

27/10/25

Week-10

Adversarial Search

Implement Alpha-Beta Pruning

Algorithm

1). Start at the root node (current game start)
The current player is either max or min.

2). Initialize

- $\alpha = -\infty$

- $\beta = +\infty$

3). If terminal node (end of game):

→ Return the utility (score) of that node

4). If it's a max player:

- Set value = $-\infty$

- For each child of this node:

- 1). Compute child-value =

AlphaBeta(child, depth-1, α , β , false)

- 2). Update value = $\max(\text{value}, \text{child-value})$

- 3). Update $\alpha = \max(\text{value}, \text{child-value})$

- 4). if $\alpha \geq \beta$, then break → (prune

remaining branches)

- Return value

5). If it's a min player:

- Set value = $+\infty$

- For each child-value =

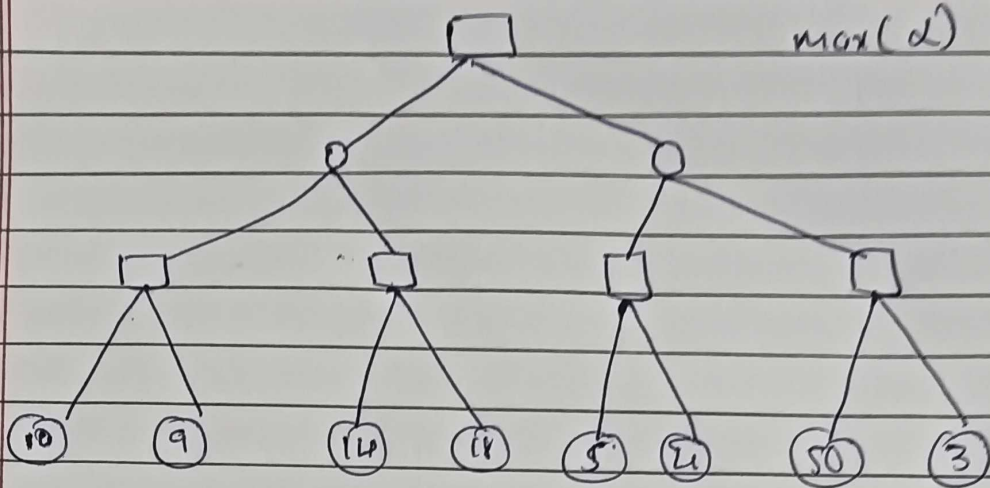
- 1). AlphaBeta(child, depth-1, α , β , True)

- 2). Update value = $\min(\text{value}, \text{child-value})$

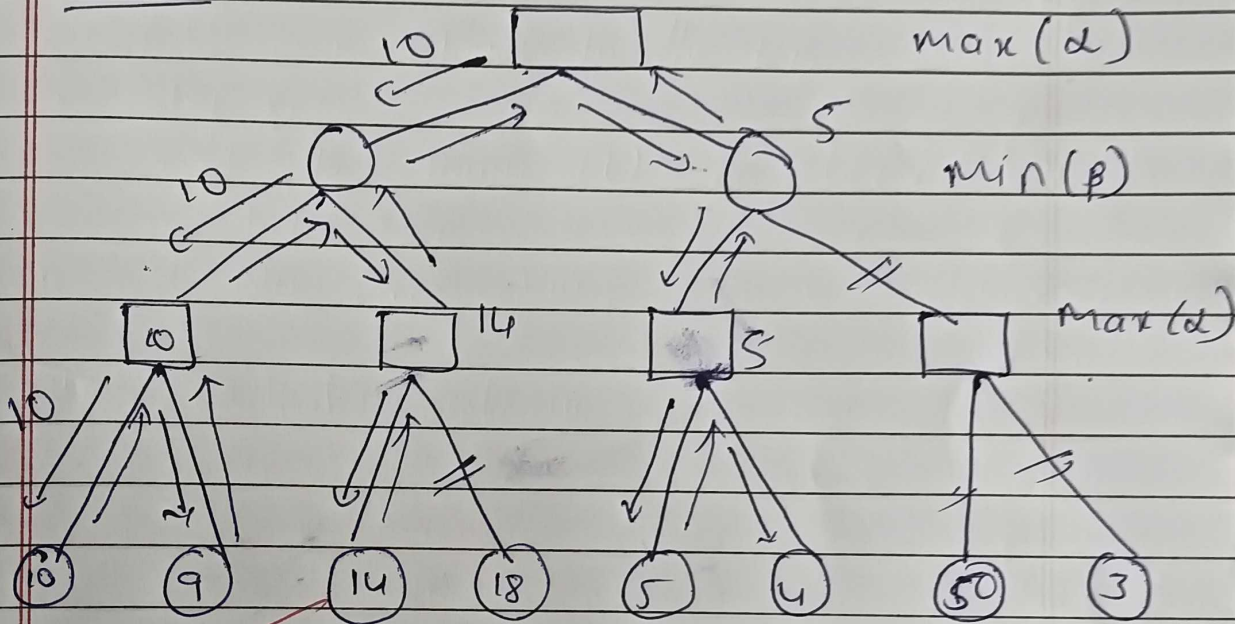
- 3). Update $\beta = \min(\beta, \text{value})$

- 4). if $\alpha \geq \beta$, then break → (prune remaining branches)

- Return value



Solution



Ans
 27-10-3-