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LAB-1 24/9/24
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1) Write a algorithm and program to create a tic-to-toe game

Step 1: - Create a 2D array of size 3 x 3 and initialize all the elements as '-".

e) (seate 3 ears as 3 different lists [[],[],[]]

([-,-,-]

sectors

([-,-,-]

[-,-,-]

[-,-,-]

[-,-,-]

[-,-,-]

[-,-,-]

[-,-,-]

[-,-,-]

Step 2; Vse 'eardom' to select who will be the first player to place the move. First move will be 'X'.

def print_b (board):

for sow in board:

print ('1'.join (sow)) set a second trap

print ('-1 * 5)

Step3: Check for wines after each move =) There are 8 possibilities and (3 rows, 3 columns, 2 diagonals) def chak (board):

for i in range (3):

if board(i)(0) = = beard(i)(1) = = board[i](2]!='-':

return board(i)(0)

Similarly sheek for columns & diagonals

Steph: Player nove:

The player should exter the row & column indies to make a move

if beard [row] (col) == '-';
board [row] (col) = 'X'.

else:
print ("(ell already take ! Tay again.")

5-teps: - computer move: -> Check for winning more for in sarge (3): for j in large (3): benedCiJCj7== 1 posto Cls in short in board (i)[j] = '0': " " the strends will if white (band) Ectura If no wining move, pick a sandom valid move a prevent player from winning regard to estat who will be the first progen "x" ad the over their on if check winner (board) is to be so X X X print ("Player x wins") : (closed & line) if is tie (boose): , whened i was of pent ("It's a time" ? (and nos. I') they (= +) town that for wrives other sook now of The orice & preside littles and (3 com) 3 column & diagonals) def Jak (brosed): (E) 2000 ai 1 20): it boudfilled = - tradfilled = : boardfilled +: Castal horal rester Sulvey but for where & diagonalis to Playor more The slayer should exten the saw I colored wider to = Down Level Beard ti Brager metal phaselo de 1 tus

```
(beard) from setismo top Jet
Peogram:
import eardon
                       ( a sent over a prince link a some
def print-board (board):
    for row in board:
       print (" 1" join (now))
       print ("-" * a) ( x " mens) about priaries bright a sum
det check wines (board):
   for i'in range (3):
       if board [i](o] = = board [i](i] == board [i](2] != "" ="
            return hourd (i) (6)
      if board (0) == board (1) (1) == board (27 (1) != ""
            return board (0][i]
  if board (0)(0) => board(1)(1) == board(2) (2) = ...
        return board (0](0]
  if doved[0][2] == baard[1][1] == board[2][0]!=
        return board (0)[2]
                                  (ii) asuter
  setuen None
def is-full (board):
     return all (cell! = " " for row in board for cell in row)
      ber 2d: (5" " fee _ in sange (3)] for _in sange (3)]
def find_wining_ move (board, player):
                               computer player " 6"
     for i in range (2):
        for j'is range (3): ( their rop x report ) that
           if board CiJ[j] = = " ";
               board [i][i] = player
               if wheek-winner (board) == player:
                  board Cil [] = " signing because to
                  return (i, j) ener with
  was att sates beard [i](j]= " " = wis?
                              " i wal:
  return None & regard ) tage to the = los
```

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def get-empiter_nove (board):
   more = find-wining-more (board, "6") : (based based trage)
                                       beard in was so
    if move:
                                 ((was) noop " 1 " toy
       return move
   move = find-winning move (board, "X")
                                     dy . ( bound ) survey ( bound ):
   if move:
       setuer move
  if board [[[[] = = [[] [] = [[] [] | board [[] [] ] ] |
                               Tolling book with
      return (1,1)
   for corner in corner [o] (corner [i]] = = ";
           return correr correr
                              Edia borned certis
   fol in range (3):
        for j is rouge (3) and == (1) [ ) burned == [ [ ] [ ] board ];
          if board[i)fj] == " " [allo] board neutre.
                return (i, j)
                                         i (booked) ! buf i fil
def tictal - toe (): booked is not seef " " = [ the ) the resites
      beard: [[" " for _ in large (3)] for _in large (3)]
      culrent-player = "x" ( Loud blood) anon principle for
                                      (8) says (3)
       computer player = "0"
       print ("Player × goes first.") : (E) 2 post of 100
                              if bushillis == (i) in the sand fi
       while True:
                           board [i][i] : playes
         point topland
           print_board (board)
            if current_player == 1000 files
                while true: ( i) resiter
                       Sow = int (input (" Player X, exter the sow")
col = :+ 1.
                    try:
                      col = int (input (" Player x, exter the column.")
```

print ("cell is already taken try again") except (Value Essor, Index Essor): print ("Insolid input!") Computer chooses how O, column ? sielset: xato. × ropali o:) s point ("computer's tuen "...") Saw, cal = get_computer_move (beard) print (+ Computer chooses sous from & colin feal ?) board [raw] [cal] = cuesurt - player winer = check_winer (board) o los & was persons returne if where: print_board (board) print (f "Player winner } win 1") if is - full (boald): (wine 'o' sepurt? print_food (board)
print ("It's a tie!") break Eurest-player : computer player if eneret player =="x" else "x" if_rame _ == "_main_"; tic_toc-toe () Player & erter row: 0 Player × goes first. Output . -Player x exter col: 0

a was esta of fifth boold [saw] [col] = " " " " say say on

1 - 10 mbs & wal break

Computer chooses son s, column 2 Player x, exter ear. 6 In Player x , exter col, Coupe wet had wheels is Nor") tok x

(() Lotter word and in the coupe of the coup (" I Biga Kildant) Computer chooses saw O, colum 2 Player x exter the row;

Player x, exter the ed; X X 6 (bound) war satural satural of by A X O (bound satural satural of bound satural satural of bound satural satural satural of bound satural satura princes = chack unioned (booked) computer chooses row 2, col 0 (bead broad tries X × 6 × 0 print (f "Played wines) wine !" Player (0' wins) = (blood) luf.). pand board (board west player = computer player () sat - tal out Phayer or later los : 0 that - Player x sous first. Player X enter of 10