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LAB 1: TIC TOE GAME

CODE:

```python
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
```

```python
        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!")
```

```python
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
```

```python
        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
---------
Game is drawn!
```