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Rollno :- 05

Class :- BE IT

Subject :- IS lab

DoP	DoS	mark	Sign

Alpha - Beta Pruning :-

Alpha beta ~~pro~~pruning = Alpha into pruning is a modified version of the min max algo It is an optimization technique for the min max algo

- Alpha (α) :- The first (high value)
  = Initial value of alpha is $-\infty$

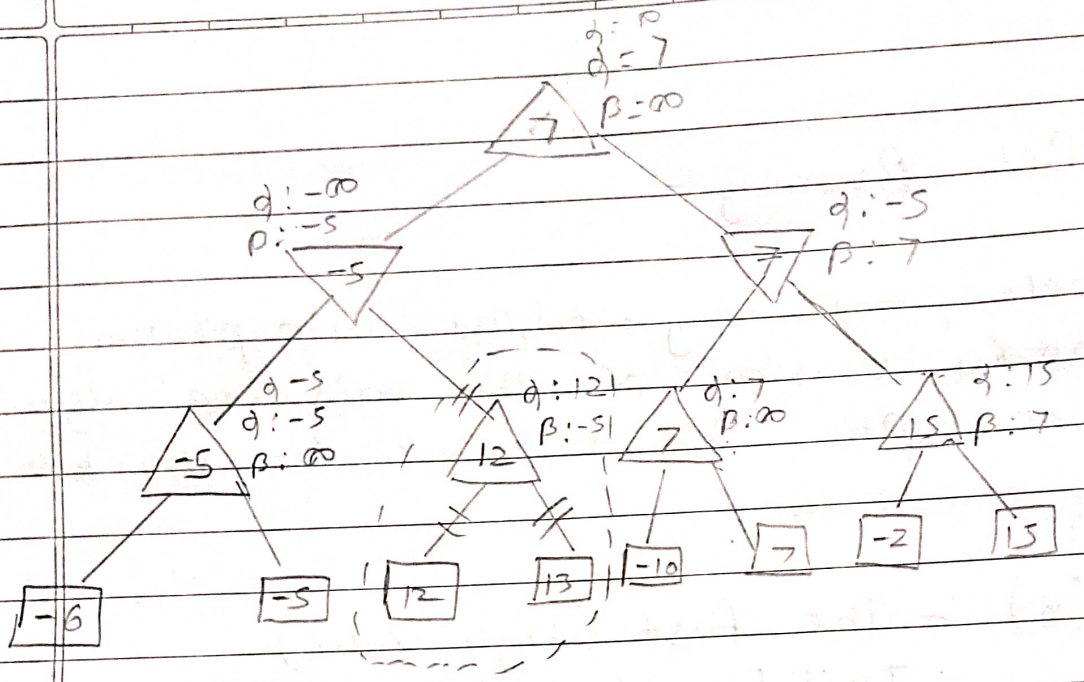
- Beta (β) = The first (high value)
  = Initial value is Beta is $+\infty$

* Rule & 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 value to the child nodes
4. Node value will be passed to upper node instead of value of alpha and beta

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

- When alpha is greater than or equal to beta



1) $\alpha(-\infty, -6) = -6$

$\alpha(-\infty, -5) = -5$

$\alpha(-6, -5) = -5$

- max (Bottom left)

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

min (left)

3) ~~$\alpha(-\infty, 12) = 12$~~

~~$\alpha(-\infty, 13) = 13$~~

~~$\alpha(12, 13) =$~~

$\alpha = -6$

$\beta = -5$

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

3) $\alpha = -\infty$

$\beta = -5$

map TOP

$\alpha(\infty, -5) = -5$

4) ~~$\alpha(\infty, 7)$~~

$\alpha(-5, -10) = -10$

$\alpha(-5, 7) = 7$

$\alpha(-10, 7) = 7$

5) ~~$\alpha(7, \infty) = 7$~~

$\beta(\infty, 7) = 7$

$\alpha = -5$

$\beta = 7$

6) $\alpha(\infty, -2) = -2$

$\alpha(\infty, 15) = 15$

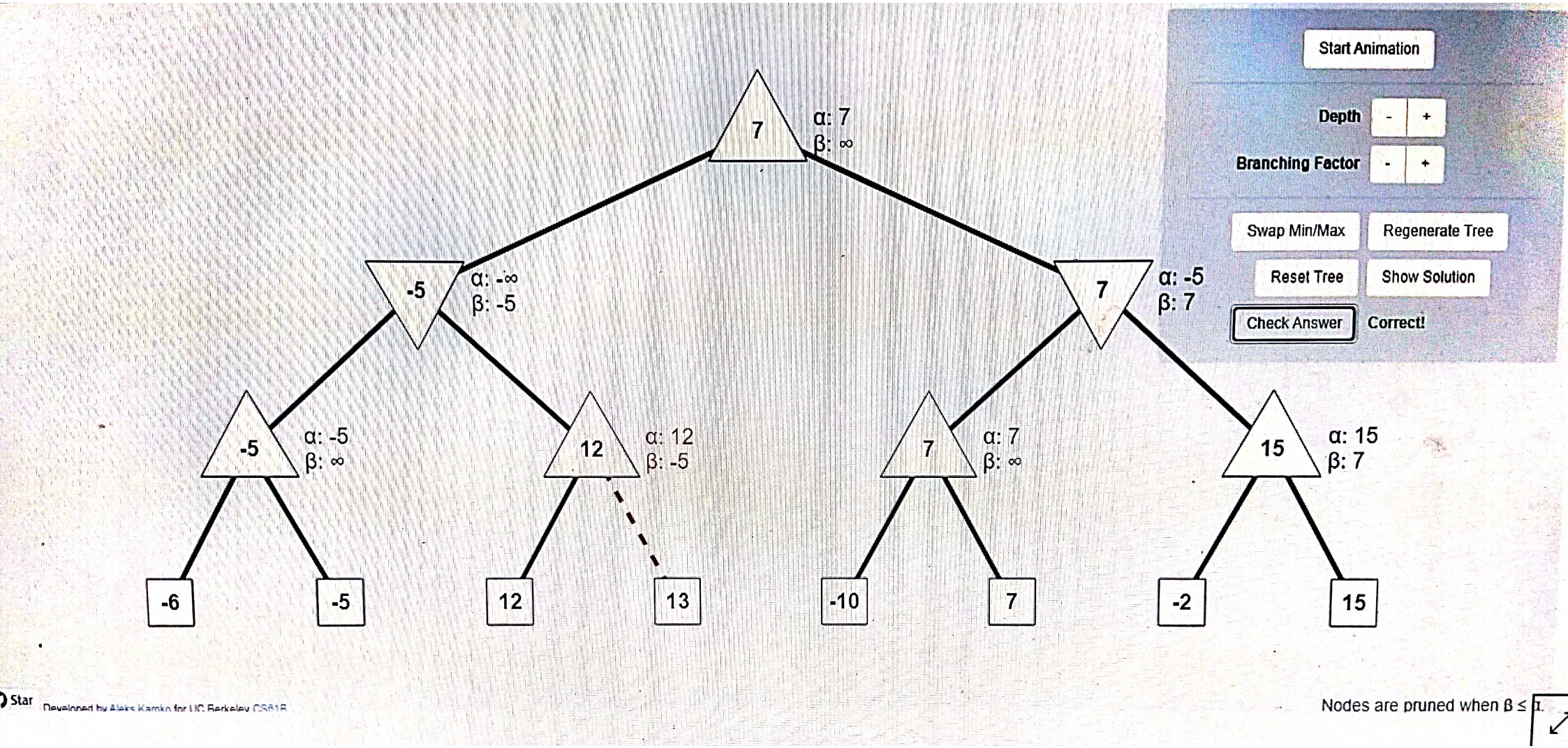
$\alpha(-2, 15) = 15$

7) ~~α~~ $\beta(\infty, 7) = 7$

$\alpha = -5$

$\beta = \infty$

8) $\alpha(-5, 7) = 7$ Solution.



Developed by Aleks Kamko for UC Berkeley CS81B

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