

Tic Tac Toe Game:

Introduction

This document provides a detailed overview of a **Tic Tac Toe** game created using Python and the Pygame library. The game is designed to be played by two players, each taking turns to place their marks (either a circle or a cross) on a 3x3 grid. The game detects wins, displays player statistics, and includes the option to restart the game. The project is a simple yet effective example of interactive programming using Pygame.

Requirements

Hardware Requirements:

- A computer with Python installed.
- A mouse for user interaction.

Software Requirements:

- Python 3.x: The programming language used to write the game logic.
- Pygame library: A set of Python modules used for writing video games. It is used here for rendering the game board, handling events, and displaying graphics.

Pygame Installation:

To install Pygame, open your terminal and run the following command:

```
pip install pygame
```

This will install the necessary libraries required for running the game.

Software Used and Technology

Programming Language:

- Python: Python was used for the implementation of the game logic, handling user inputs, checking win conditions, and managing the overall game flow.

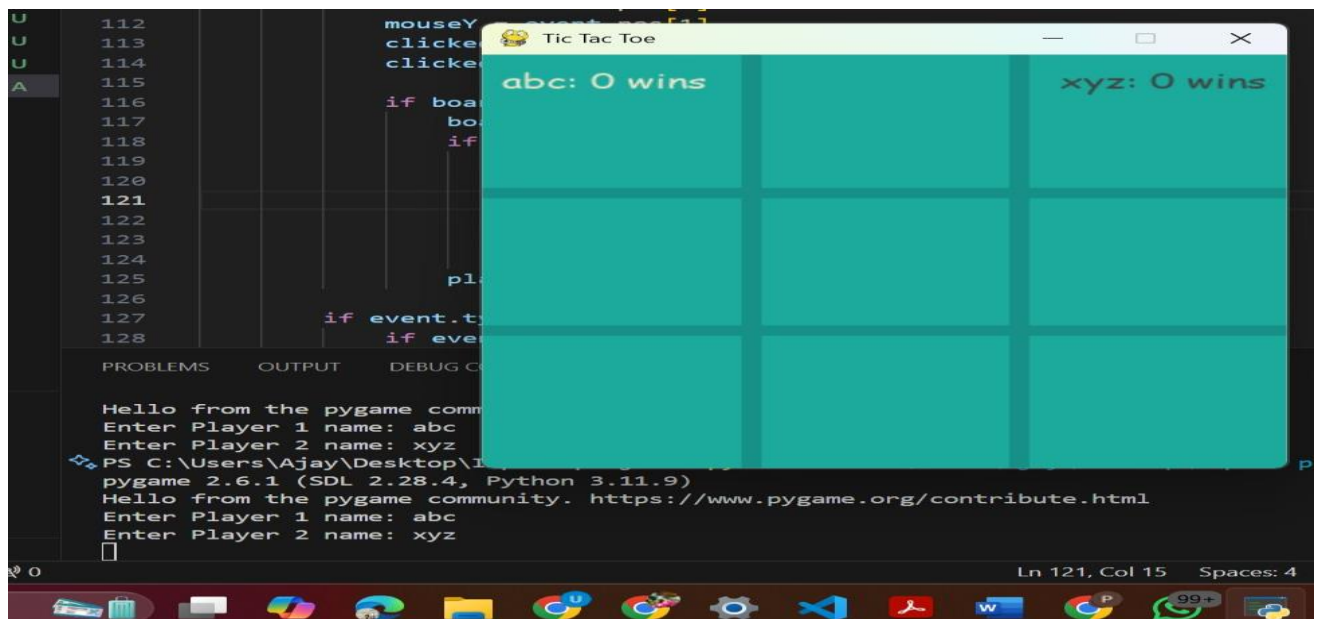
Game Development Library:

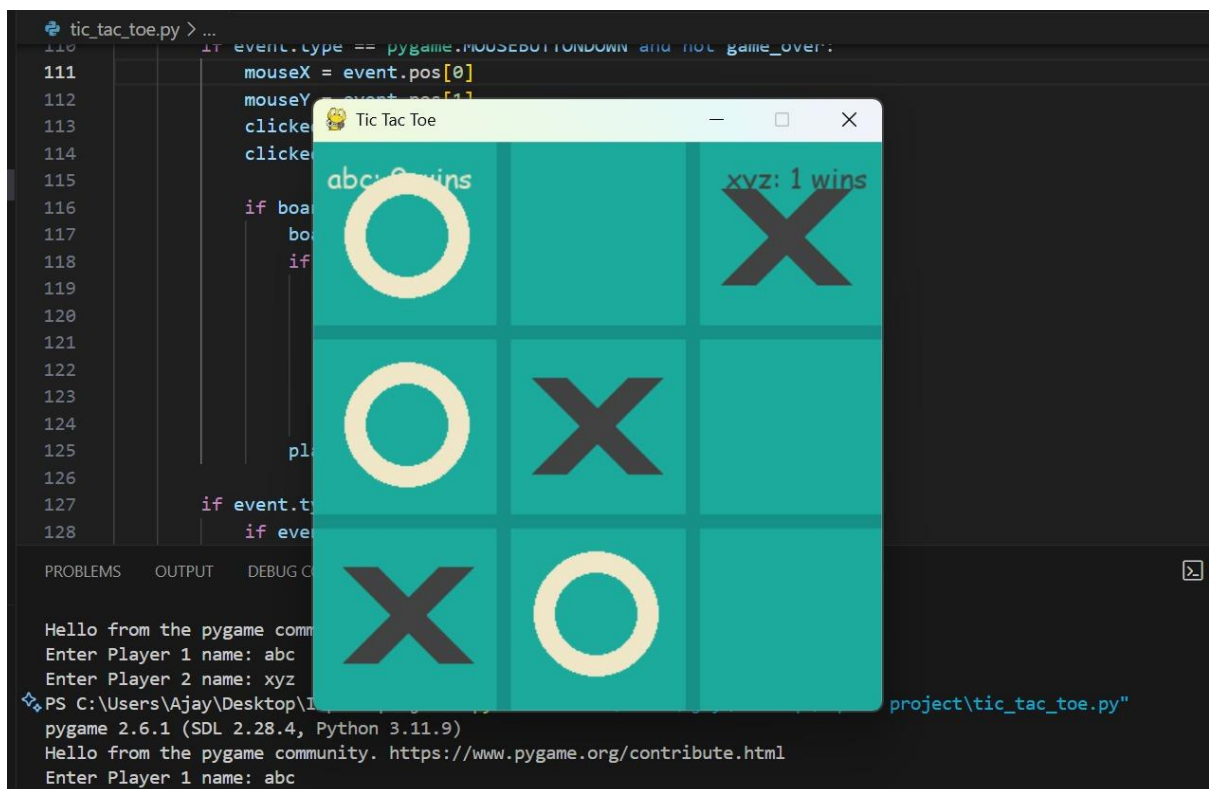
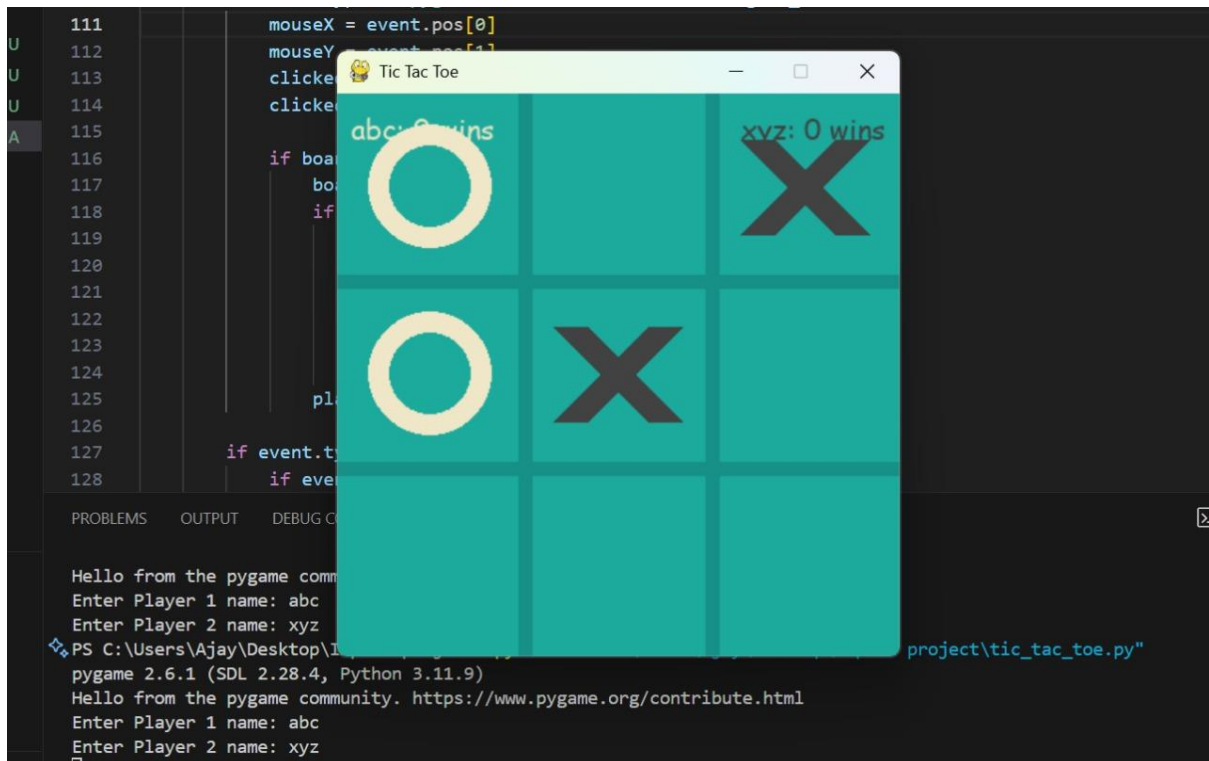
- Pygame: This library was used to create the graphical interface of the game. It provides functions for rendering shapes (like circles and crosses), handling user events, and managing the display window.

Technologies Used:

- Event Handling: The game listens for events such as mouse clicks to register player moves and keyboard presses to restart the game.
- Rendering Shapes: Pygame was used to draw circles for one player and crosses for the other player.
- Game Loop: The game uses a loop that continuously checks for events, updates the board, and re-renders the display.
- Text Rendering: Pygame's font rendering functions are used to display the winner's message and player statistics.
- Data Structure used :
 - Array (2D List)
 - Loops
 - Greedy Algorithm

Screenshot





Conclusion

The Tic Tac Toe game successfully demonstrates how to implement basic game logic and graphical user interfaces using Python and Pygame. The game is simple but offers essential features such as win detection, player statistics, and the ability to restart. It provides a solid foundation for learning game development with Python. Future improvements could include adding an AI opponent for single-player mode or enhancing the user interface.