Final Exam

Tic-Tac-Toe Game

Tic-Tac-Toe is a simple two-player game where the goal is to get three of your marks (X , O) in a row. To play players take turns marking a square. The first player to get three of their marks in a row (vertically, horizontally, or diagonally) wins. If all nine squares are marked and no player has three in a row, the game ends in a draw.

main code components :

1 - **Logger class** : Logs moves and game states to a file.

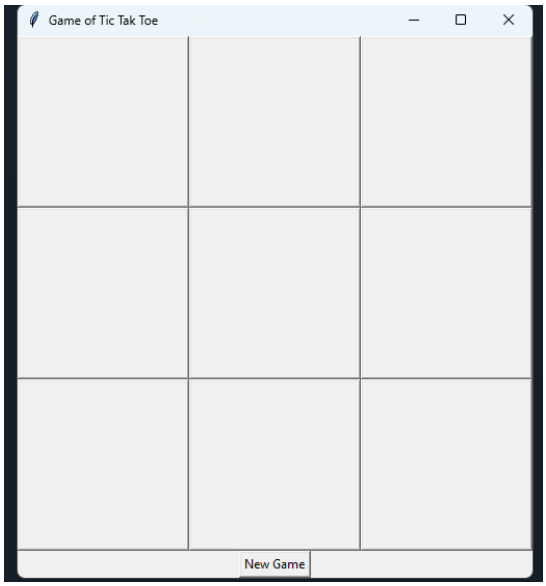
2- **TicTacToe class** : Manages the game state and user interactions.

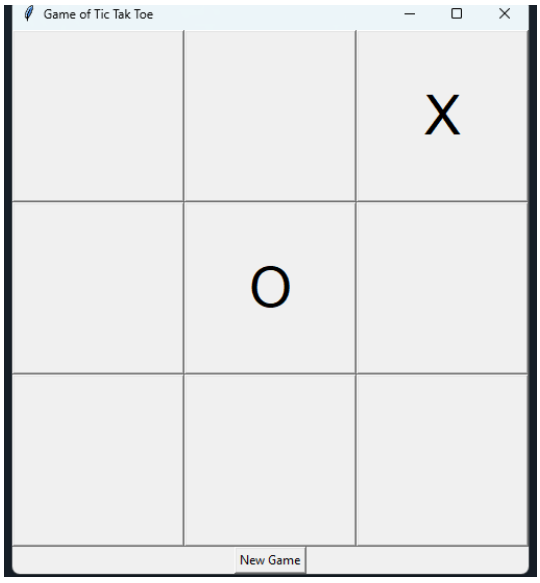
3- **Main method** : Initializes the game and starts the Tkinter main loop.

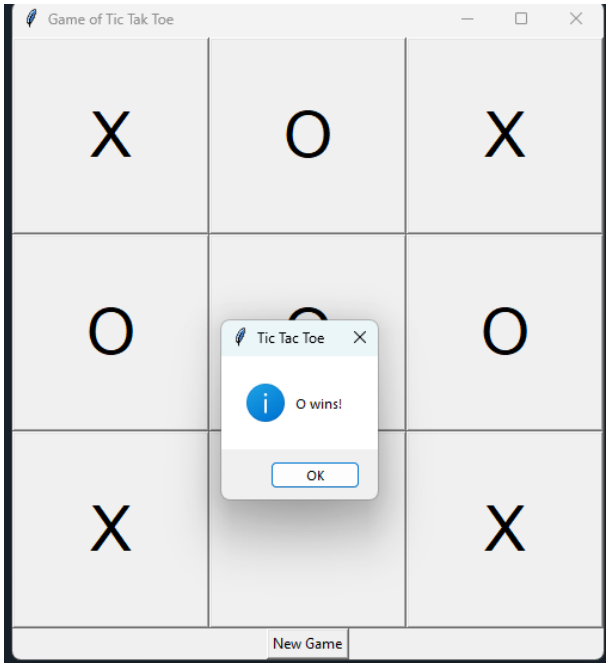
Link for the youtube video :

https://youtu.be/iM61V2Vyg_0

Screenshots :





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New Game Started at 2024-08-05 16:26:25.353586
Initial Board:
|   |   |   |
|   |   |   |
|   |   |   |

Move 0: Player X to position (0, 2)
|   |   | X |
|   |   |   |
|   |   |   |

Move 1: Player O to position (1, 1)
|   |   | X |
|   | O |   |
|   |   |   |

Move 2: Player X to position (2, 2)
|   |   | X |
|   | O |   |
|   |   | X |

Move 3: Player O to position (1, 0)
|   |   | X |
| O | O |   |
|   |   | X |

Move 4: Player X to position (0, 0)
| X |   | X |
| O | O |   |
|   |   | X |

Move 5: Player O to position (0, 1)
| X | O | X |
| O | O |   |
|   |   | X |

Move 6: Player X to position (2, 0)
| X | O | X |
| O | O |   |
| X |   | X |

Move 7: Player O to position (1, 2)
| X | O | X |
| O | O | O |
| X |   | X |

Winner: O
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Reflection on the Course

Throughout this course, I transitioned from my background in C# to learning Python, gaining a comprehensive understanding of various programming concepts. Here are the key areas I focused on:

Learning Python

Coming from C#, adapting to Python's syntax and structure was a significant shift. This course provided a solid foundation in Python, covering essential topics such as variables, data types, functions, and control structures.

Using Loops

I became really good in using for and while loops to control program flow and perform repetitive tasks. These skills were crucial for automating tasks and iterating over data structures.

File Handling

I learned how to read from and write to files in Python, which is essential for many applications. This skill was particularly useful in the Tic-Tac-Toe project, where I implemented logging to track game moves and states.

Object-Oriented Programming (OOP)

The course emphasized OOP principles such as classes, objects, inheritance, polymorphism, and encapsulation. These concepts were reinforced through various assignments and projects, allowing me to design and implement modular, reusable, and maintainable code.

Tic-Tac-Toe Game

The Tic-Tac-Toe project was a significant highlight, requiring me to apply many concepts learned throughout the course. I created a GUI-based game using Tkinter, implemented game logic, and added logging functionality. This project solidified my understanding of Python and OOP while teaching me to handle user interactions and manage state in a graphical application.