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Tic-Tac-Toe.

Algorithm.

```
check board (board)
    for i in row
        j in column
            if board[i][j] != " "
              // print("its tie")
            break
~~void~~ moves(board, player)
    for i in row
        j in column
        if board[i][0] == player || board[i][1] == player
                    || board[i][2] == player.
        print player wins. // row
        break!
        if board[0][j] == player || board[1][j] == player
              || board[2][j] == player
          print wins.   // column
       break
       if board[i][i] == player || board[i][i-2] ==
                                          player.
           print wins.
       break

// computer.
computer(board, player).
                      if player = x => wins
    ~~possibility = 0~~     possibility = 0
    for i in row     else possibility = 1
        j in column.
        if player = 'O' // computer.
             moves(board, player)
             check board(board)
             computer(board, player)
        else
             moves(board, player)
             check board.(board).
    if possibility = 1
     mark 'O' at the row and column.
```

```
main function.
    ~~board~~ = - ·"
    ~~board = [~~ board [3] [3 ]
    // creation of board
    for i in rows
        j in column.
            ~~board [i] [j] = "  "~~
            board [i] [j] = "  "
```

code :

```
import random

def checkwinner (board, player):
  for i in range(3):
      ~~if~~ if all (board [i] [j] = = player for
            j in range(3)):
        return True
      if all (board [j] [i] = = player for
            j in range(3)):
        return True
  if all (board [i] [i] = = player for i
        in range(3)):
      return True
  if all (board [i] [2 - i] = = player for i
        in range(3));
      return True
  return False.
```

```
def check_board(board):
    return any (cell == " "for rowe in board
          for cell in rowe)

def computer_move(board, player):
    opponent='O' if player=='X' else 'X'

    for i in range(3):
        for j in range(3):
            if board[i][j]=="":
                board[i][j] = player
                if check_winner(board,
                                 player):
                    return
            board[i][j] =""

    for i in range(3):
        for j in range(3):
            if board[i][j]=="":
                board[i][j]=opponent
                if check_winner(board,
                                opponent):
                    board[i][j]=player
                    return
                board[i][j]=" "

    empty_cells =[(i, j) for i in range(3)
            for j in range(3) if board[i]
    if empty_cells:                [j]!=""]
        i, j = random.choice(empty_cells)
        board[i][j]= player.
```

```
def tic_tac_toe():
    board = [["" for _ in range(3)]
           for _ in range(3)]
    first player = random.choice(['x','o'
    current player = first player.

    while check_board(board):
        print_board (board)
        if current player == 'x':
          row, col = map (int, input("
          Enter move: ") .split())
        if board [row][col] == "":
            board [row][col] = current
                                  player.
        if check winner (board, current player
            print_board(board)
            print(player x wins")
            return
        current player = 'o'

      else:
        computer_move(board, current player
        if check winner (board, current player
            print_board(board)
             print ("Computer O wins!")
            return
        current player = 'x'

    print ("It's a draw!")

tic_tac_toe.
```

Output

```
Player 0 goes first!
  |   |
  |   |
  |   |

0 |   |
  |   |
  |   |
Enter move: 1 1
0 |   |
  | x |
  |   |
0 |   |
  | x |
0 |   |
Enter move: 1 0
0 |   |
x | x |
~~0~~ |   |

0 |   |
x | x | 0
0 |   |

Enter move: 0 1
0 | x |
x | x | 0
0 |   |

0 | x |
x | x | 0
0 | 0 |
Enter move: 2 2
O| X |
X | X | O
O | O| X

O|X|O
X|X|O
O|O|X

It's a draw!
```

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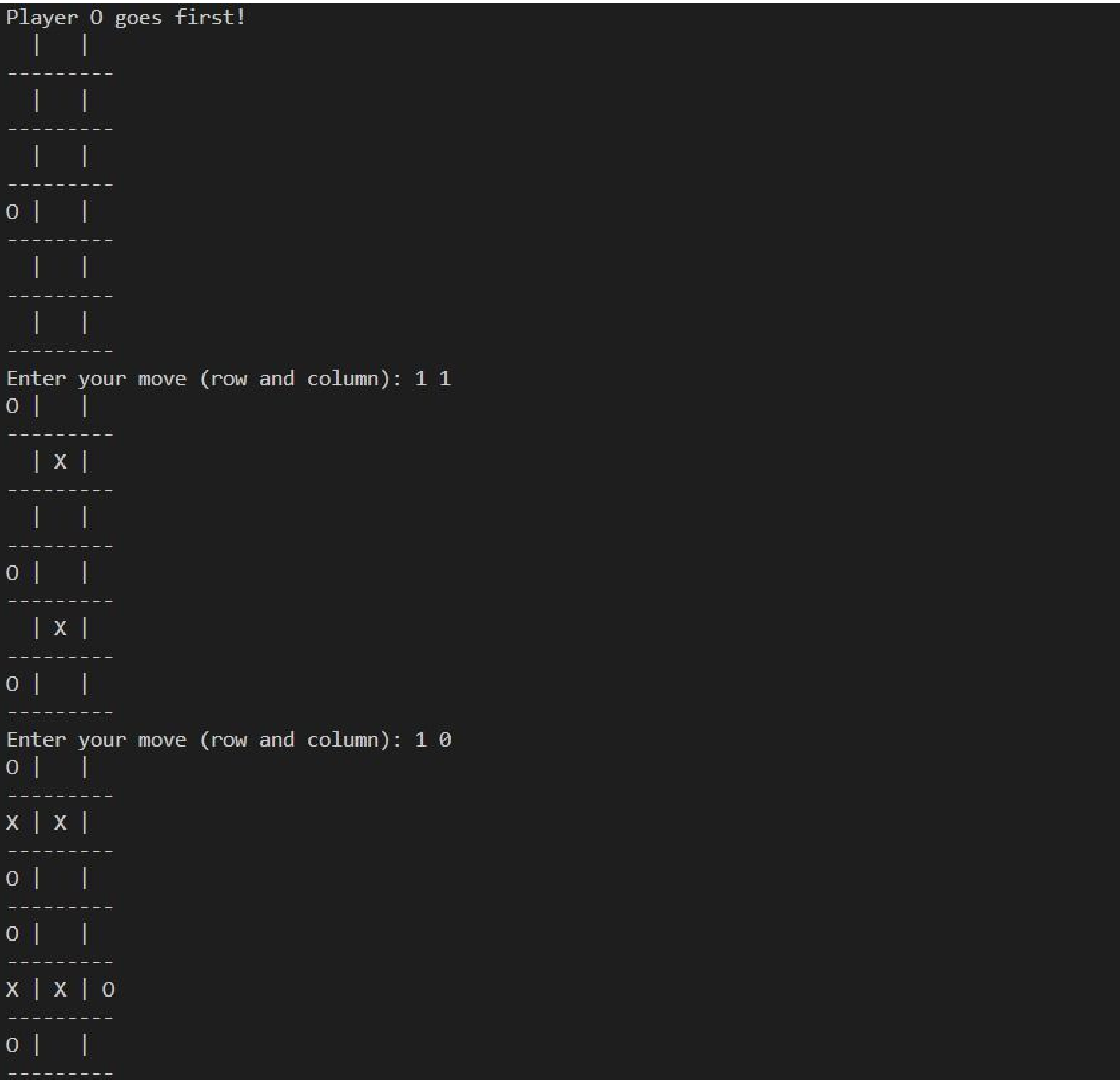
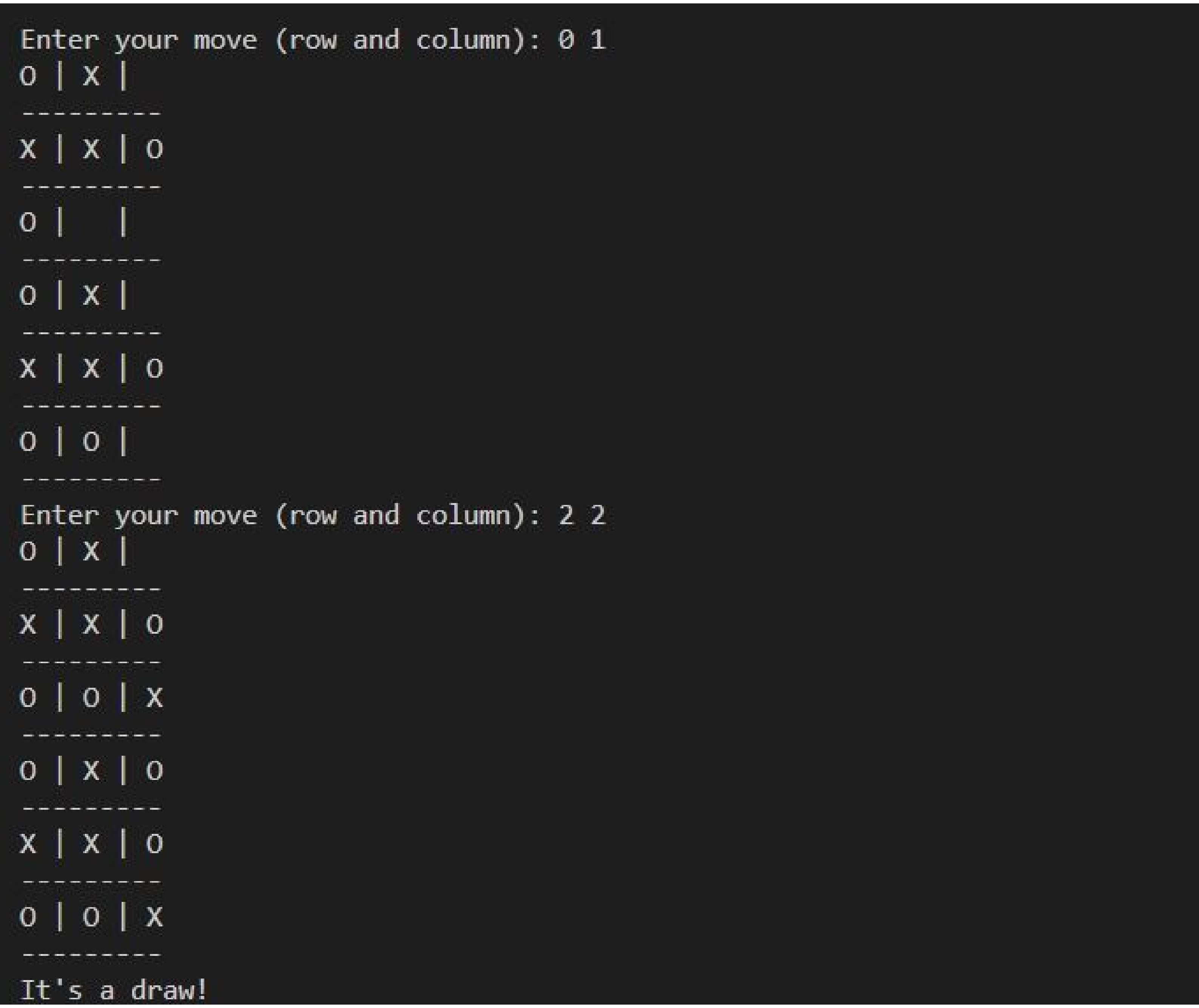


```
Player O goes first!
  |   |
---------
  |   |
---------
  |   |
---------
O |   |
---------
  |   |
---------
  |   |
---------
Enter your move (row and column): 1 1
O |   |
---------
  | X |
---------
  |   |
---------
O |   |
---------
  | X |
---------
O |   |
---------
Enter your move (row and column): 1 0
O |   |
---------
X | X |
---------
O |   |
---------
O |   |
---------
X | X | O
---------
O |   |
---------
```



```
Enter your move (row and column): 0 1
O | X |
---------
X | X | O
---------
O |   |
---------
O | X |
---------
X | X | O
---------
O | O |
---------
Enter your move (row and column): 2 2
O | X |
---------
X | X | O
---------
O | O | X
---------
O | X | O
---------
X | X | O
---------
O | O | X
---------
It's a draw!
```