

## **Implement a Tic-Tac-Toe game:**

### 1. 2-player Game:

- a. Create a 3x3 square box.
- b. Print out the correct player's turn and store the player's char (x or o).
- c. Ask the user for the box (0-8) to put x or o and check if it is valid (check it is empty or already occupied).
- d. Use a loop to keep asking the player to enter a valid no and set the right position on the board to the player char.
- e. Create a function that checks if either player has won. (Check total 8 combinations. For example, check if `board[0][0]` equals `board[0][1]` and if `board[0][1]` equals `board[0][2]` and these positions either contain 0 or x.
- f. Print out which player has won if a player has won. If all the boxes are filled up and no winning combination, print draw.

### 2. 1-Player Game:

- a. One player turn (x) and one computer turn (0).
- b. Each time computer will calculate heuristic value of all possible move and choose the maximum valued position.  
 $E(n) = O(n) - X(n)$ , where  $O(n)$  = Total possible winning lines of 0 and  $X(n)$  = Total possible winning lines of X.