

Sagar Bangari (1BM22CS231)

Lab-1

Tic Tac Toe Game

Code:

```
import numpy as np
import random
from time import sleep

array = [['-' , '-' , '-'], ['- ', '- ', '-'], ['- ', '- ', '- ']]
x = 1
def board_filled():
    for i in range(3):
        for j in range(3):
            if(array[i][j]=='-'):
                return False
    return True

def player_won(a):
    for i in range(3):
        for j in range(3):
            if(array[i][j]!=a):
                break
        if j==2:
            return True

    for i in range(3):
        for j in range(3):
            if(array[j][i]!=a):
                break
        if j==2:
            return True

    if (array[0][0]==a and array[1][1]==a and array[2][2]==a):
        return True
    if (array[0][2]==a and array[1][1]==a and array[2][0]==a):
        return True
    return False
```

```

def show():
    for row in array:
        for ele in row:
            print(" ",ele,end = "")
        print()

def start():
    print("Tic - Tac -Toe  Game")
    x = random.choice(['X','O'])
    while (1):
        print()
        show()
        print("It's ",x,"'s turn")
        row = int(input("Enter row number"))-1
        column = int(input("Enter column number"))-1
        if(array[row][column] != '-'):
            print("fill the empty squares")
            continue
        array[row][column] = x

        if( player_won(x) ):
            print("Player ", x , "has won!!")
            break
        if( board_filled() ):
            print("Game is drawn")
            break
        if(x=='X'):
            x = 'O'
            continue
        if(x=='O'):
            x = 'X'

    show()
start()

```

1) Wrong entry output:

```
Tic - Tac -Toe  Game

- - -
- - -
- - -
It's  O 's turn
Enter row number1
Enter column number1

O - -
- - -
- - -
It's  X 's turn
Enter row number1
Enter column number1
fill the empty squares

O - -
- - -
- - -
It's  X 's turn
Enter row number 
```

2) Draw output:

```
Tic - Tac -Toe  Game
```

```
- - -  
- - -  
- - -
```

```
It's  X 's turn
```

```
Enter row number1
```

```
Enter column number2
```

```
- X -  
- - -  
- - -
```

```
It's  O 's turn
```

```
Enter row number1
```

```
Enter column number1
```

```
O X -  
- - -  
- - -
```

```
It's  X 's turn
```

```
Enter row number2
```

```
Enter column number2
```

```
O X -  
- X -  
- - -
```

```
It's  O 's turn
```

```
Enter row number1
```

```
Enter column number3
```

```
O X O  
- X -  
- - -
```

```
It's  X 's turn
```

Enter row number2
Enter column number3

0	X	0
-	X	X
-	-	-

It's 0 's turn
Enter row number2
Enter column number1

0	X	0
0	X	X
-	-	-

It's X 's turn
Enter row number3
Enter column number1

0	X	0
0	X	X
X	-	-

It's 0 's turn
Enter row number3
Enter column number2

0	X	0
0	X	X
X	0	-

It's X 's turn
Enter row number3
Enter column number3

Game is drawn

0	X	0
0	X	X
X	0	X

3)Win output:

```
Tic - Tac -Toe  Game
```

```
- - -  
- - -  
- - -
```

```
It's X 's turn
```

```
Enter row number1
```

```
Enter column number1
```

```
X - -  
- - -  
- - -
```

```
It's O 's turn
```

```
Enter row number1
```

```
Enter column number2
```

```
X O -  
- - -  
- - -
```

```
It's X 's turn
```

```
Enter row number2
```

```
Enter column number2
```

```
X O -  
- X -  
- - -
```

```
It's O 's turn
```

```
Enter row number1
```

```
Enter column number3
```

```
X O O  
- X -  
- - -
```

```
It's X 's turn
```

```
Enter row number3
```

```
Enter column number3
```

```
Player X has won!!
```

```
X O O  
- X -  
- - X
```