MNNIT
COMPUTER CODING
CLUB

i see the code
#CYBERQUEST

Code Warriors

CyberQuest | Avishkar ‘22

Description

An event where gaming bots made with the help of Artificial Intelligence and concepts of game theory compete among themselves on an arena of board-game and the most unbeatable bot wins. Its is the most fun-oriented yet technical event of Cyberquest.

Arena, its Input and Output

The Arena will basically be a board like a tic-tac-toe, chess, checkers, etc

The input will be provided before each move, defining the state of board.

The output will be the move which you decide to move.

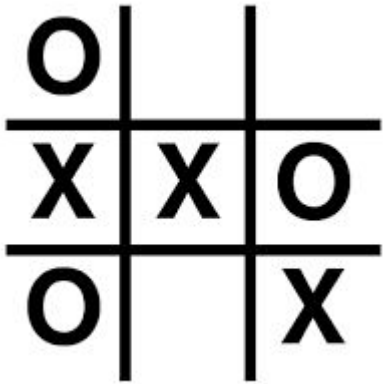
You code shall take the input and print out the output.

Example

Input:
0 . .
XXO
O.X

Output:
0 1
(x,y) coordinate of the next move.

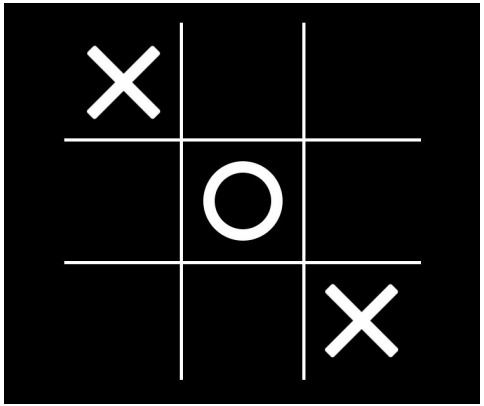
So the next q is how to determine next move.



Heuristic

It is the score we provide to each state which is proportional to how favourable the state is to our win.

Let’s assume us to be player X.



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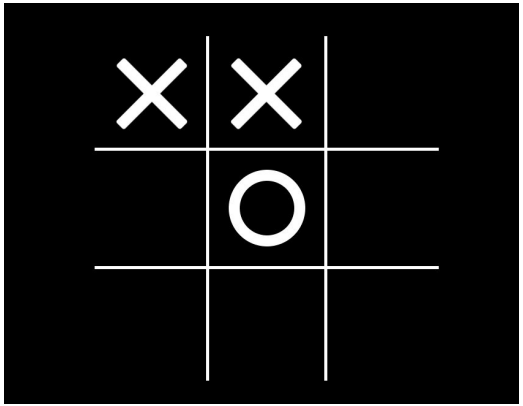

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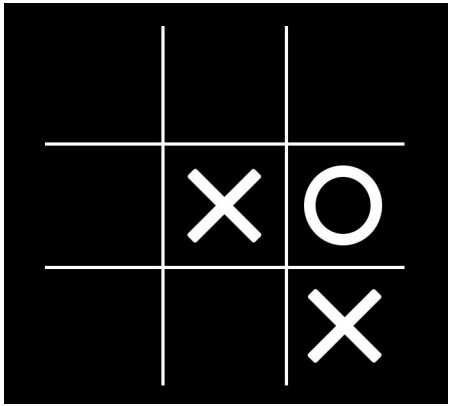

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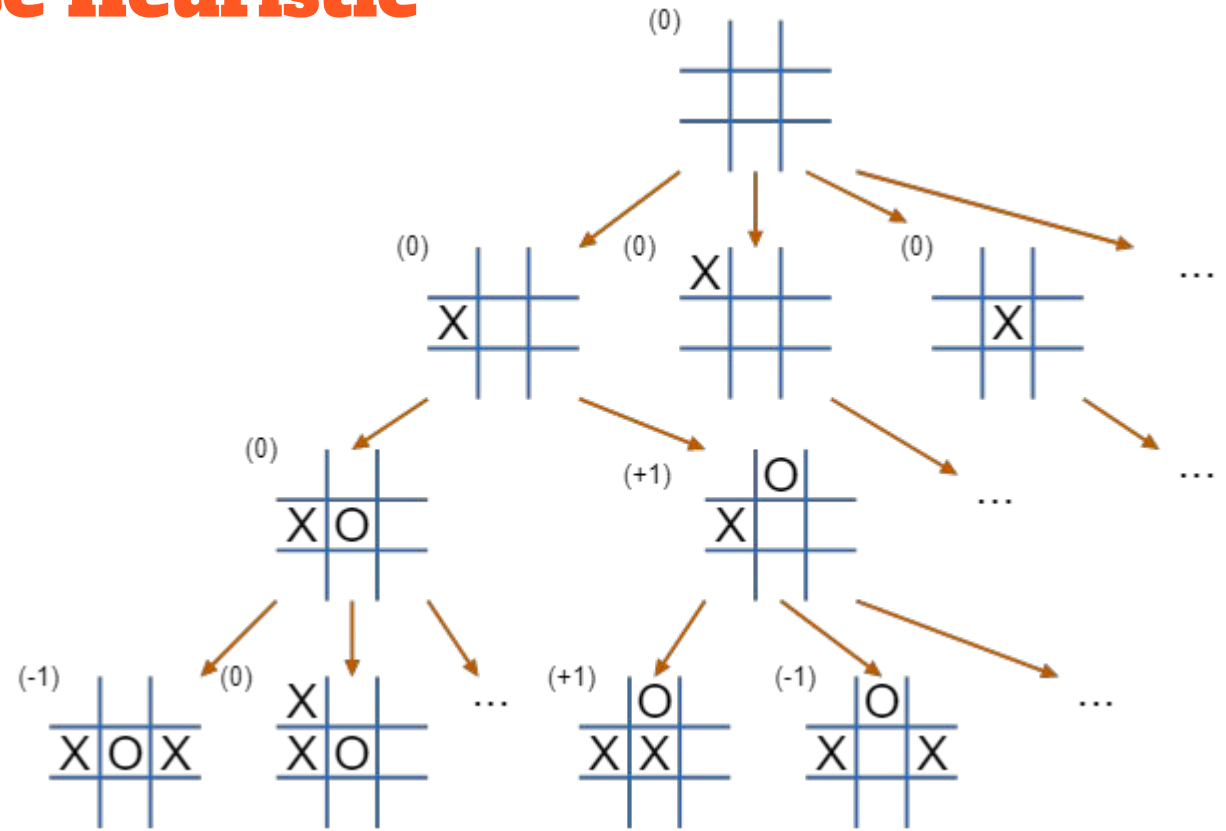
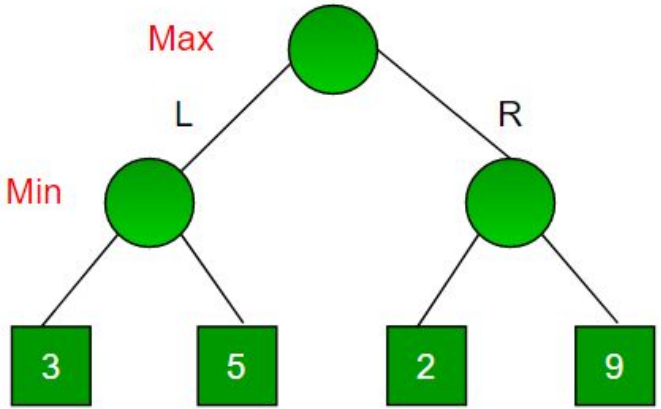
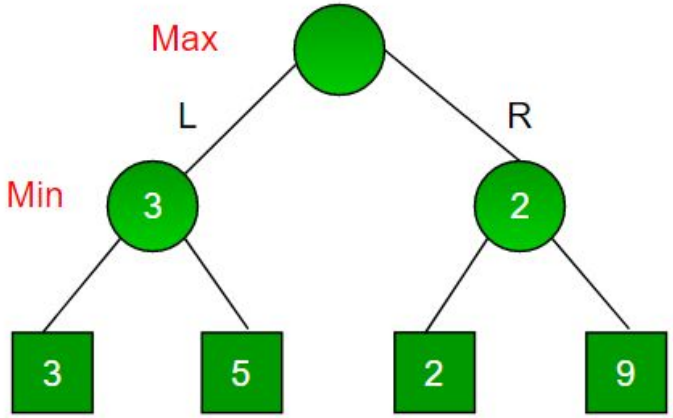
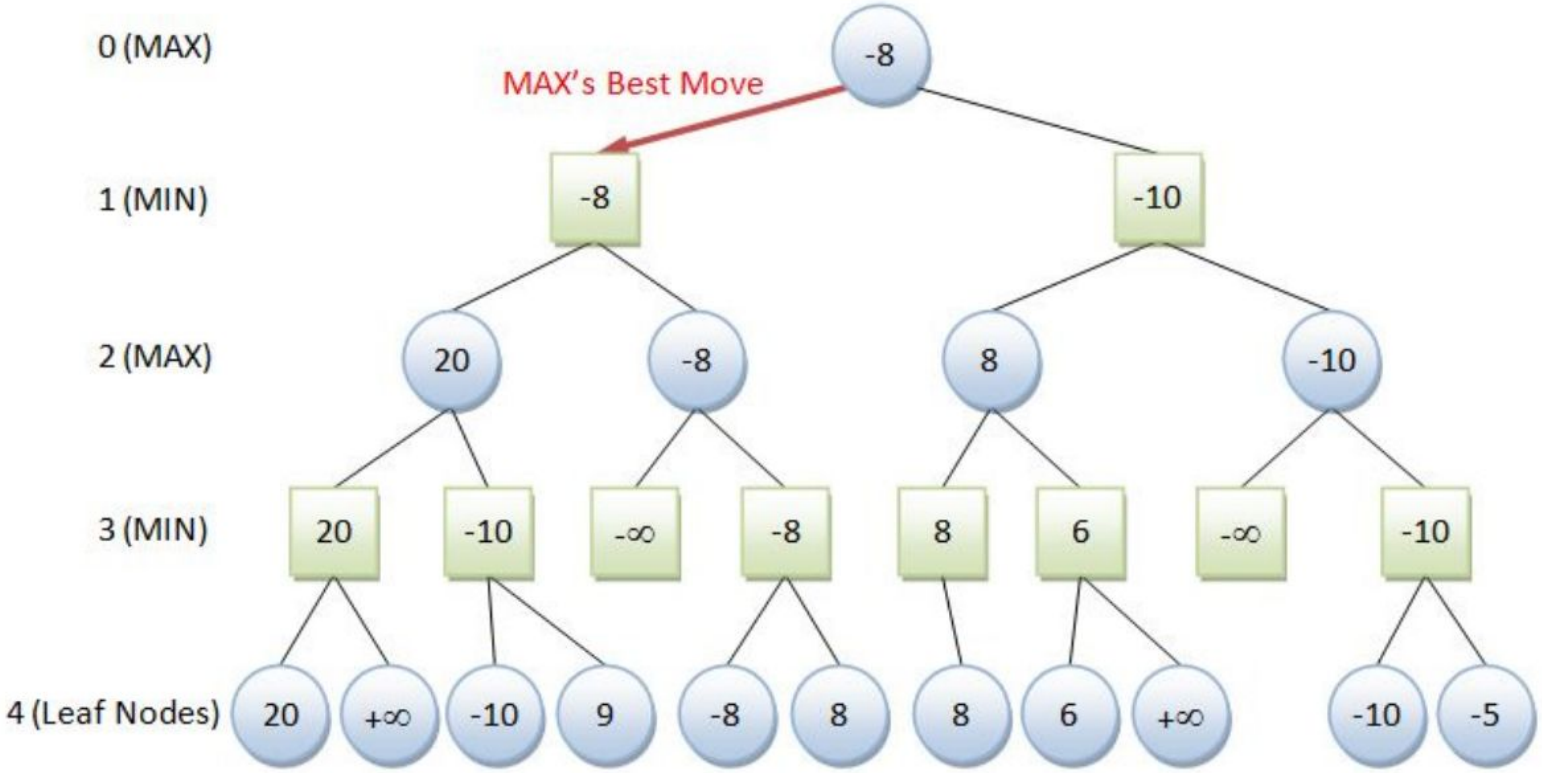
How to Use Heuristic

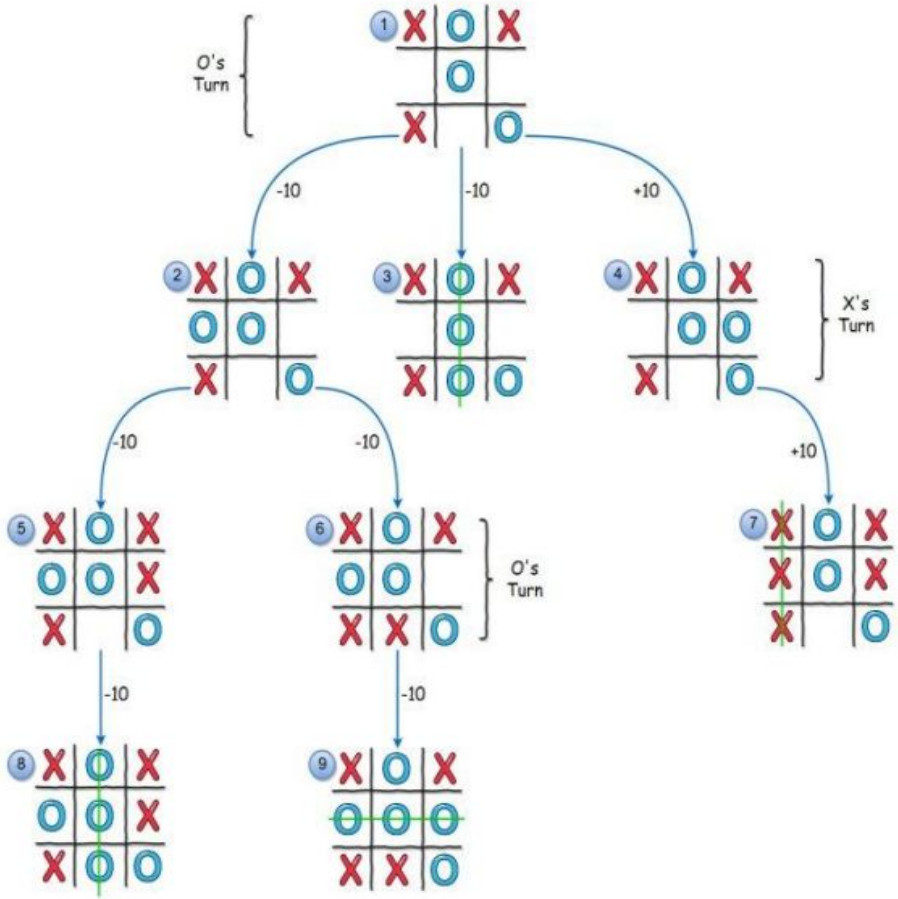


Min Max algo






0 (MAX)
MAX's Best Move
-8
1 (MIN)
-8
-10
2 (MAX)
20
-8
8
-10
3 (MIN)
20
-10
-∞
-8
8
6
-∞
-10
4 (Leaf Nodes)
20
+∞
-10
9
-8
8
8
6
+∞
-10
-5

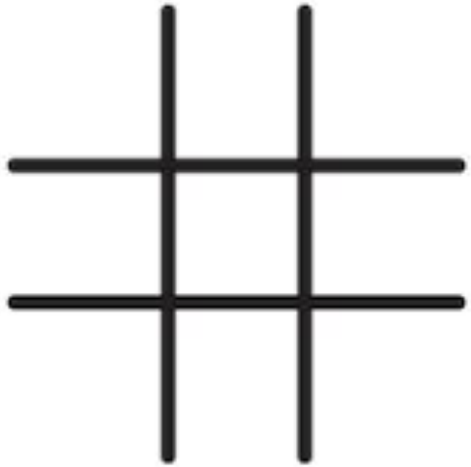

1
O's Turn
-10
-10
+10
2
3
4
X's Turn
-10
-10
+10
5
6
7
O's Turn
-10
-10
8
9

Task:

Create a heuristic for tic tac toe.

Tic tac toe heuristic

- There are total 8 possible lines that can make us win.
- If a line have at least one X and at least one Y that Line will never lead to win of either so leave it.
- If a line has only one symbol it has the potential that it can be the winning line so add 10 if its our symbol else subtract 10 from score
- If a line has only 2 symbol of same player it too has more potential that it can be the winning line so add 30 if its our symbol else subtract 30 from score.



Lets calculate score of these boards