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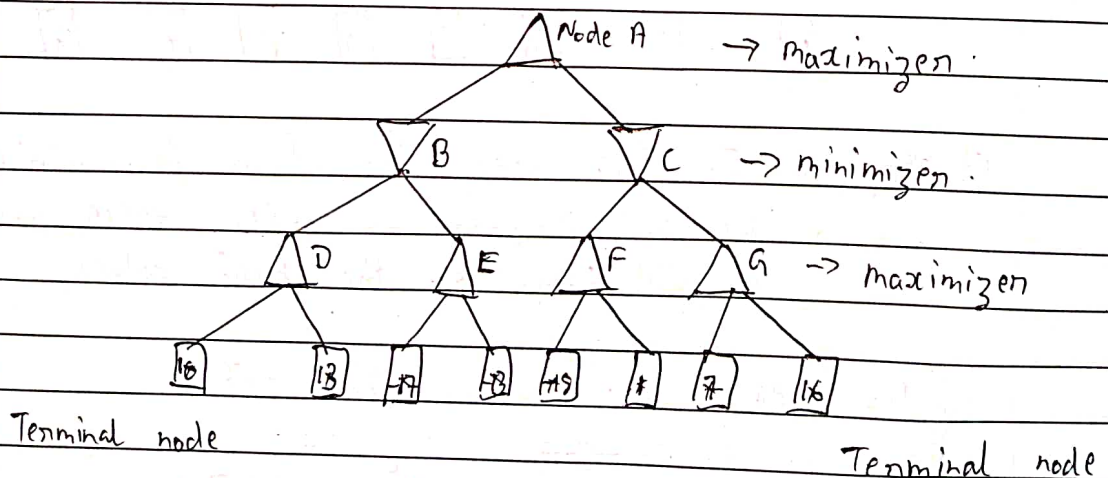
* Min - Max Algorithm.

Min - Max Algorithm is a recursive or back-tracking algo. which is used in decesion-making and game theory. It provides an optimal move for the player assuming that opponent is also playing as primary.

a) Min-Max algo uses recursive to search through game trees.

b) In this algo two players play the game, one is called MAX & other is called MIN.

c) MIN - MAX algo. is mostly used for game playing in AI.

* Steps.

a) Step 1 : Lets take A in initial state of the tree, suppose max takes just turn (when 0) which has worst-case initial value =(-)infinity, & min will take next turn which has worst-case initial value = (+) infinity .
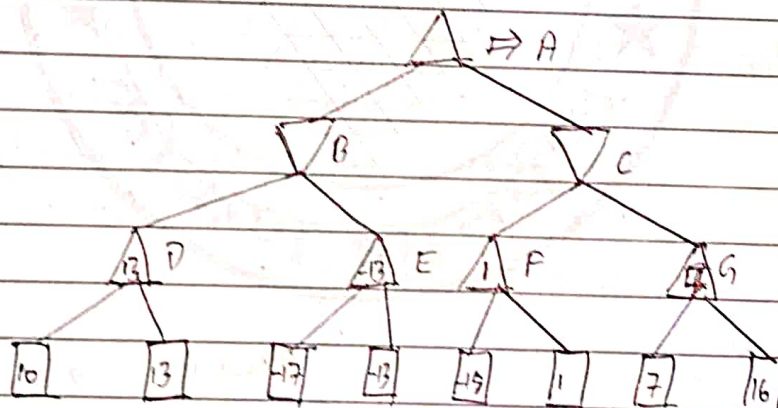

Node A → Maximizer.

B

C → minimizer.

D   E   F   G → maximizer

16 13 7 8 19 8 7 16

Terminal node   Terminal node

b) Step 2: First we find the utilities value for the maximizer, its initial value is $-\infty$, so we will compare each value in term of initial state with initial value of mazimi maximizer & determine its higher value of maximizer.

For node D: (max $(10, -\infty)$ $(13, -\infty)$) $\Rightarrow$ max $(10, 13) = 13$

For node E: max $(-13, -\infty)$ $\Rightarrow$ max $(-17, -13) = -13$

For node F: max $(1, -\infty)$ $\Rightarrow$ max $(-18, 1) = 1$

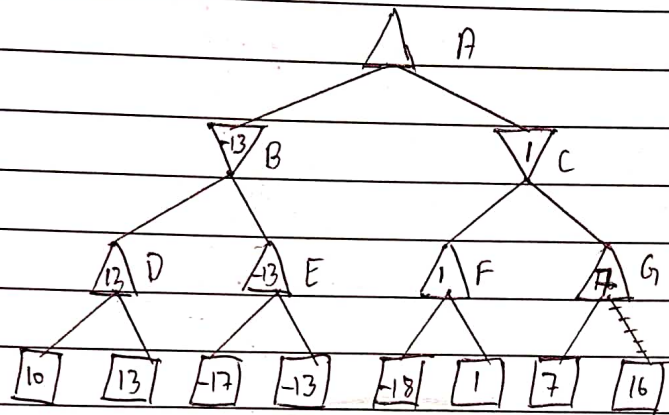For node G: max $(16, -\infty)$ $\Rightarrow$ max $(7, 16) = 16$

c) Step 3: In this step, its turn for minimizer, so we will compare all nodes value with two, so it will compare the mink values.

For node B: min $(13, -13) = -13$

For node C: min $(1, 16) = 1$

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A

-13 B   1 C

12 D   -13 E   1 F   7 G

10 13 -17 -13 -18 1 7 16

d) Step 4 : Now its turn for maximizer, & it will again choose the max value of all node & find max value for the root node.

For node A : max (-13, 1) = 1.

1 A

-13 B   1 C

13 D   -13 E   1 F   16 G

10   13   -17 -13   -18   1   7   16
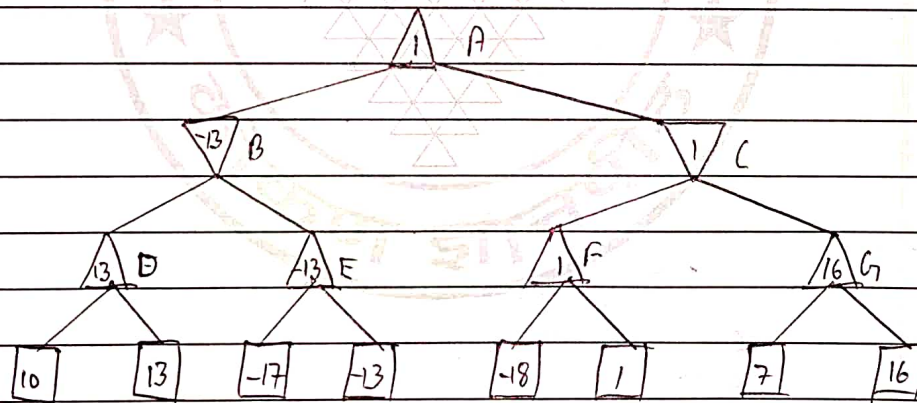
Hence, it was complete wiskflow of min-max algorithm with two players game.