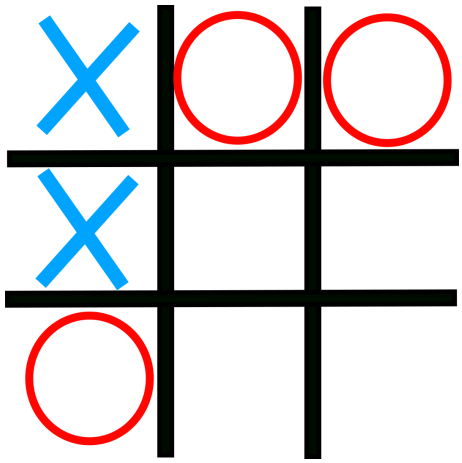
Task 3 Find best results

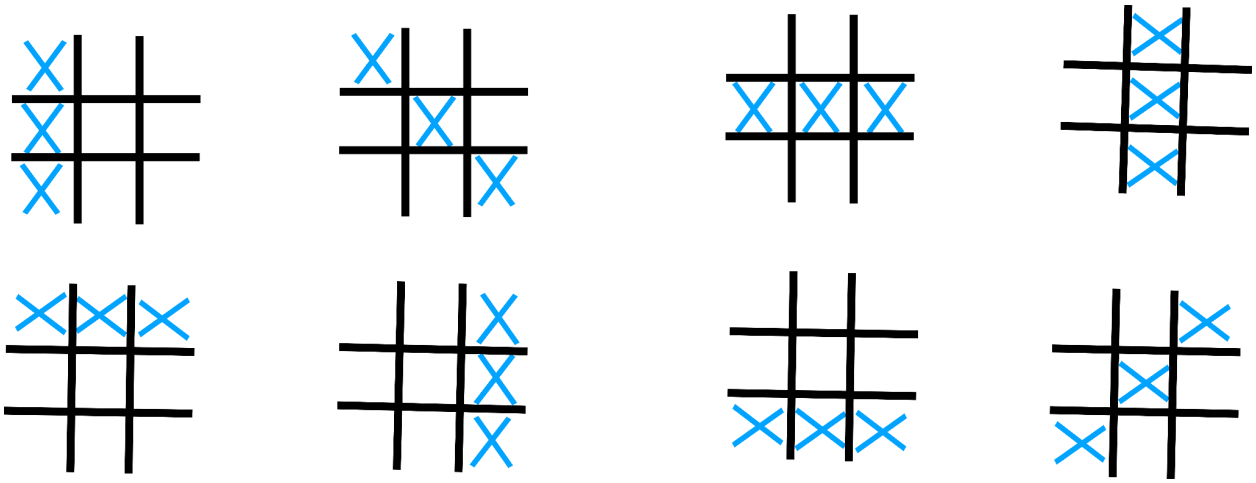
For this problem you have the following situation: you are playing a game of tic-tac-toe, and you find the situation in the figure below, next is your turn, develop a quantum algorithm to be able to find the best decisions with higher probability.



The following considerations apply:

- You are the X's.
- The matrix as a qubit and the state of the X's is |1> and of the O's is |0>, of the empty cells an unknown state.
- What are the valid combinations to win?
- You have at most 2 turns

A hint for this exercise should consider all the possible ways to win that (there's 8 of them), for this exercise must obtain with probability the state with the highest probability.



for the output only give the status of the empty boxes, you consider this example:

If you think the solution is put the values

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

The state output must be |1100>

Bonus : what if we start one step earlier and your opponent has not chosen yet, as shown in the following image, it shows with higher probability the chances of you winning. Please refer to the above considerations.