

# TIC-TAC-TOE GAME (USING PYTHON)

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# INTRODUCTION TO TIC TAC TOE

- Tic Tac Toe, also known as **Noughts and Crosses**, is a simple yet strategic two-player game played on a 3x3 grid.
- Players take turns marking a space with their symbol— either **X** or **O**.
- The objective is to be the first to align three of their symbols **horizontally, vertically, or diagonally**.
- Despite its simplicity, Tic Tac Toe helps develop critical thinking, logic, and strategy.
- It is often used as an introductory project in programming because of its straightforward rules and ease of implementation, making it a great way to learn **game loops, conditions, and user interaction in Python or other languages**.

# OBJECTIVES

- Create an interactive console-based Tic Tac Toe game.
- Use Python with a clean and modular code structure.
- Include a user-friendly interface.
- Implement efficient win-checking logic.

# GAME FLOW OVERVIEW

- Display empty board.
- Players alternate turns.
- Input validation for correct and unoccupied positions.
- Check for win or draw after each turn.
- Display result and option to restart.

# UNIQUE FEATURES

- Optimized board rendering.
- Efficient win-checking using sets.
- Modular code: clear separation of logic and UI.
- Support for replays.

# PYTHON CODE

```
import tkinter as tk  
  
from tkinter import messagebox  
  
def check_winner():  
  
    for combo in [[0,1,2],[3,4,5],[6,7,8],[0,3,6],[1,4,7],[2,5,8],[0,4,8],[2,4,6]]:  
  
        if buttons[combo[0]]["text"] == buttons[combo[1]]["text"] == buttons[combo[2]]["text"] != "":  
            buttons[combo[0]].config(bg="green")  
            buttons[combo[1]].config(bg="green")  
            buttons[combo[2]].config(bg="green")  
  
            messagebox.showinfo("Tic-Tac-Toe", f"Player {buttons[combo[0]]['text']} wins!")  
  
            root.quit()
```

```
def button_click(index):
    if buttons[index]["text"] == "" and not winner:
        buttons[index]["text"] = current_player
        check_winner()
        toggle_player()
    def toggle_player():
        global current_player
        current_player = "X" if current_player == "O" else "O"
        label.config(text=f"Player {current_player}'s turn")
    root = tk.Tk()
    root.title("Tic-Tac-Toe")
    buttons = [tk.Button(root, text="", font=("normal", 25), width=6, height=2, command=lambda i=i: button_click(i)) for i in range(9)]
```

```
for i, button in enumerate(buttons):
    button.grid(row=i //3, column=i %3)

current_player = "X"

winner = False

label = tk.label(root, text=f"Player {current_player}'s turn",
font=("normal",16))

label.grid(row=3, column=0, columnspan=3)

root.mainloop()
```

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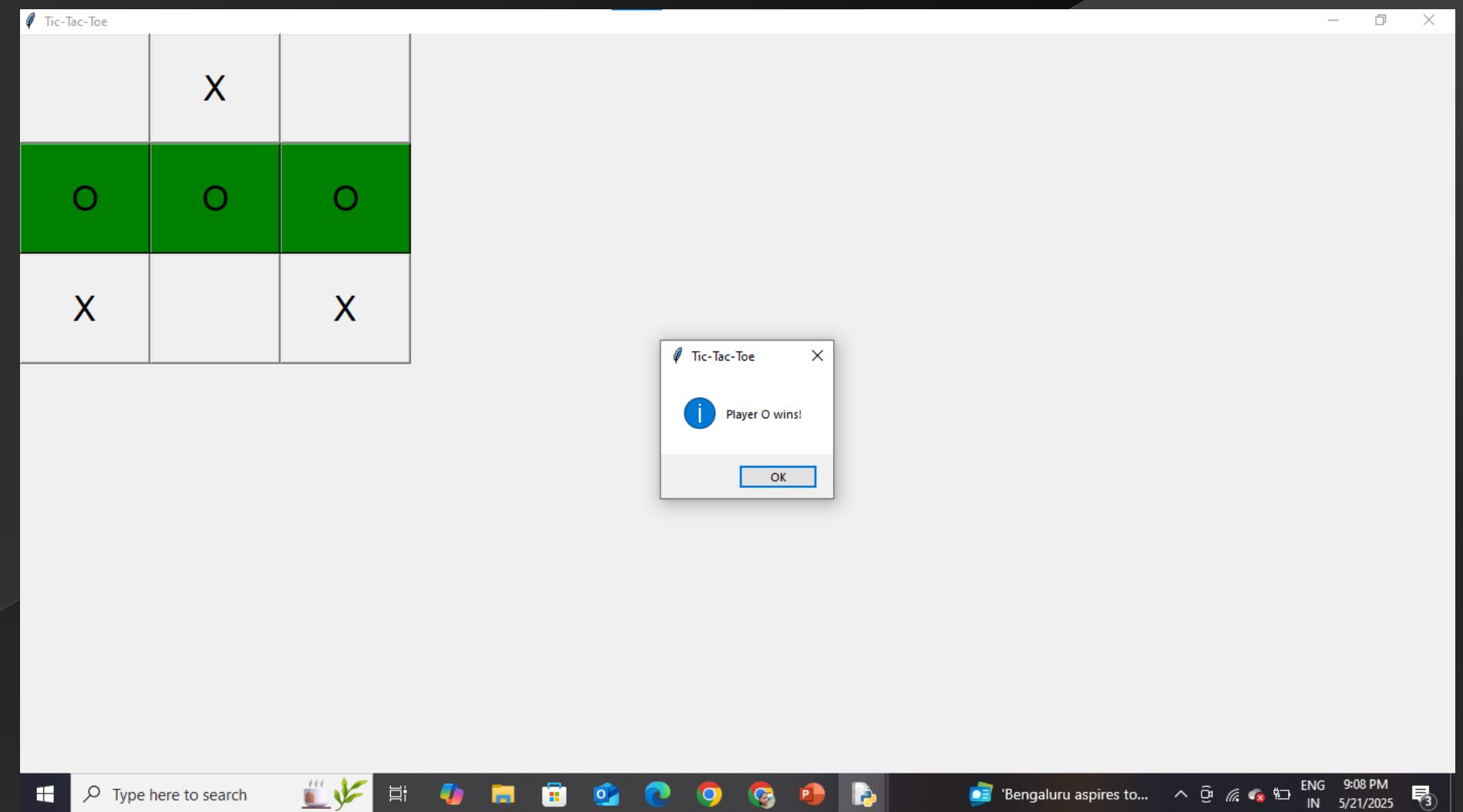
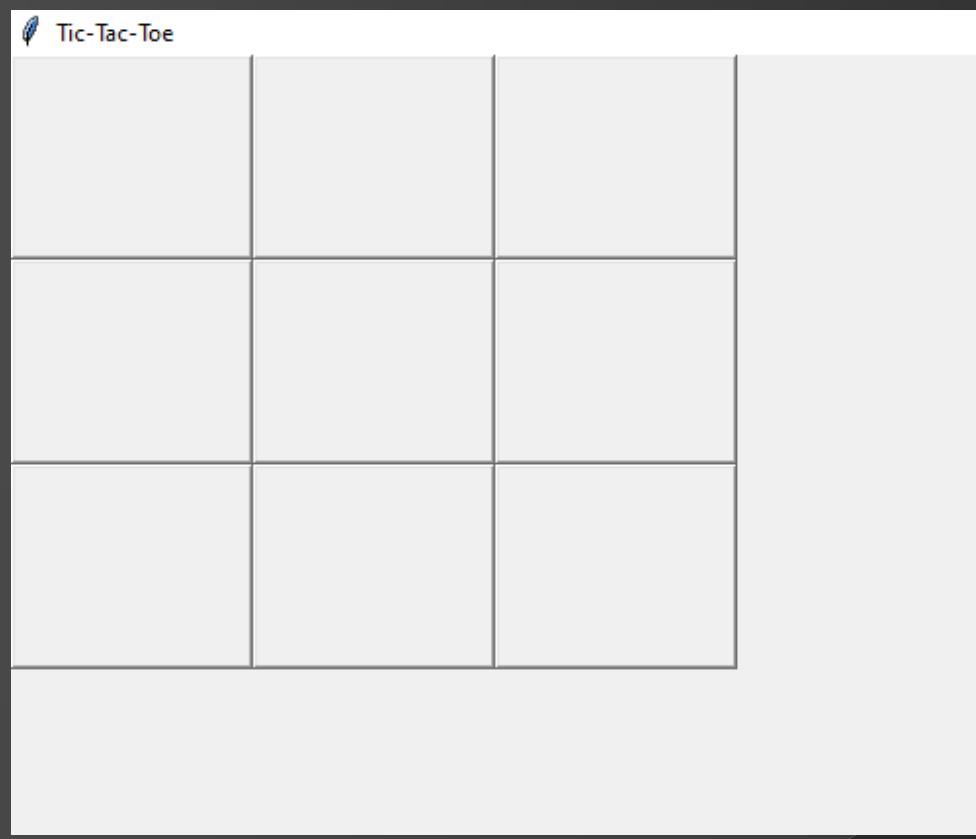
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# OUTPUT SCREENS



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Thank you