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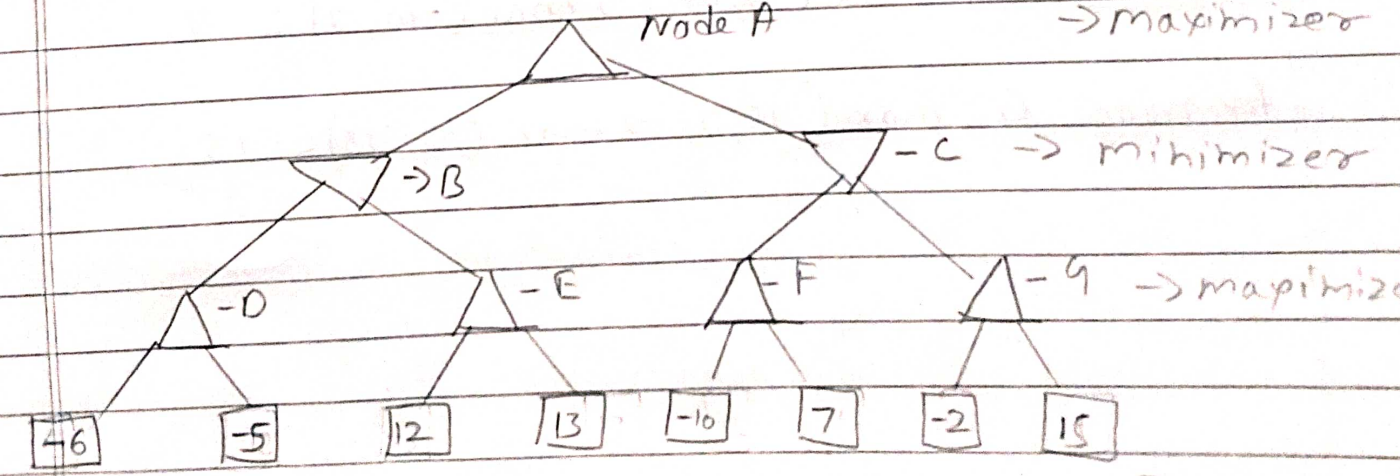
Min-Max Algorithm :-

Min-Max Algorithm is a recursive or back-tracking algo which is used in division making and game theory. It provide an optimal move for the player assuming that apponent is also playing optimally

- min max algo uses recussion to search through the game tree
- In this algo two player play the game, one is called max and other is called MIN
- min-max algo is mostly used for game playing in AI

Step 1 :- let take A is the initial state of the tree. Suppose maximize take first turn (when or) which has worst case initial value = - infinity, and minize will take next turn which has worst case initial value = + infinity



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Step2 :-

first find the Utilities value for the maximum, its initial value is $-\infty$, so we will compare each value in terminal state with initial value of maximize and determine the higher node value. It will find the maximum among all

for node D : max (4, ∞) -> max (4, -12) = 4

for node E : max (17, 4) -> max (-3, 17) = 17

for node f : max (11, ∞) -> max (-12, 11) = 11

for node G : max (6, 11) -> max (6, 1) = 6

for node D : max (-5, ∞) -> max (-6, -5) = -5

for node E : max (12, -5) -> max (12, 13) = 12

for node f : max (7, ∞) -> max (-10, 7) = 7

for node G : max (15, 7) -> max (-2, 15) = 15

Sundaram

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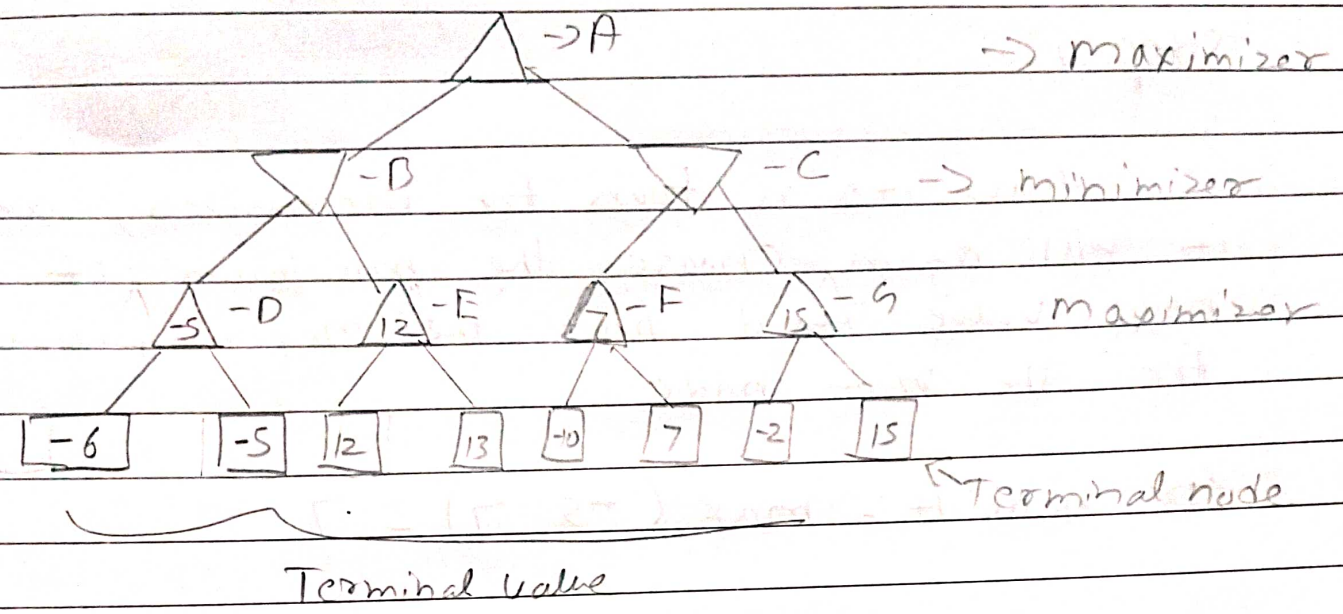
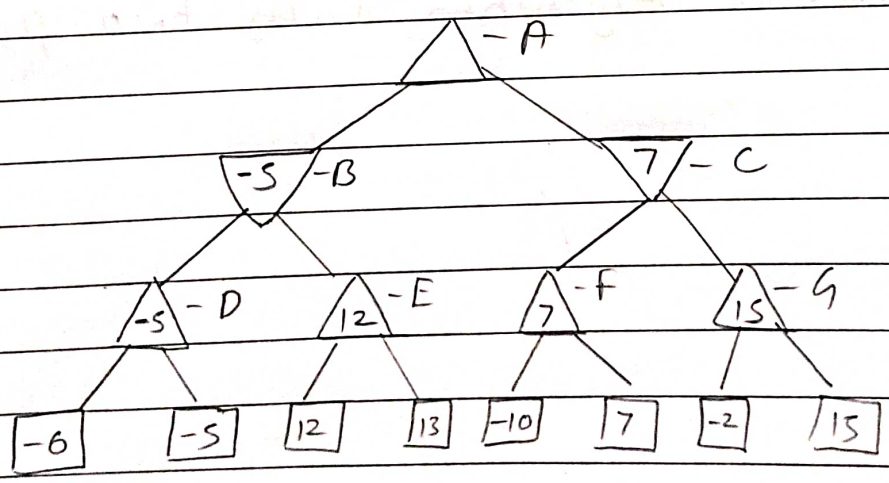


Step 3 :-

In the next step, It's a turn for minimizer, so it will compare all node value with two and will find the 3rd layer node value

for node B - min (~~6,4~~) = (-5, 12) = -5

for node C - min (7, 15) = 7



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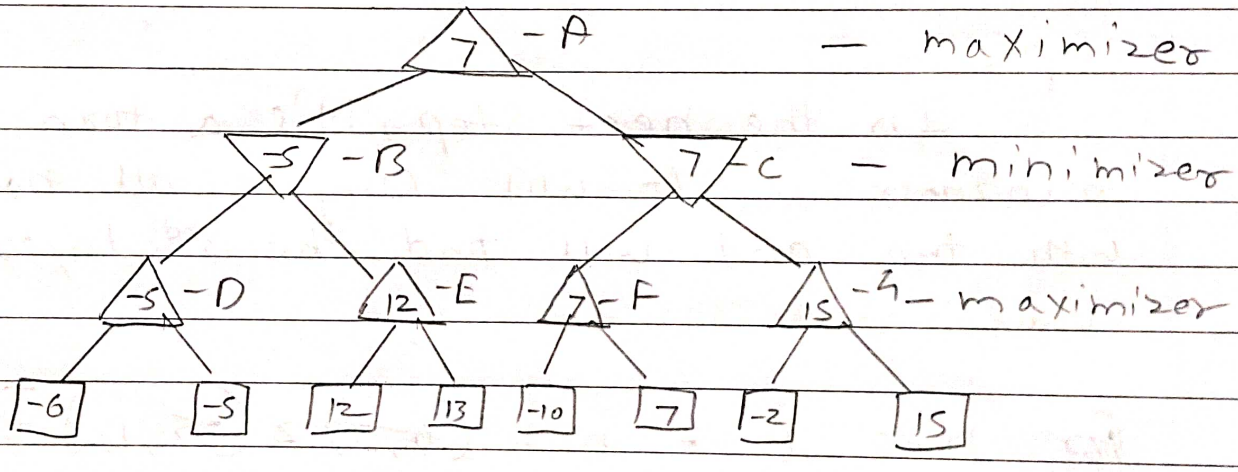
Step 4:-

Now its a turn for maximizer, and it will again choose the maximum of all node value and find the maximum value for the root node

for node A:- max (-5, 7) = 7



Hence, it was the complete workflow of the min max Algorithm with two player game.