Tic-Tac-Toe

Aim: The purpose of the program is to use the game using python.

Description:

About the Game:

Tic-tac-toe (American English), **noughts and crosses** (Commonwealth English and British English), or **Xs and Os**/"X'y O'sies" (Ireland), is a paper-and-pencil game for two players, *X* and *O*, who take turns marking the spaces in a 3×3 grid. The player who succeeds in placing three of their marks in a diagonal, horizontal, or vertical row is the winner. It is a solved game with a forced draw assuming best play from both players.

Code Explanation:

random module:

The random module is **a built-in module to generate the pseudo-random variables**. It can be used perform some action randomly such as to get a random number, selecting a random elements from a list, shuffle elements randomly, etc.

```
import random



def create_board():
        for i in range(0,1,8):
            print(' -----------------
\n\n|  %d  |  %d  |  %d  |\n\n -----------------
\n\n|  %d  |  %d  |  %d  |\n\n -----------------
\n\n|  %d  |  %d  |  %d  | \n\n-----------------
'%(i+1,i+2,i+3,i+4,i+5,i+6,i+7,i+8,i+9))
        print('Let us start the game!!')

#creating a board
```

```
def placemarker1():
        while True:
            a=input('Enter your marker correctly:')
            if a.lower()=='x':
                print('Your marker is x')
                break
        return a

#Player1

def placemarker2():
        while True:
            b=input('Enter your marker correctly:')
            if b.lower()=='o':
                print('Your marker is o')
                break
        return b

#Player2



def logic(k,c,d):
        j=0
        if k==1:
            d[1]=c

            print(' -----------------')
            print('|  %s  |  %s  |  %s  |'%(d[1],d[2],d[3]))
            print(' -----------------')
            print('|  %s  |  %s  |  %s  |'%(d[4],d[5],d[6]))
            print(' -----------------')
            print('|  %s  |  %s  |  %s  |'%(d[7],d[8],d[9]))
            print(' -----------------')

        elif k==2:
            d[2]=c
            print(' -----------------')
            print('|  %s  |  %s  |  %s  |'%(d[1],d[2],d[3]))
            print(' -----------------')
            print('|  %s  |  %s  |  %s  |'%(d[4],d[5],d[6]))
            print(' -----------------')
            print('|  %s  |  %s  |  %s  |'%(d[7],d[8],d[9]))
            print(' -----------------')

        elif k==3:
            d[3]=c
            print(' -----------------')
            print('|  %s  |  %s  |  %s  |'%(d[1],d[2],d[3]))
```

```
    print(' -----------------')
    print('|  %s  |  %s  |  %s  |'%(d[4],d[5],d[6]))
    print(' -----------------')
    print('|  %s  |  %s  |  %s  |'%(d[7],d[8],d[9]))
    print(' -----------------')

elif k==4:
    d[4]=c
    print(' -----------------')
    print('|  %s  |  %s  |  %s  |'%(d[1],d[2],d[3]))
    print(' -----------------')
    print('|  %s  |  %s  |  %s  |'%(d[4],d[5],d[6]))
    print(' -----------------')
    print('|  %s  |  %s  |  %s  |'%(d[7],d[8],d[9]))
    print(' -----------------')

elif k==5:
    d[5]=c
    print(' -----------------')
    print('|  %s  |  %s  |  %s  |'%(d[1],d[2],d[3]))
    print(' -----------------')
    print('|  %s  |  %s  |  %s  |'%(d[4],d[5],d[6]))
    print(' -----------------')
    print('|  %s  |  %s  |  %s  |'%(d[7],d[8],d[9]))
    print(' -----------------')

elif k==6:
    d[6]=c
    print('-----------------')
    print('|  %s  |  %s  |  %s  |'%(d[1],d[2],d[3]))
    print(' -----------------')
    print('|  %s  |  %s  |  %s  |'%(d[4],d[5],d[6]))
    print(' -----------------')
    print('|  %s  |  %s  |  %s  |'%(d[7],d[8],d[9]))
    print('-----------------')



elif k==7:
    d[7]=c
    print(' -----------------')
    print('|  %s  |  %s  |  %s  |'%(d[1],d[2],d[3]))
    print(' -----------------')
    print('|  %s  |  %s  |  %s  |'%(d[4],d[5],d[6]))
    print(' -----------------')
    print('|  %s  |  %s  |  %s  |'%(d[7],d[8],d[9]))
    print(' -----------------')
```

```
        elif k==8:
            d[8]=c
            print(' -----------------')
            print('|  %s  |  %s  |  %s  |'%(d[1],d[2],d[3]))
            print(' -----------------')
            print('|  %s  |  %s  |  %s  |'%(d[4],d[5],d[6]))
            print('-----------------')
            print('|  %s  |  %s  |  %s  |'%(d[7],d[8],d[9]))
            print('-----------------')

        elif k==9:
            d[9]=c
            print(' -----------------')
            print('|  %s  |  %s  |  %s  |'%(d[1],d[2],d[3]))
            print(' -----------------')
            print('|  %s  |  %s  |  %s  |'%(d[4],d[5],d[6]))
            print(' -----------------')
            print('|  %s  |  %s  |  %s  |'%(d[7],d[8],d[9]))
            print(' -----------------')

        j=j+1
        return j




def users_input():
    i=m=n=t=0
    r=random.randint(1,2)
    if r==1:
        print("First person should play first")
    else:
        print("Second person should play first")

    d={1:'',2:'',3:'',4:'',5:'',6:'',7:'',8:'',9:''}

    while True:

        def Player(A):
            while A>9 or d[A]!='':
                A=int(input('Enter the correct input it might be filled
 or it might be greater thean the value 9:'))
                break

        def decision(d):
            p=q=0
```

```
            while True:
                if ((d[1]==d[2]==d[3]=='x') or (d[1]==d[5]==d[9]=='x')
or (d[4]==d[5]==d[6]=='x') or (d[7]==d[8]==d[9]=='x') or(d[1]==d[4]==d[
7]=='x') or (d[2]==d[8]==d[5]=='x')or(d[3]==d[6]==d[9]=='x')or(d[3]==d[
5]==d[7]=='x')):
                    print('First player got a point and nearly going to
 win')
                    p=p+1
                    pass
                if((d[1]==d[2]==d[3]=='o') or (d[1]==d[5]==d[9]=='o') o
r (d[4]==d[5]==d[6]=='o') or (d[7]==d[8]==d[9]=='o') or(d[1]==d[4]==d[7]
=='o') or (d[2]==d[8]==d[5]=='o')or(d[3]==d[6]==d[9]=='o')or(d[3]==d[5]
==d[7]=='o')):
                    print('Second player got a point and nearly going t
o win')
                    q=q+1
                    pass
                if p==1 and q==1:
                    print('Tie between two players')
                    pass
                break
            return p,q


        if r==1 or r%2!=0:
            A=int(input('Enter the first user input:'))
            Player(A)
            ch1=placemarker1()
            m=logic(A,ch1,d)
            n,t=decision(d)

        else:

            B=int(input('Enter the second user input:'))
            Player(B)
            ch2=placemarker2()
            m=logic(B,ch2,d)
            n,t=decision(d)




        r=r+1
        i=i+1
        if i==9:
            break

    return n,t
```

#Logic of the game

```
def Introduction():
    print('Do you want to play ?')
    create_board()
    g,h=users_input()
    if(g>h):
      print('Congratulations!Finally,First player won the match')
    elif(h>g):
      print('Congratulations!Finally,Second player won the match')
    elif h==g:
      print('Tie between two players')
```

#Main function

```
Introduction()
print('Do you want to play again?')
answer=input()
if answer.lower()=='yes':
    Introduction()
else:
    print('Thank you')
```