

Assignment

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Alpha beta - pruning module - 3

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Sub - IS: LAB

Class - BE.IT

Sem - VII

* minmax algorithm with alphabeta pruning
→

Alpha-beta pruning - Alphabeta pruning is a modified version of the minimax algorithm.

Alpha (α) = The best (highest value)
= initial value of alpha is $-\infty$

Beta (β) = The Best (lowest value)
= initial value of Beta is $+\infty$

The alpha-beta pruning is a standard minimax algorithm return the same move as the standard algorithm does but it removes all Pruned decision but making algorithm slow here these nodes it makes the algorithm

Rule & conditions.

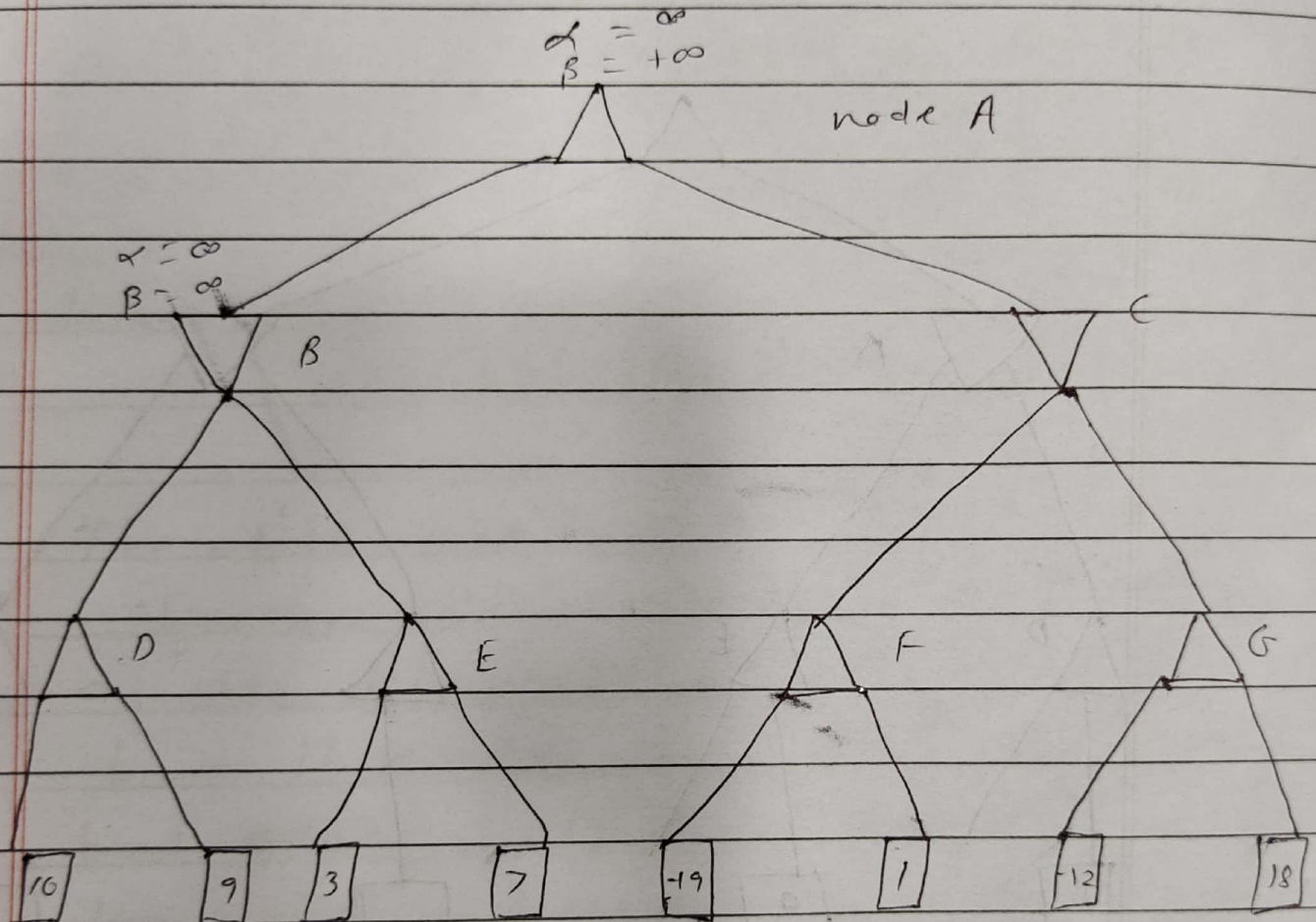
- The maxplayer will only update the value of alpha.
- The minplayer will only update

- Nodes values will be passed.
 to appear nodes instead
 of values alpha and beta

$$\alpha \geq \beta$$

or

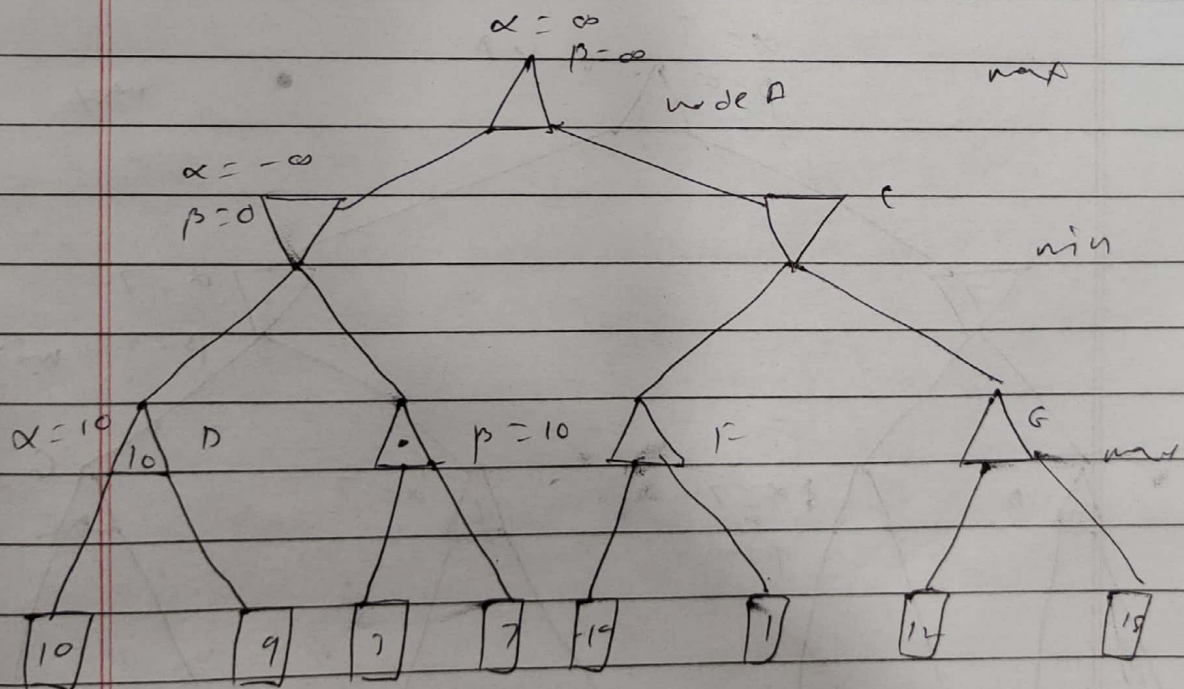
$$\beta \leq \alpha$$



Step 1 = At the first step the next player
 will start first move from node
 A where $\alpha = -\infty$ and $\beta = +\infty$
 these value of alpha beta
 passed down node B
 $\beta = +\infty$ and Node B passed
 same value to its child.

Step 2 - at node D. the value of α will be values as its turn for max. The value of α compared with firstly 10 and then 9 and the $\max(10, 9) = 10$

Step 3 - Now algorithm backtrack to node where the value β will changes compare with available subsequent nodes value = $\min(\infty, 10) = 10$ here



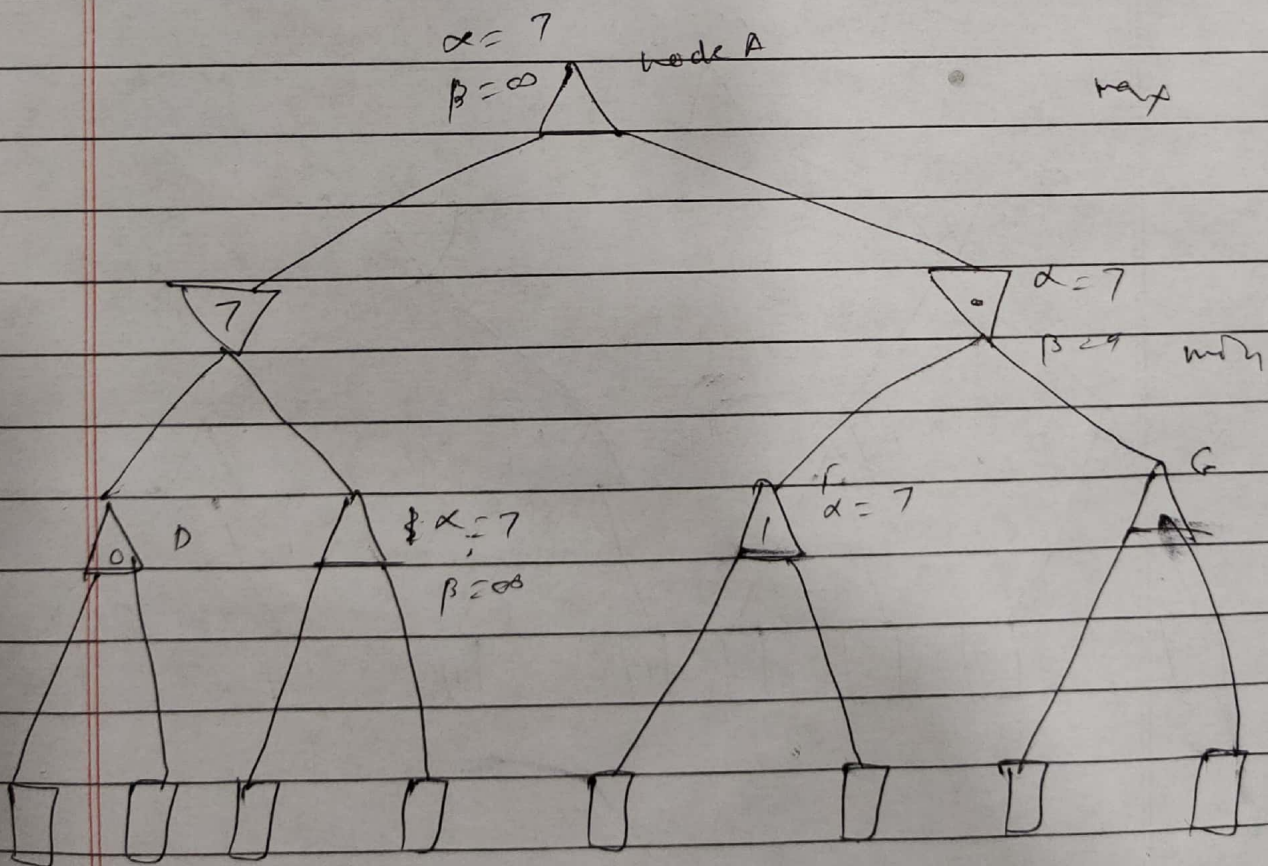
Step 4 : At node E max will take action and the value of alpha will change current value of α will be compared with 3. $\max(\infty, 3) = 3$.

Step 5: At next step algorithm again
backtrack the From Node B
to Node A.

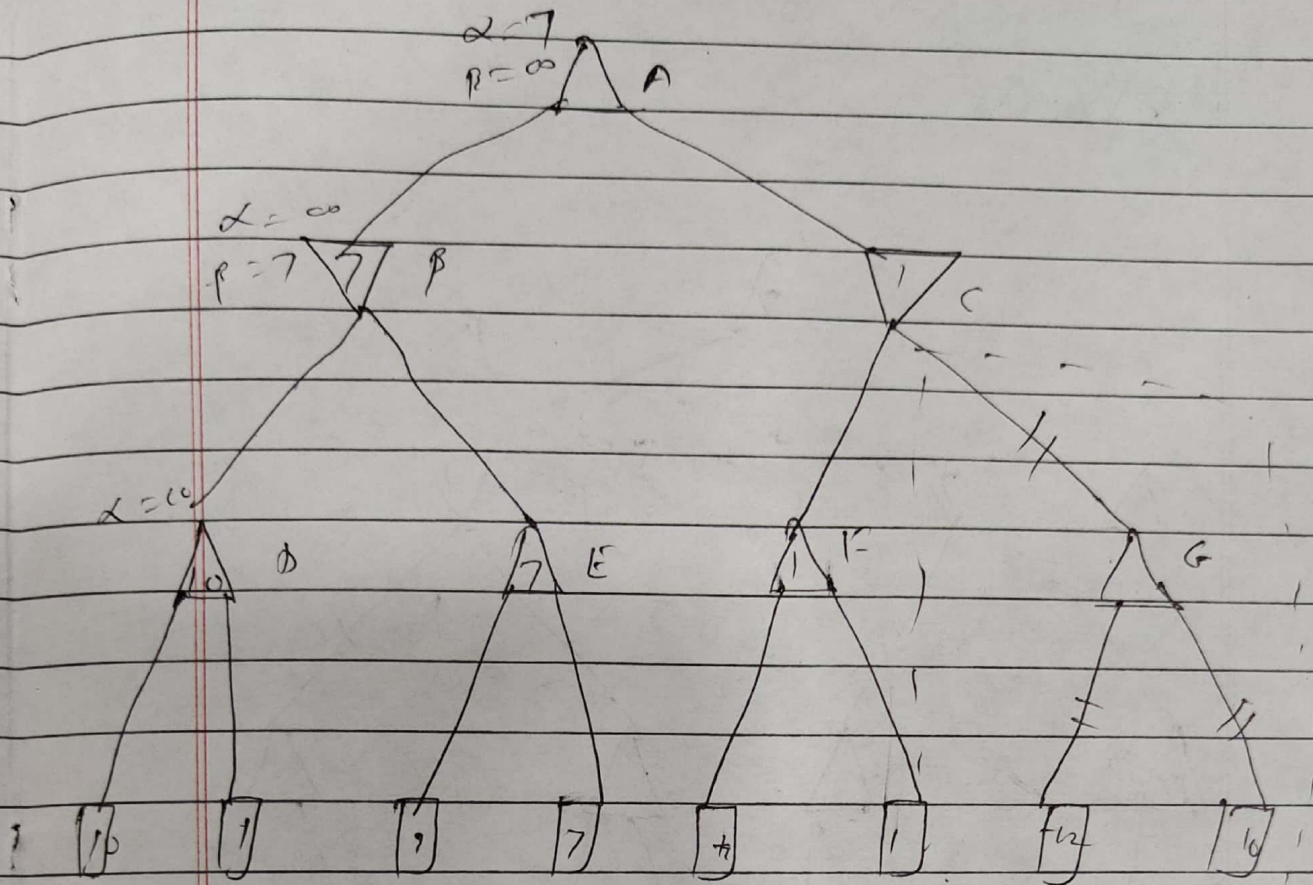
$$\alpha = \max(-\infty, 7) = 7$$

$$\beta = \infty$$

Step 6: At node F again the value of α
will be compare with left
child
which is -19 and $\max(-19) = -19$



Step 7: At node C $\alpha = 7$ $\beta = \infty$
here the value of α and β will
change it will compare with 1



Step = Now return the value of
to A here best value
of A is

$$\alpha = \max(x, 1) = 7$$

Final value of node A will 7

$$\alpha = 7$$

$$\beta = \infty$$

Following is the final score tree which
is showing the nodes which
compared and nodes which were computed

Solution

