Name :- Devang P shinde

Class :- BE - T7

Roll No :- 61

subject :- Is lab.

Do P	Do s	Remark	.sign
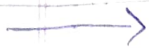
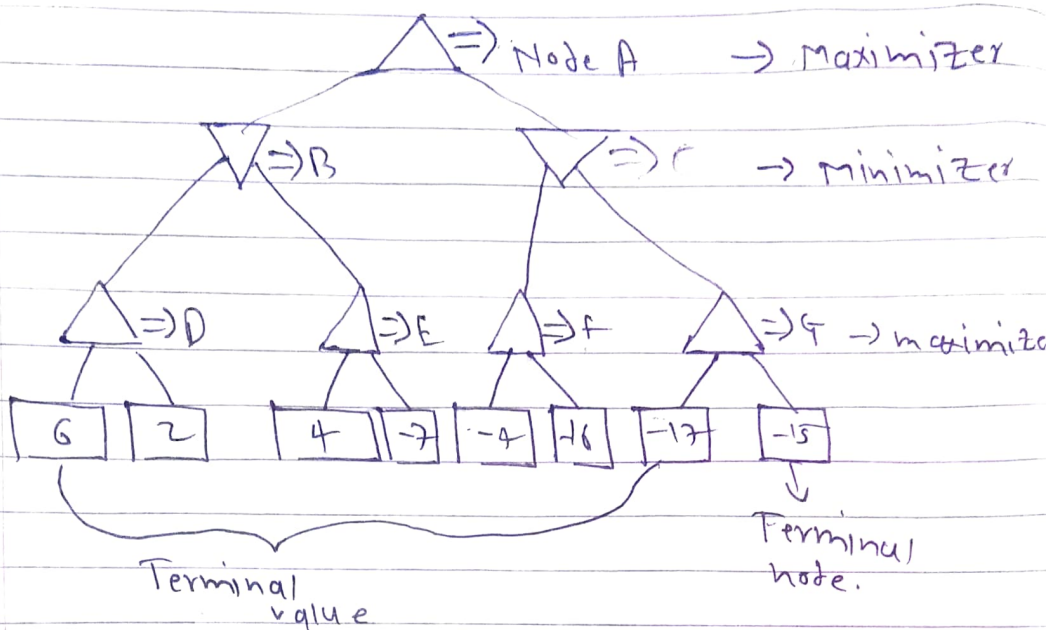# min-max Algorithm:-

$\longrightarrow$

Min max algorithm

Min - max alogorithm is
a recursive a backtracking algo-
which is used in decision -making
and game thisy a provide an
optimal more for the player assuming
that opponent is also playing optimally

- Min max algo uses recursion to
search through the game-tree
- In this algo two players play
the game, one is called max and
others is called MIN.
- MIN - Max algo is mostly used to
game playing in AI

- Step 1:
lets take A is the intial value
state of the tree suppose maximize
takes first turn (when a/which as
worst - case intial value = Indinity,
and mimizes will take next turn
which has worst - case intial
value = + infinity.

Node A → Maximizer

⇒ C → Minimizer

⇒ B

⇒ D   ⇒ E   ⇒ F   ⇒ G → maximize

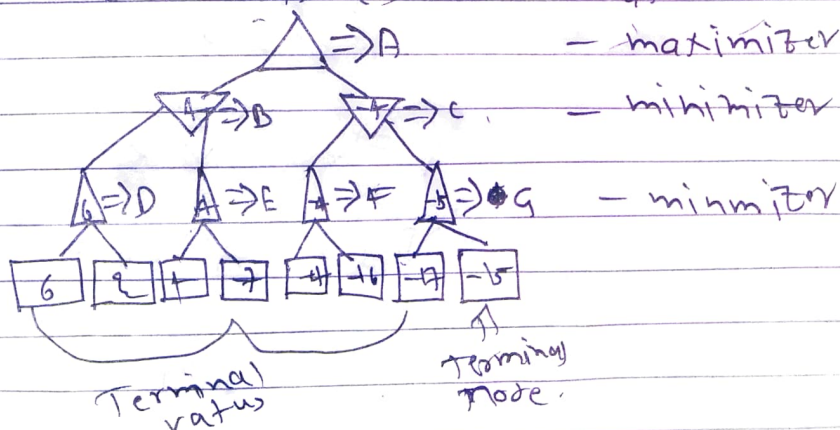| 6 | 2 | | 4 | -7 | -4 | +6 | -17 | -15 |

Terminal node.

Terminal value

Step 2:

first we find the utilities value for the maximizer. Its initial value is $-\infty$ so we will compare each value is terminal state with intial value of maximizer and determines the higher nodes values. It will find the maximum among all.

for node D: $\max(6, -\infty) \Rightarrow \max(6, 2) = 6$

for node E: $\max(4, -\infty) \Rightarrow \max(4, -7) = 4$

for node F: $\max(-4, -\infty) \Rightarrow \max(-4, +6) = -4$

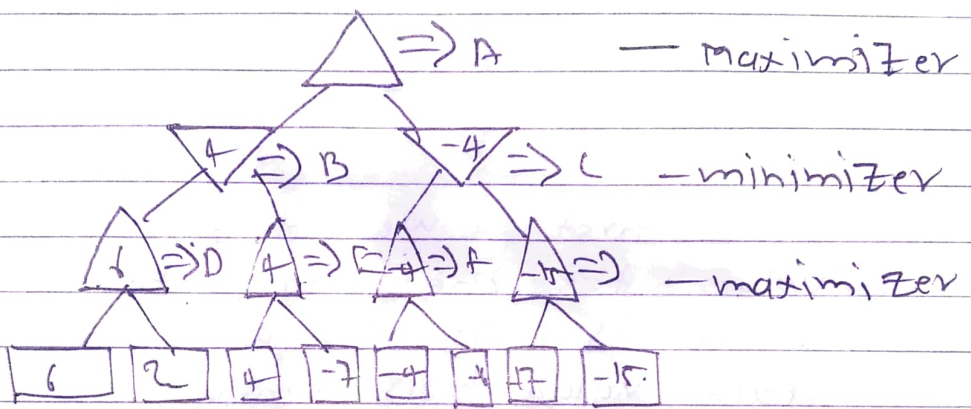for node G: $\max(-17, \infty) \Rightarrow \max(-17, -15) = -15$

⇒ A — maximizer

⇒ B   ⇒ C — mininizer

⇒ D   ⇒ E   ⇒ F   ⇒ G — minmizer

| 6 | 2 | | 7 | -4 | +6 | -7 | -5 |

Terminal valus

Terminal mode.

- step 3 :

In the next step Its a turn for minimal so it will compare all nodes value with two and will find the 3rd layer note value.

for node B - main $(6,4) = 4$
for node C - min $(-4,-15) = -4$.

- step 4 :

Now its a turn for maximizer and It will again choose the maximum of all nodes values and find the maximum value for the root node for nod A : max $(4, -4) = 4$

Hence It was the complete workflow of the minmax algorithm with two player game