

# LAB 1: TIC TOE GAME

## CODE:

```
import random

array = [['-', '-', '-'], ['- ', '- ', '- '], ['- ', '- ', '- ']]

def board_filled():
    for row in array:
        for cell in row:
            if cell == '-':
                return False
    return True

def player_won(player):
    for row in array:
        won = True
        for cell in row:
            if cell != player:
                won = False
                break
        if won:
            return True

    for col in range(3):
        won = True
        for row in range(3):
            if array[row][col] != player:
                won = False
                break
```

```
    if won:
        return True

won = True
for i in range(3):
    if array[i][i] != player:
        won = False
        break
if won:
    return True
```

```
won = True
for i in range(3):
    if array[i][2 - i] != player:
        won = False
        break
if won:
    return True
```

```
return False
```

```
def show():
    for row in array:
        print(" | ".join(row))
    print("-" * 9)
```

```
def start():
    player = random.choice(['X', 'O'])
    print(f"Player {player} starts the game!")
```

```
while True:
```

```
    show()
```

```
    try:
```

```
        row = int(input("Enter row number (1-3): ")) - 1
```

```
        col = int(input("Enter column number (1-3): ")) - 1
```

```
    except ValueError:
```

```
        print("Please enter valid integers for row and column.")
```

```
        continue
```

```
    if 0 <= row < 3 and 0 <= col < 3:
```

```
        if array[row][col] == '-':
```

```
            array[row][col] = player
```

```
        else:
```

```
            print("Cell is already filled. Try again.")
```

```
            continue
```

```
    else:
```

```
        print("Invalid row or column. Please enter values between 1 and 3.")
```

```
        continue
```

```
if player_won(player):
```

```
    show()
```

```
    print(f"Player {player} has won!!")
```

```
    break
```

```
if board_filled():
```

```
    show()
```

```
    print("Game is drawn!")
```

```
    break
```

player = 'O' if player == 'X' else 'X'

start()

## OUTPUTS:

### 1 ) Invalid entry –

```
Player O starts the game!
- | - | -
- | - | -
- | - | -
-----
- | - | -
- | - | -
-----
Enter row number (1-3): 1
Enter column number (1-3): 1
O | - | -
-----
- | - | -
- | - | -
-----
Enter row number (1-3): 1
Enter column number (1-3): 1
Cell is already filled. Try again.
O | - | -
-----
- | - | -
- | - | -
-----
Enter row number (1-3): 
```

### 2 ) Win –

```
Player X starts the game!
- | - | -
- | - | -
- | - | -
-----
- | - | -
- | - | -
-----
Enter row number (1-3): 1
Enter column number (1-3): 1
X | - | -
-----
- | - | -
- | - | -
-----
Enter row number (1-3): 1
Enter column number (1-3): 2
X | O | -
-----
- | - | -
- | - | -
-----
Enter row number (1-3): 2
Enter column number (1-3): 1
X | O | -
-----
X | - | -
- | - | -
-----
Enter row number (1-3): 2
Enter column number (1-3): 2
X | O | -
-----
X | O | -
- | - | -
-----
Enter row number (1-3): 3
Enter column number (1-3): 1
X | O | -
-----
X | O | -
X | - | -
-----
Player X has won!!
```

### 3 ) Draw –

```
Player X starts the game!
- | - | -
- | - | -
- | - | -
-----
Enter row number (1-3): 1
Enter column number (1-3): 1
X | - | -
-----
- | - | -
- | - | -
- | - | -
-----
Enter row number (1-3): 1
Enter column number (1-3): 3
X | - | O
-----
- | - | -
- | - | -
- | - | -
-----
Enter row number (1-3): 1
Enter column number (1-3): 2
X | X | O
-----
- | - | -
- | - | -
- | - | -
-----
Enter row number (1-3): 2
Enter column number (1-3): 1
X | X | O
-----
O | - | -
- | - | -
- | - | -
-----
Enter row number (1-3): 2
Enter column number (1-3): 3
X | X | O
-----
O | - | X
- | - | -
- | - | -
```

```
Enter row number (1-3): 2
Enter column number (1-3): 3
X | X | O
-----
O | - | X
- | - | -
- | - | -
-----
Enter row number (1-3): 2
Enter column number (1-3): 2
X | X | O
-----
O | O | X
- | - | -
- | - | -
-----
Enter row number (1-3): 3
Enter column number (1-3): 1
X | X | O
-----
O | O | X
X | - | -
-----
Enter row number (1-3): 3
Enter column number (1-3): 2
X | X | O
-----
O | O | X
X | O | -
-----
Enter row number (1-3): 3
Enter column number (1-3): 3
X | X | O
-----
O | O | X
X | O | X
-----
X | O | X
-----
Game is drawn!
```