Name:- Shashank B. Pandey

Sub:- A.I

Branch:- I.T | Sem:- VII

RollNO:- 43

DOP DOA Sign mark.

Alpha - Beta Pruning

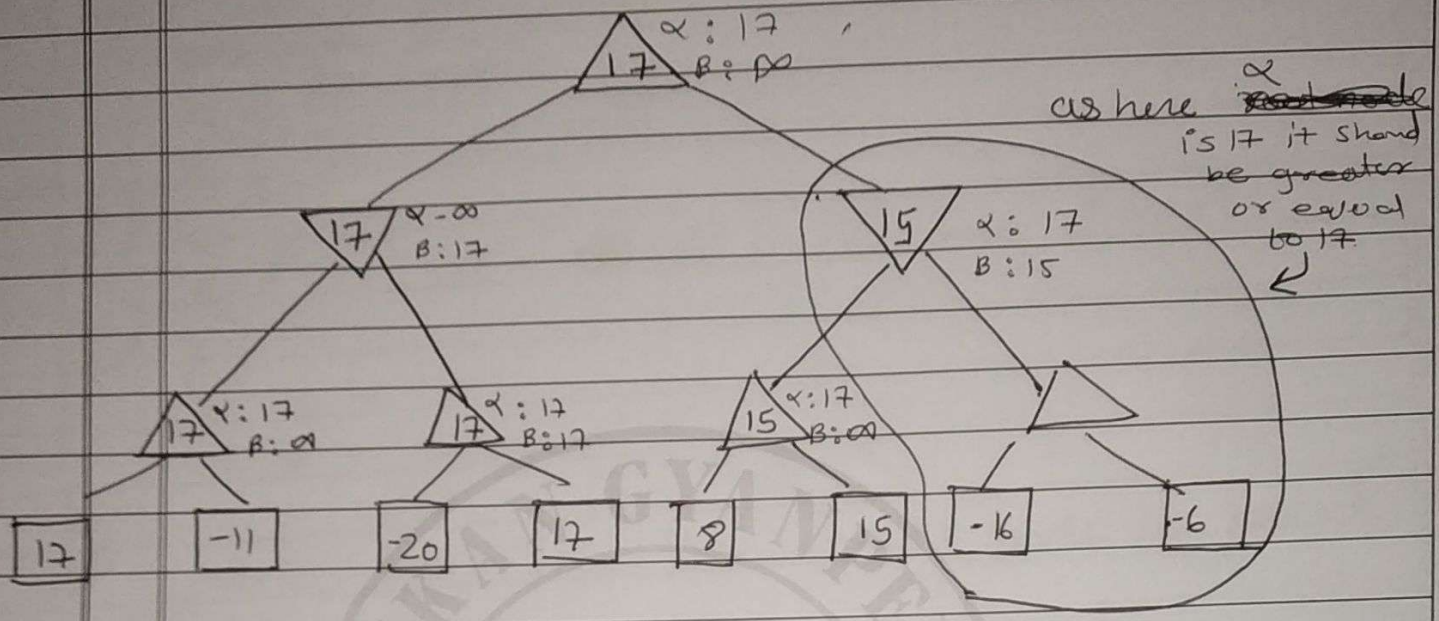
Alpha-Beta pruning is a modified version of the min-max algo it is an optimization technique for the minmax algo

Alpha (α) = The best (hight value)
Initial value of Alpha is $-\infty$

Beta (β) = The Best (highest Value)
Initial value is Beta is $+\infty$

Rule and condition
The max player will only update the value of Alpha.
The min player will only update the value of β
we will only pass the alpha, beta value to the child nodes.
Nodes value will be passed to upper node instead of values of apha & beta.
Condition to prune : $\alpha \geq b$ or $b \leq \alpha$.

When alpha is greater than or equal to beta.



$\alpha(-\infty\ 17) = 17$
$\alpha(-\infty\ -11) = -11$ — Max (Bottom left)
$\alpha(+17, -11) = +17$

$\beta(\infty, 17) = 17$ — min (left)

$\alpha(-\infty, -20) = -20$
$\alpha(-\infty, +17) = +17$ — max (bottom left) (left node)
$\alpha(-20, +17) = 17$

$\alpha(17, \text{[illegible]}) = 17$ — Top (max)

$\alpha(17, 17) = 17$ — min (right

$\alpha(-\infty, 17) =$
$\alpha(17, 15) = 17$ — max Bottom right

α (17 8) = 17
α (17 15) = 17
α (17, 17) = 17

β (∞, 15) = 15 min (right)

α = 17
β = 15

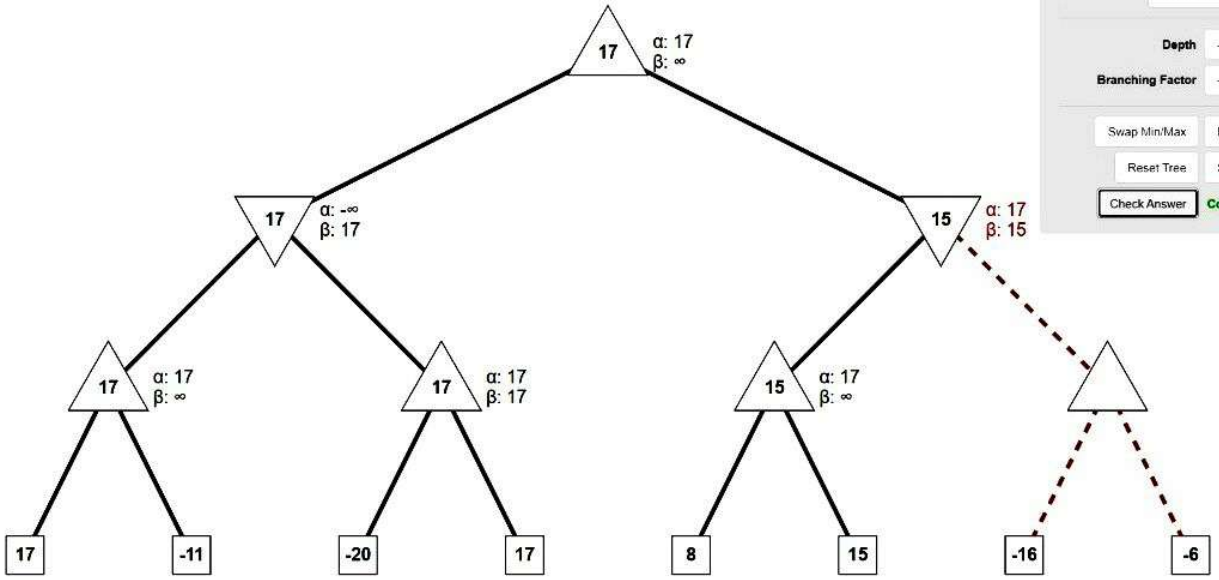
$\alpha \geq \beta$ So the next node is pruned

α = (17,)
β = (∞)

α (17, 15) = 17 s

Alpha-Beta Pruning Practice

αβ Cutoff



Start Animation

Depth - +

Branching Factor - +

Swap Min/Max | Regenerate Tree

Reset Tree | Show Solution

Check Answer | Correct!