# Tic-Tac-Toe(UI)

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## 0.1 Tic - Tac - Toe

**Assignment - 5**

**group - 10**

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**Descriptions**

Tic_Tac_Toe game is two players game. It plays in a 3 x 3 grid.

Each player take marking in the square with their respective symbols like “X” or “O” which are common use while playing this game.

**The first player who align of three of marks in a horizontal or vertical or diagonal is the winner.**

**Rules** - Two player game with taking trun is played in a 3 x 3 grid. - Each player choose their respective symbol. Example; Player 1 choose “X” and Player 2 choose “O”. - Players take trun and mark their respective symbol in an empty square cell. - Each player try to mark with repective symbol not to win the other player. - Players also try to align their symbol in a horizontal or vertical or diagonal. - If 9 all cells are filled, there is no winning palyer. The game is end in a draw.

### 0.1.1 Main Window Setup (UI Components)

[32]:
```
import tkinter as tk

class TicTacToe:
    def __init__(self, root):
        self.root = root
        self.root.title("Tic-Tac-Toe")
        self.root.geometry("400x450")
        self.root.configure(bg="#f8c8c8")

        self.current_player = "X"
        self.board = [""] * 9
```

```
        self.status_label = tk.Label(self.root, text="Player X's Turn",␣
↪font=("Arial", 16), bg="#f8c8c8")
        self.status_label.pack(pady=10)

        self.buttons = []
        self.create_grid()

        self.restart_button = tk.Button(self.root, text="Restart",␣
↪font=("Arial", 14), bg="#4CAF50", fg="white",
                                        command=self.reset_game)
        self.restart_button.pack(pady=10)

    def create_grid(self):
        frame = tk.Frame(self.root)
        frame.pack()
        for i in range(9):
            btn = tk.Button(frame, text="", font=("Arial", 20), width=5,␣
↪height=2,
                            command=lambda i=i: self.player_move(i))
            btn.grid(row=i // 3, column=i % 3, padx=5, pady=5)
            self.buttons.append(btn)

    def player_move(self, index):
        if self.board[index] == "" and not self.check_winner():
            self.board[index] = self.current_player
            self.buttons[index].config(text=self.current_player)

            if self.check_winner():
                self.status_label.config(text=f"Player {self.current_player}␣
↪Wins!")
                self.disable_buttons()
            elif self.check_draw():
                self.status_label.config(text="It's a Draw!")
            else:
                self.current_player = "O" if self.current_player == "X" else "X"
                self.status_label.config(text=f"Player {self.current_player}'s␣
↪Turn")

    def check_winner(self):
        win_combinations = [
            [0, 1, 2], [3, 4, 5], [6, 7, 8],
            [0, 3, 6], [1, 4, 7], [2, 5, 8],
            [0, 4, 8], [2, 4, 6]
        ]
        for combo in win_combinations:
            if self.board[combo[0]] == self.board[combo[1]] == self.
↪board[combo[2]] != "":
```

```
                return True
        return False

    def check_draw(self):
        return "" not in self.board and not self.check_winner()

    def reset_game(self):
        self.current_player = "X"
        self.board = [""] * 9
        self.status_label.config(text="Player X's Turn")
        for button in self.buttons:
            button.config(text="", state="normal")

    def disable_buttons(self):
        for button in self.buttons:
            button.config(state="disabled")

if __name__ == "__main__":
    root = tk.Tk()
    game = TicTacToe(root)
    root.mainloop()
```

### 0.2 Conclution

In this project, we successfully implemented a Tic-Tac-Toe game using Python and Tkinter. The game allows two players to take turns marking “X” or “O” on a 3x3 grid, with the objective of aligning three marks in a row, column, or diagonal to win. If all spaces are filled without a winner, the game ends in a draw.

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