

PLAY

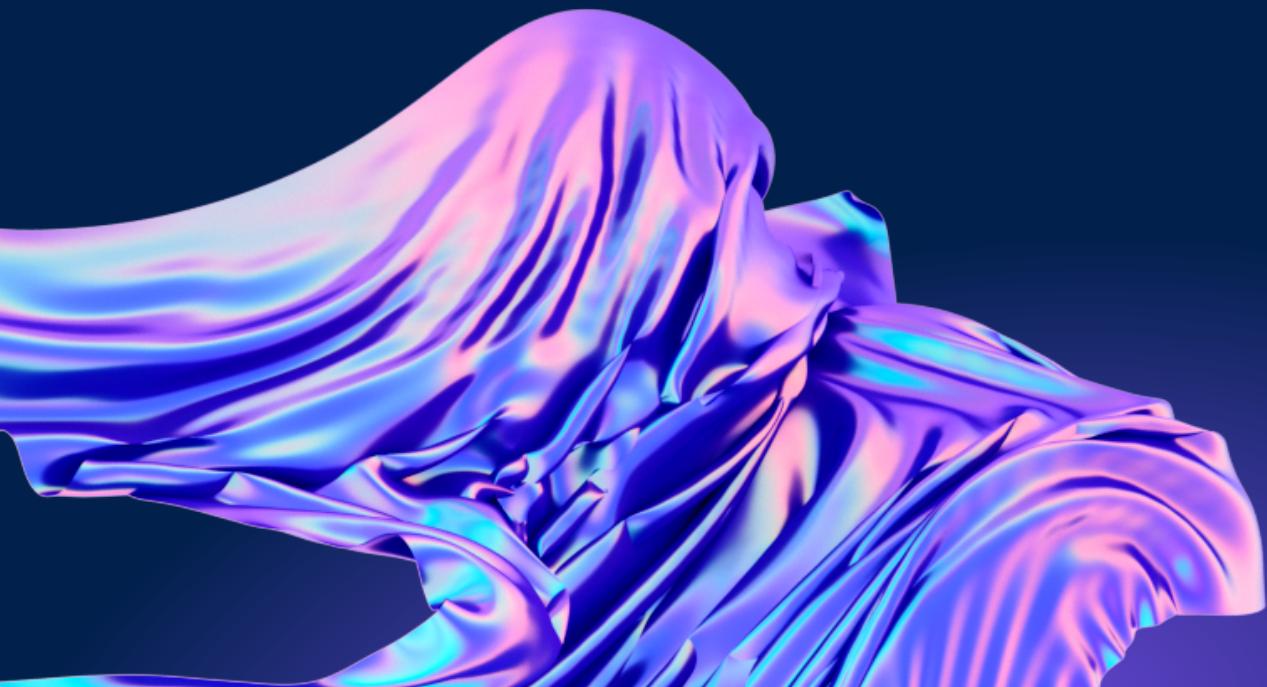
XO

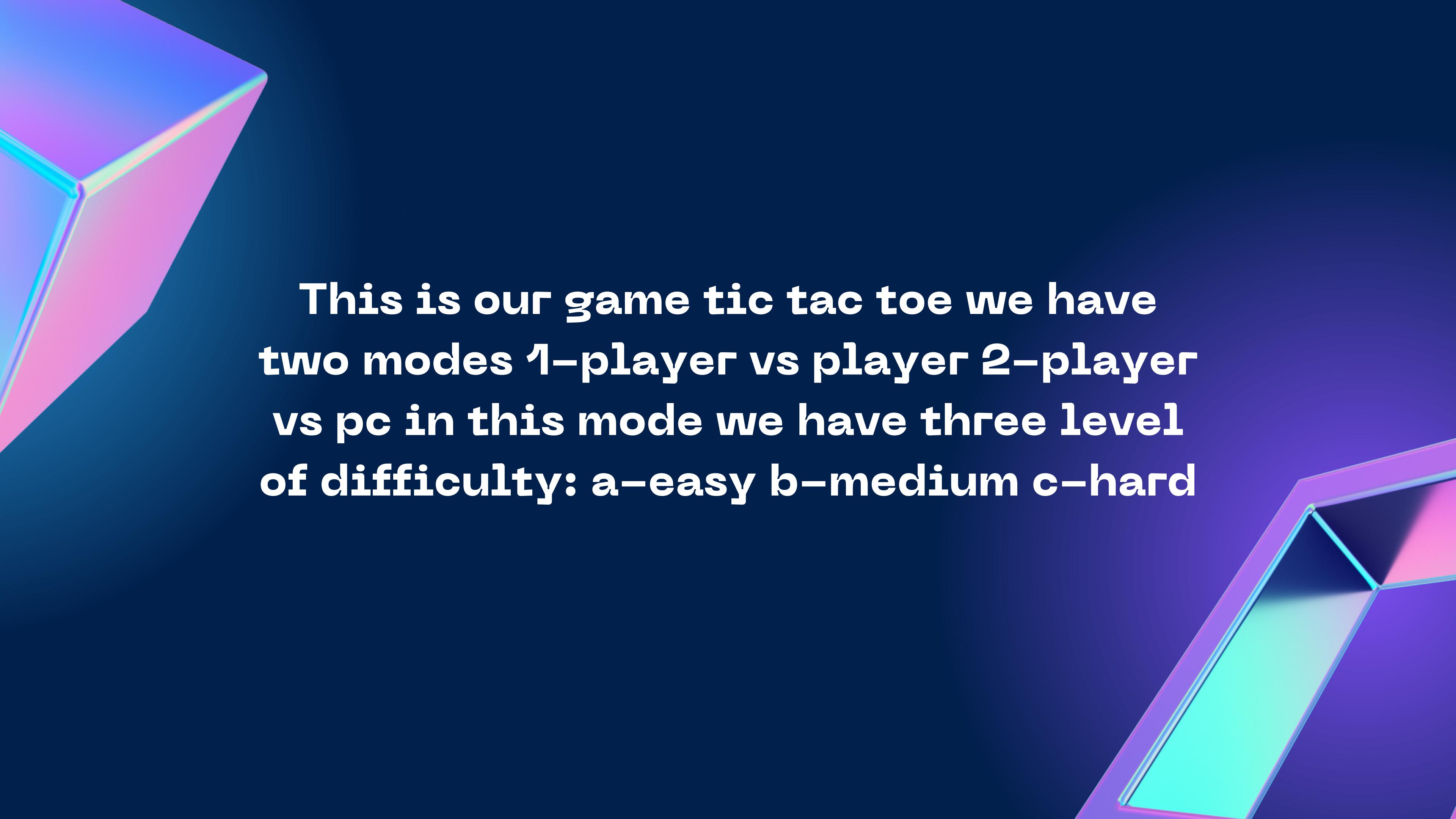


# About Us

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**This is our game tic tac toe we have  
two modes 1-player vs player 2-player  
vs pc in this mode we have three level  
of difficulty: a-easy b-medium c-hard**

# level of difficulty



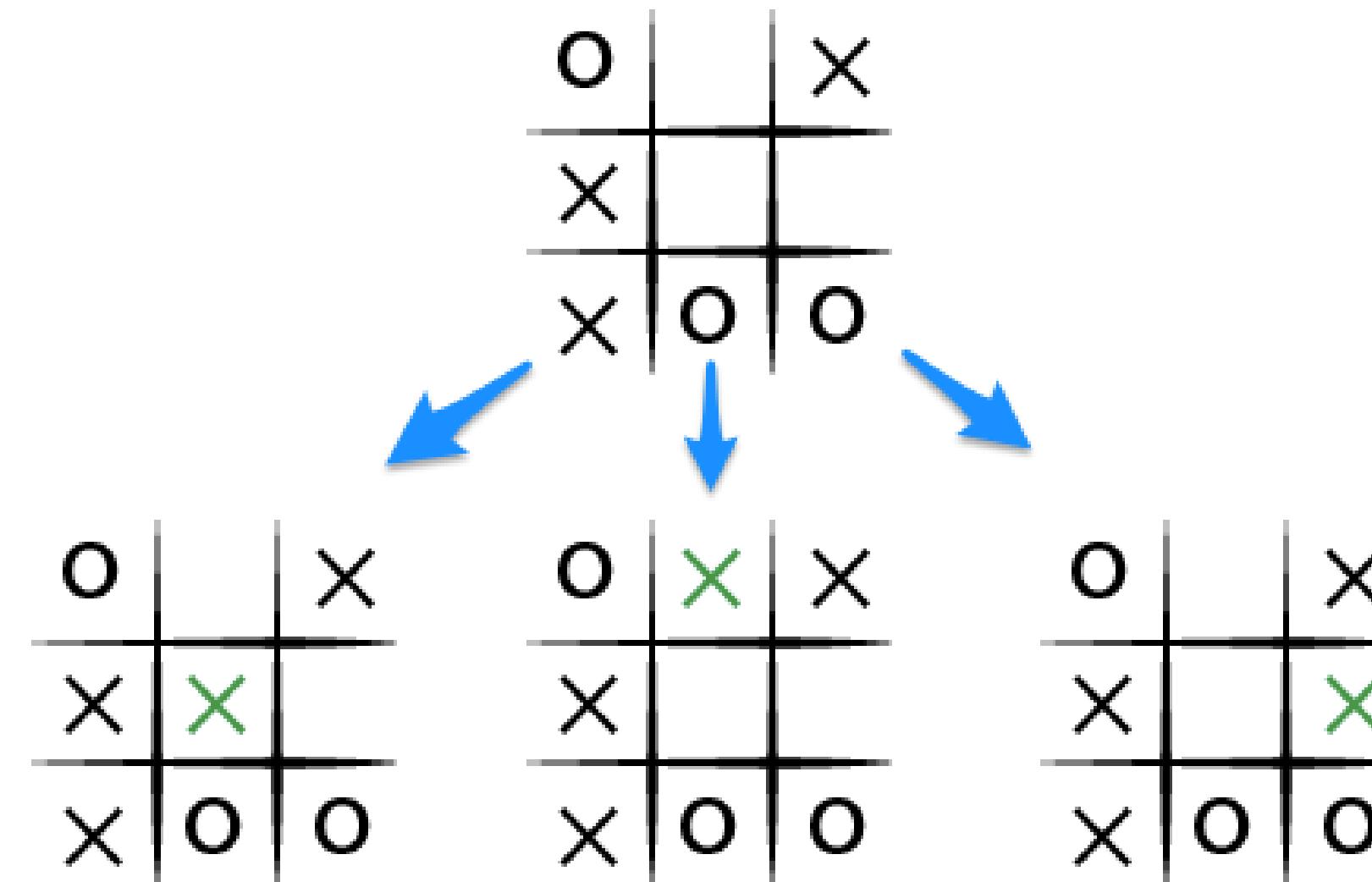
# Mini-Max Pseudocode

```
01 function minimax(node, depth, maximizingPlayer)
02     if depth = 0 or node is a terminal node
03         return the heuristic value of node
04     if maximizingPlayer
05         bestValue := -∞
06         for each child of node
07             v := minimax(child, depth - 1, FALSE)
08             bestValue := max(bestValue, v)
09         return bestValue
10    else      (* minimizing player *)
11        bestValue := +∞
12        for each child of node
13            v := minimax(child, depth - 1, TRUE)
14            bestValue := min(bestValue, v)
15        return bestValue
```

(\* Initial call for maximizing player \*)  
minimax(origin, depth, TRUE)

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# MINIMAX



# Alpha-Beta Pruning Pseudocode

```
01 function alphabeta(node, depth, α, β, maximizingPlayer)
02     if depth = 0 or node is a terminal node
03         return the heuristic value of node
04     if maximizingPlayer
05         v := -∞
06         for each child of node
07             v := max(v, alphabeta(child, depth - 1, α, β, FALSE))
08             α := max(α, v)
09             if β ≤ α
10                 break (* β cut-off *)
11             return v
12     else
13         v := ∞
14         for each child of node
15             v := min(v, alphabeta(child, depth - 1, α, β, TRUE))
16             β := min(β, v)
17             if β ≤ α
18                 break (* α cut-off *)
19         return v
```

(\* Initial call \*)  
alphabeta(origin, depth, -∞, +∞, TRUE)

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BYE~BYE~

