

Spike: 4**Title:** Graphs, Search and Rules**Author:** Adonias Pedro, 104463681**Goals / deliverables:**

- Code
- Report

Technologies, Tools, and Resources used:

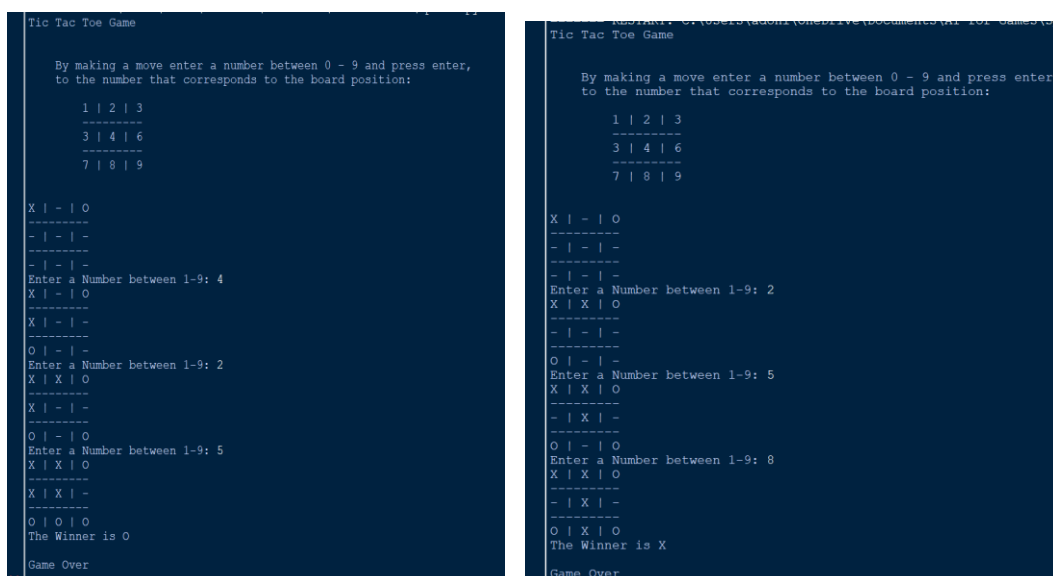
- Python IDE 3.12
- W3Schools: https://www.w3schools.com/python/python_try_except.asp
- GeeksforGeeks: <https://www.geeksforgeeks.org/graph-data-structure-and-algorithms/>
- Laptop

Tasks undertaken:

- Download and install the latest Python IDE or the latest Visual Studio Code
- Download and install the latest Git Bash Terminal
- Run the code with the git bash terminal to help compile the code while the file is in its local folder

What we found out:

The outcome of the program was that the AI was able to copy the tic tac toe gameboard before making a move on the user while playing the game. The AI was also able to randomly search for the graph and improve the efficiency and effectiveness of a basic random search. It relates to the spike topic because the games represent its discrete states.



```
Tic Tac Toe Game

By making a move enter a number between 0 - 9 and press enter,
to the number that corresponds to the board position:

  1 | 2 | 3
  ---
  3 | 4 | 6
  ---
  7 | 8 | 9

X | - | O
-----
- | - | -
-----
- | - | -
Enter a Number between 1-9: 4
X | - | O
-----
X | - | -
-----
O | - | -
Enter a Number between 1-9: 2
X | X | O
-----
X | - | -
-----
O | - | O
Enter a Number between 1-9: 5
X | X | O
-----
X | X | -
-----
O | O | O
The Winner is O
Game Over

Tic Tac Toe Game

By making a move enter a number between 0 - 9 and press enter,
to the number that corresponds to the board position:

  1 | 2 | 3
  ---
  3 | 4 | 6
  ---
  7 | 8 | 9

X | - | O
-----
- | - | -
-----
- | - | -
Enter a Number between 1-9: 2
X | X | O
-----
- | - | -
-----
O | - | -
Enter a Number between 1-9: 5
X | X | O
-----
- | X | -
-----
O | - | O
Enter a Number between 1-9: 8
X | X | O
-----
- | X | -
-----
O | X | O
The Winner is X
Game Over
```