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class :- B.E/I.T

Roll No. :- 63

subject :- IS lab

DOP	DOA	Remark	Sign

Alpha - Beta Pruning :

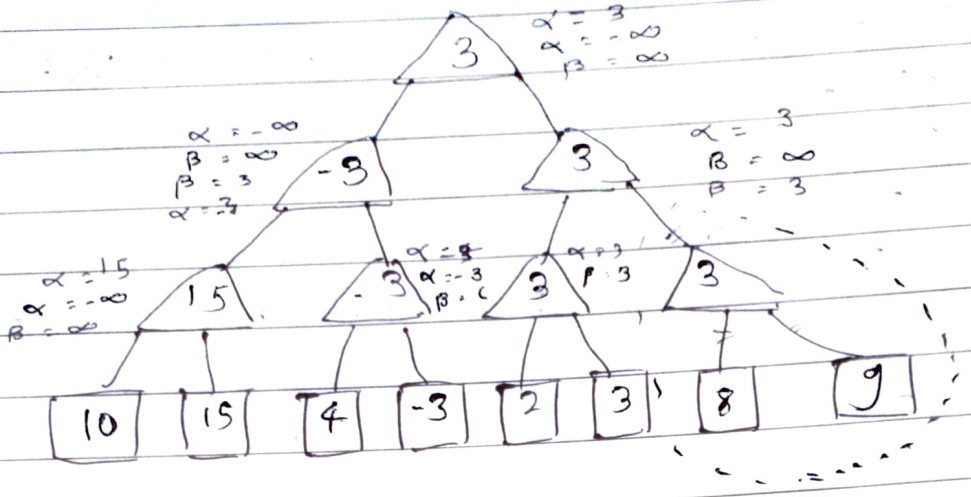
Alpha - beta pruning : Alpha beta pruning is a modified version of the min max algo It is an optimization techinque for minmax algo.

- Alpha (α) : The best (high-value)
  - Initial value of alphat is $-\infty$
- Beta (β) : The best (highest value)
  - Initial value is Beta is $+\infty$

- Rules & condition
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 nodes
4) Node values will be passed to upper node, insted of values of alpha and beta.

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

- when alpha is greater than equal to beta



1) $\alpha(-\infty, 10) = 10$
$\alpha(-\infty, 15) = 15$
$\alpha(10, 15) = 15$

- Max (Bottom right)

2) $\beta(\infty, 10) = 10$

- min (left)

3) $\alpha(-\infty, 4) = 4$
$\alpha(-\infty, -3) = -3$
$\alpha(4, -3) = 4$

- max (Bottom left)
(left node)

4) $\alpha(4, -3)$

- Top (max)

5) $\beta(\infty, -3) = 3$

- Min (right)

6) $\beta(-\infty, 3) = 3$

- Max (Bottom right (right node

7) $\alpha(-3, 3) = 3$
$\alpha(3, 3) = 3$
$\alpha(2, 3) = 3$

8) $\beta(\infty, 2) = 2$ min (left)

$\alpha = -3$

$\beta = 2$

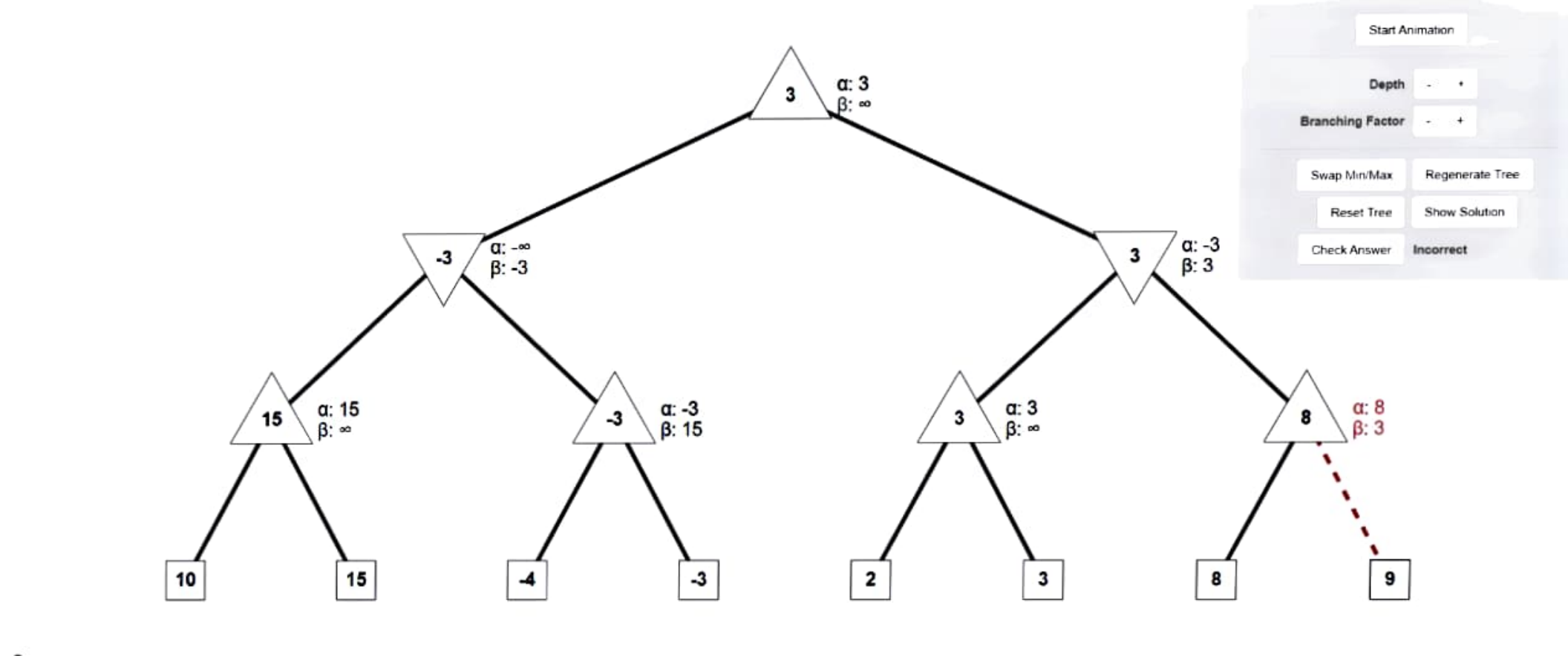
$\alpha \leq \beta$ So

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

9) $\alpha = 3$ Max

$\beta = \infty$

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


Start Animation
Depth
Branching Factor
Swap Min/Max
Regenerate Tree
Reset Tree
Show Solution
Check Answer
Incorrect
3
α: 3
β: ∞
-3
α: -∞
β: -3
3
α: -3
β: 3
15
α: 15
β: ∞
-3
α: -3
β: 15
3
α: 3
β: ∞
8
α: 8
β: 3
10
15
-4
-3
2
3
8
9