

## 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):
```

```
    # Check rows
```

```
    for row in array:
```

```
        won = True
```

```
        for cell in row:
```

```
            if cell != player:
```

```
                won = False
```

```
                break
```

```
    if won:
```

```
        return True
```

```
    # Check columns
```

```
    for col in range(3):
```

```
        won = True
```

```
        for row in range(3):
```

```
            if array[row][col] != player:
```

```
won = False  
  
break  
  
if won:  
  
    return True
```

```
# Check diagonal (top-left to bottom-right)
```

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

```
# Check diagonal (top-right to bottom-left)
```

```
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()

## Output:

### 1. Invalid:

```
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 | - | -
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
-----
Game is drawn!
```