NOUGHTS AND CROSSES

AN APPLICATION OF MONTE CARLO SIMULATION

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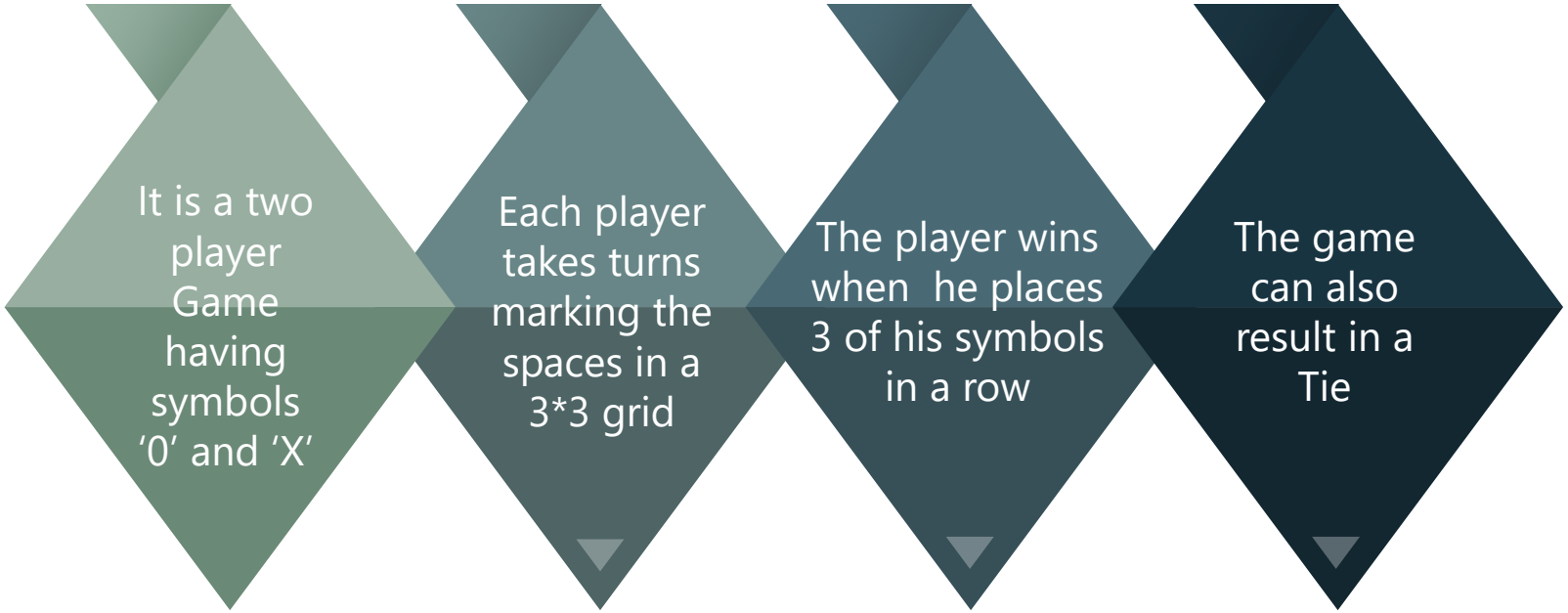
Agenda

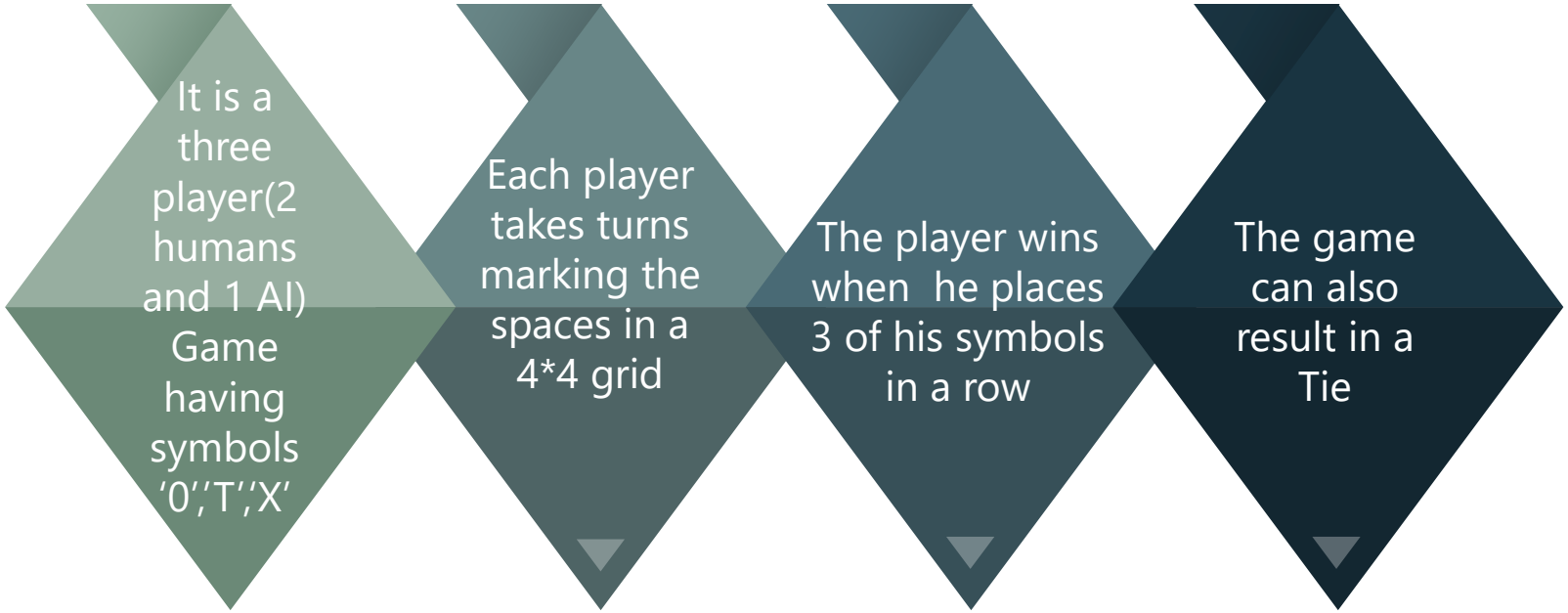

About the Game
Variations in our game
Applying Monte Carlo Simulation
Results
01
02
03
04

About The Game



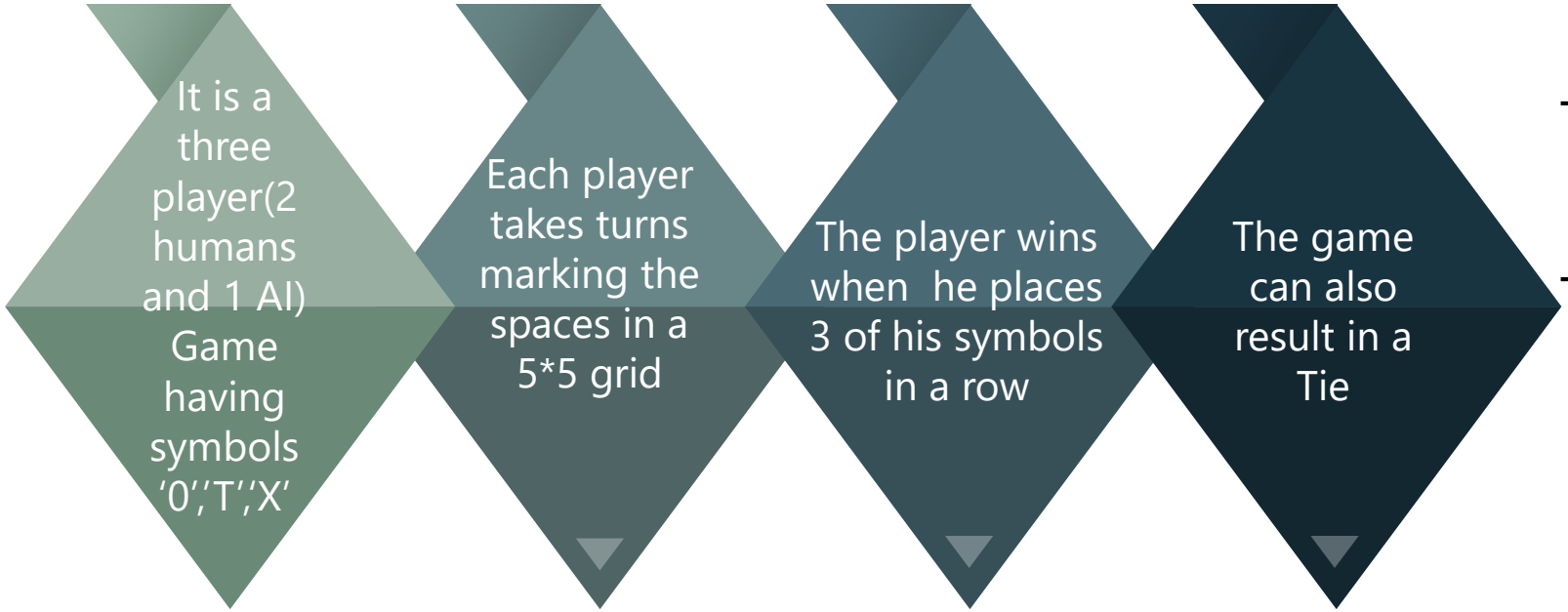
7	8	9
4	5	6
1	2	3

Variations In Our Game (4*4)



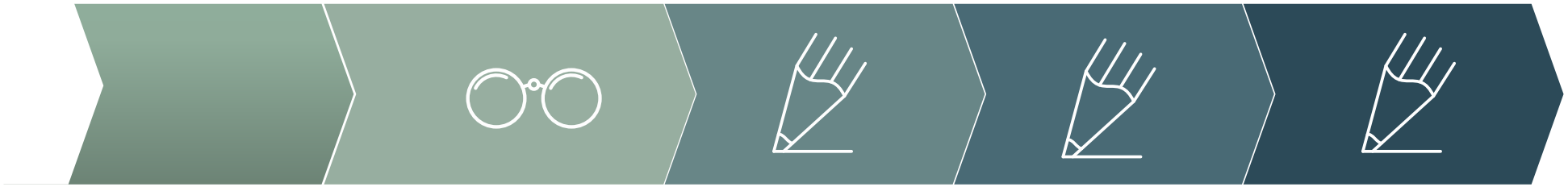
13	14	15	16
9	10	11	12
5	6	7	8
1	2	3	4

Variations In Our Game (5*5)



21	22	23	24	25
16	17	18	19	20
11	12	13	14	15
6	7	8	9	10
1	2	3	4	5

AI Algorithm In Our Game



AI will smartly play and compete with the other 2 human players

AI will look for the available positions

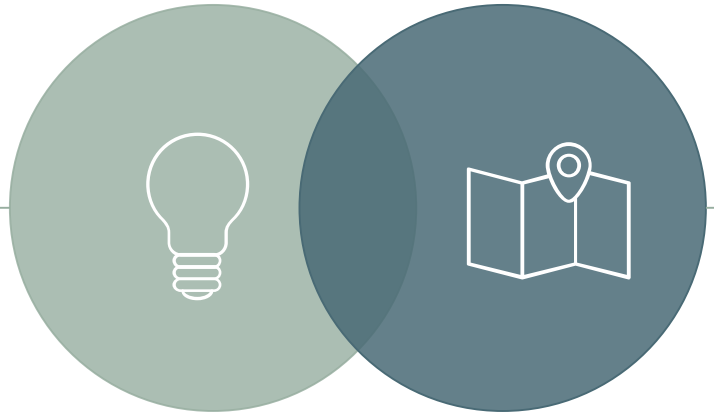
AI will look for its own winning positions

AI will look for the competitors winning positions

Else AI will place its symbol in the remaining other places

About Monte Carlo

A class of algorithms that rely on repeated random sampling to compute their results.



We plan to use Monte Carlo Algorithm in 2 different forms in our project.

Monte Carlo in our project

Currently we've applied our own algorithm for AI but we plan to use Monte Carlo Tree Search Algorithm in our project for the AI player.

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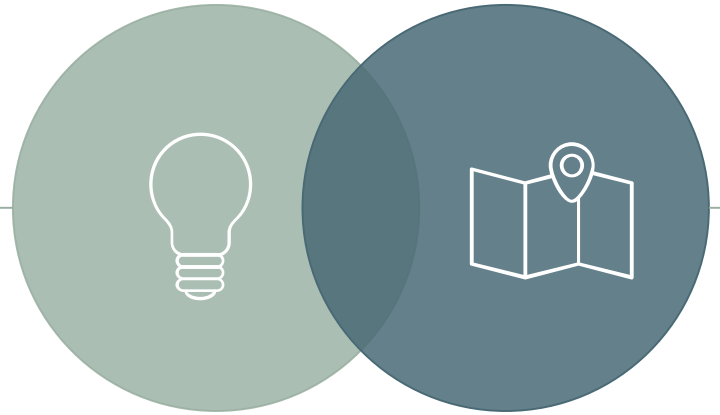


We have done simulations because from a single game it becomes difficult for the overall understanding and learning of the game.

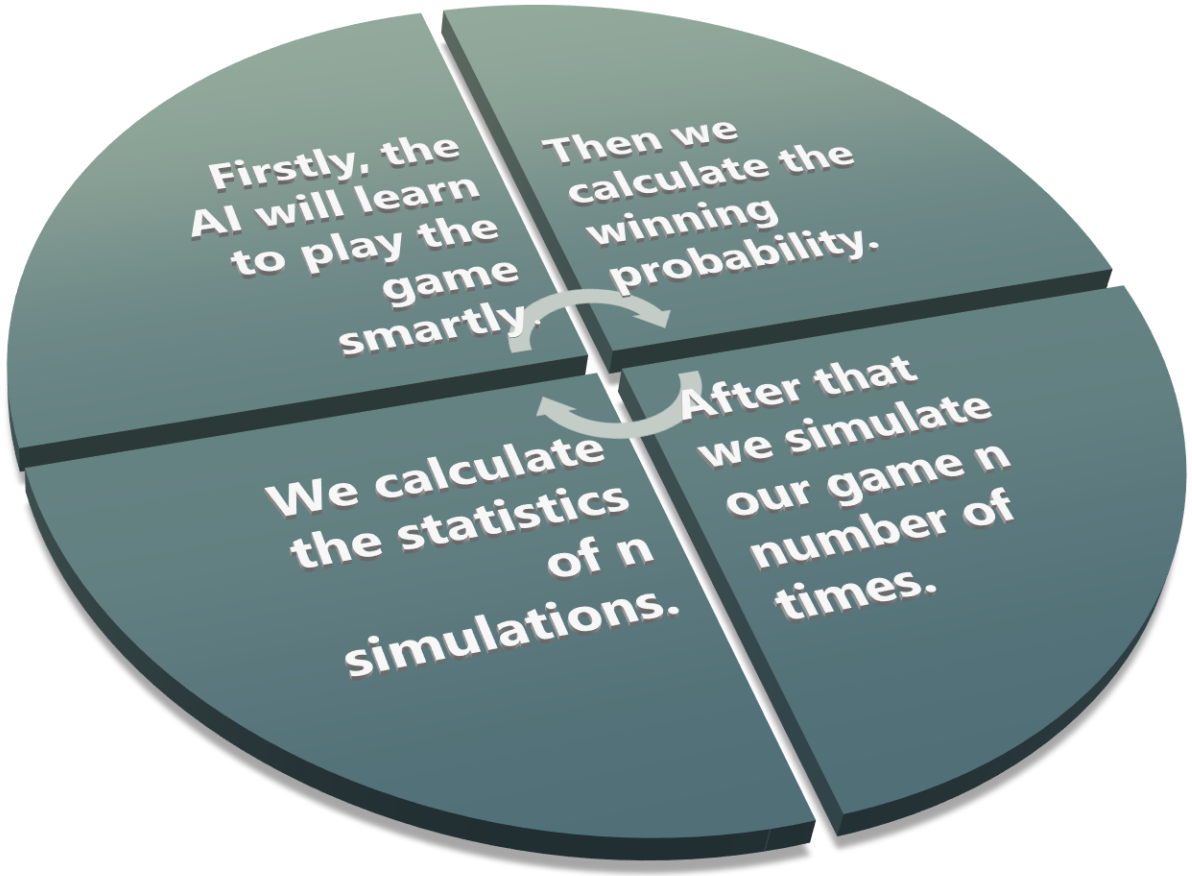
Assumptions and Game rules

- Each player and AI are aware of the game rules.
- A player can use the same strategy as the AI algorithm.
- There can be only one winner(if any) at the end of the game.
- There will be no simultaneous moves.

Hypothesis

- The winning probability is independent of the order in which the players go.

Code Execution



THANK YOU!

QUESTIONS/SUGGESTIONS?