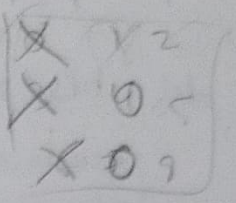
17/11/2023

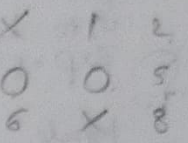
① TicTacToe

```
import random
tic = [1, 2, 3, 4, 5, 6, 7, 8, 9]

def printBoard(tic):
    print(tic[0]+'|'+tic[1]+'|'+tic[2])
    print("- - - - - - - - - -")
    print(tic[3]+'|'+tic[4]+'|'+tic[5])
    print("- - - - - - - - - -")
    print(tic[6]+'|'+tic[7]+'|'+tic[8])

def isWinner(tic, pos):
    if tic[0]==tic[4] and tic[4]==tic[8] or
        tic[2]==tic[4] and tic[4]==tic[6]:
        return True
    else if tic[pos-0]==tic[pos-3] and tic[pos-3]==tic[pos-6]:
        return True
    else if tic[pos//3+1]=tic[pos//3+2] and tic[pos//3+2]==
                                            tic[pos//3+3]:
        return True
    return False

def update_user(tic):
    num = int(input("Enter a number on the board"))
    while(num not in tic):
        tic[num-1]='0'
        num = int(input("Enter a number on the board"))
    tic[num-1]=='0'

def update_comp(tic):
    for i in tic:
        if i!='X' and i!='0':
            tic[i-1]='X'
            if(isWinner(tic, i-1)==True):
                return
            else:
                tic[i-1]=i
```

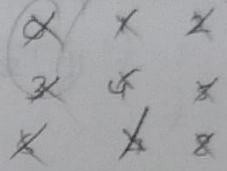
```
for i in tic:
    if i!='X' and i!='O':
        tic[i-1]='O'
        if (isWinner(tic, i-1)==False):
            tic[i-1]='X'
            return
        else
            tic[i-1]=i
```



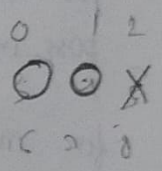
```
while (random.rand(9) not in tic):
    num
num = random.rand(9)
while (num not in tic):
    num=random.rand(9)
tic[num-1]=='X'
```



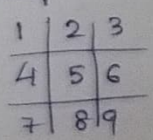
pos=5
5-3=2
5-6=-1

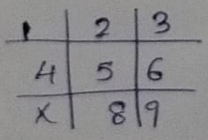


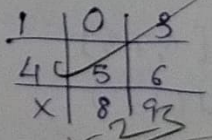
```
printBoard(tic)
count=0

if count%2==0:
    print("computer's turn")
    update_comp(tic)
    count+=1

else if count%2!=0:
    print("users turn")
    update_user(tic)
    count+=1

if count>=5:
    if(isWinner(tic, pos)==True):
        print("winner", tic[pos-1])
```

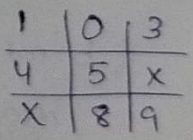


Output:









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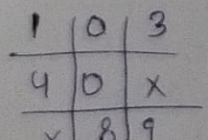
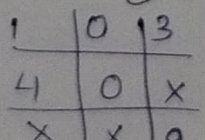
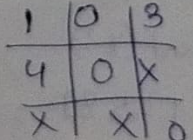
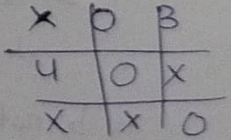
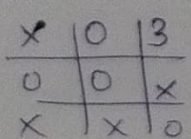
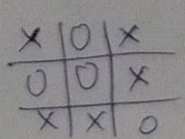








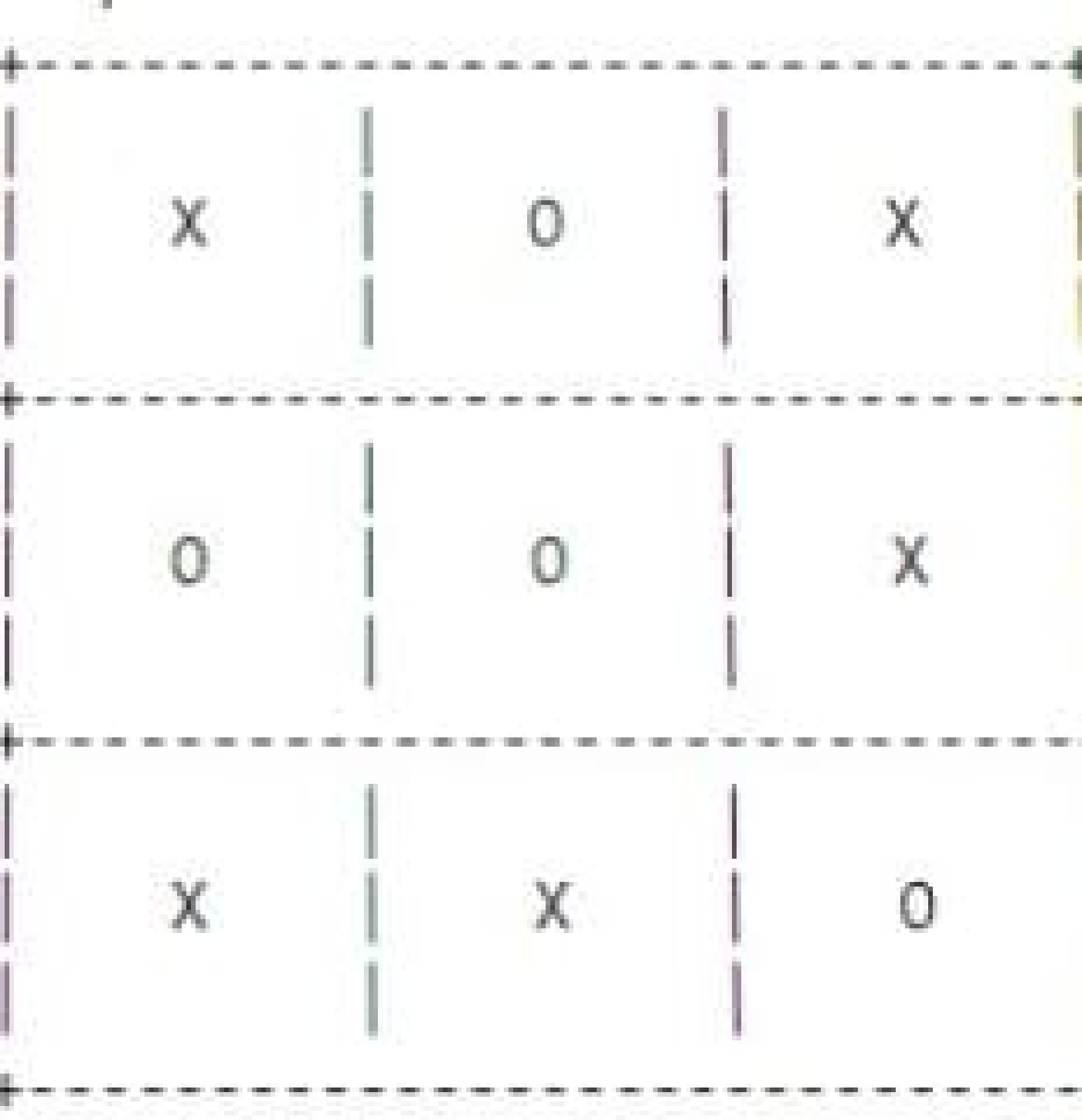




```
+-------------------------------+
|       |       |       |
|   1   |   2   |   3   |
|       |       |       |
+-------------------------------+
|       |       |       |
|   4   |   5   |   6   |
|       |       |       |
+-------------------------------+
|       |       |       |
|   7   |   8   |   9   |
|       |       |       |
+-------------------------------+
computer's turn :
+-------------------------------+
|       |       |       |
|   1   |   2   |   3   |
|       |       |       |
+-------------------------------+
|       |       |       |
|   4   |   5   |   6   |
|       |       |       |
+-------------------------------+
|       |       |       |
|   X   |   8   |   9   |
|       |       |       |
+-------------------------------+
Your turn :
enter a number on the board :2
+-------------------------------+
|       |       |       |
|   1   |   0   |   3   |
|       |       |       |
+-------------------------------+
|       |       |       |
|   4   |   5   |   6   |
|       |       |       |
+-------------------------------+
|       |       |       |
|   X   |   8   |   9   |
|       |       |       |
+-------------------------------+
```

```
+-------------------------------+
|               |               |
|    1          |    0          |    3
|               |               |
+-------------------------------+
|               |               |
|    4          |    5          |    X
|               |               |
+-------------------------------+
|               |               |
|    X          |    8          |    9
|               |               |
+-------------------------------+
Your turn :
enter a number on the board :5
+-------------------------------+
|               |               |
|    1          |    0          |    3
|               |               |
+-------------------------------+
|               |               |
|    4          |    0          |    X
|               |               |
+-------------------------------+
|               |               |
|    X          |    8          |    9
|               |               |
+-------------------------------+
computer's turn :
+-------------------------------+
|               |               |
|    1          |    0          |    3
|               |               |
+-------------------------------+
|               |               |
|    4          |    0          |    X
|               |               |
+-------------------------------+
|               |               |
|    X          |    X          |    9
|               |               |
+-------------------------------+
Your turn :
enter a number on the board :9
```

```
+-------------------------------+
|       |       |       |
|   1   |   0   |   3   |
|       |       |       |
+-------------------------------+
|       |       |       |
|   4   |   0   |   X   |
|       |       |       |
+-------------------------------+
|       |       |       |
|   X   |   X   |   0   |
|       |       |       |
+-------------------------------+
computer's turn :
+-------------------------------+
|       |       |       |
|   X   |   0   |   3   |
|       |       |       |
+-------------------------------+
|       |       |       |
|   4   |   0   |   X   |
|       |       |       |
+-------------------------------+
|       |       |       |
|   X   |   X   |   0   |
|       |       |       |
+-------------------------------+
Your turn :
enter a number on the board :4
+-------------------------------+
|       |       |       |
|   X   |   0   |   3   |
|       |       |       |
+-------------------------------+
|       |       |       |
|   0   |   0   |   X   |
|       |       |       |
+-------------------------------+
|       |       |       |
|   X   |   X   |   0   |
|       |       |       |
+-------------------------------+
```


X O X
O O X
X X O