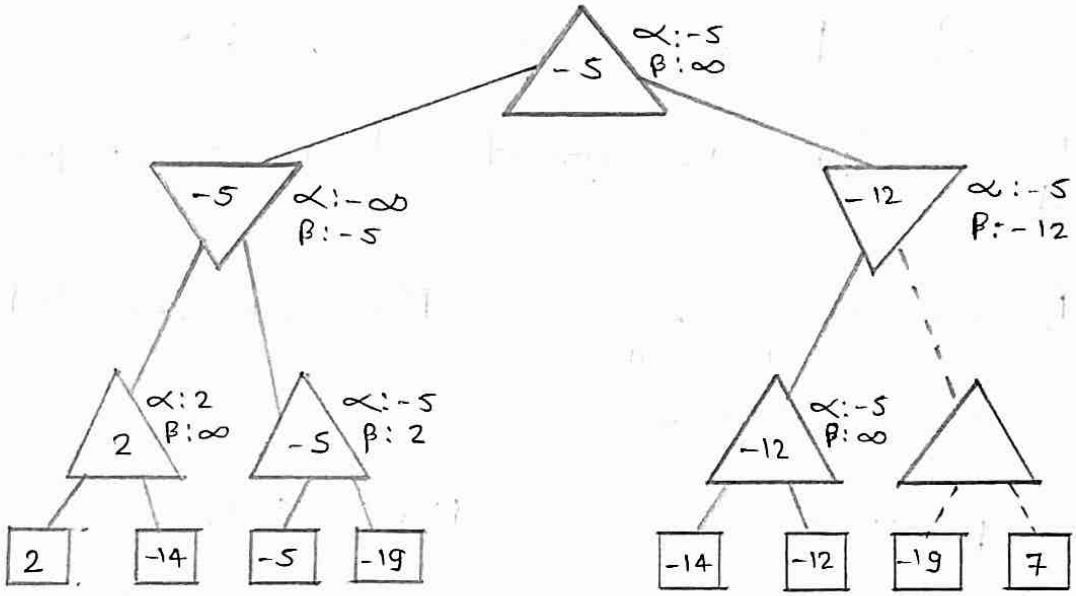
4] $\alpha(-5, -12)$ - Top (max)

5] $\beta(2, -5) = -5$ - Min (right

6] $\beta(-\infty, -5) = -5$ - Max (Bottom right)
(right node)

7] $\alpha(-5, -12) = -5$
$\alpha(-5, -14) = -5$
$\alpha(-12, -14) = -12$

8] $\beta(\infty, -14) = -14$ - Min (right)
$\alpha = -5$
$\beta = -12$


-5
α:-5
β:∞
-5
α:-∞
β:-5
-12
α:-5
β:-12
2
α:2
β:∞
-5
α:-5
β:2
-12
α:-5
β:∞
2
-14
-5
-19
-14
-12
-19
7

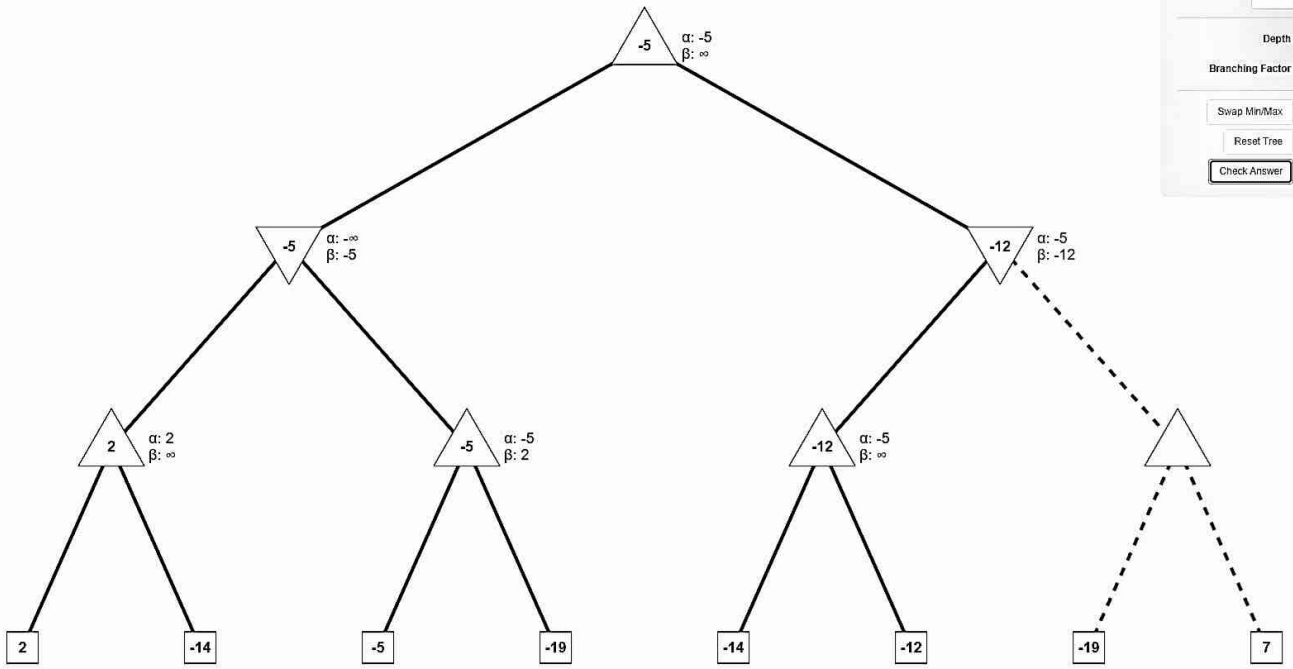
$\alpha \geq \beta$

So the next node is pruned.

9] $\alpha = -5$ Max

$\beta = \infty$

$\boxed{\alpha(-5, -12) = -5}$



Start Animation

Depth - +

Branching Factor - +

Swap Min/Max | Regenerate Tree

Reset Tree | Show Solution

Check Answer | Correct!

Nodes are pruned when β ≤ α.