

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')
```

OUTPUT:



The screenshot shows a Jupyter Notebook window titled "Tic-Tac-Toe.ipynb". The output area displays the following text:

```
... Do you want to play ?  
-----  
| 1 | 2 | 3 |  
-----  
| 4 | 5 | 6 |  
-----  
| 7 | 8 | 9 |  
-----  
Let us start the game!!  
Second person should play first  
Enter the second user input: 
```

Tic-Tac-Toe.ipynb

File Edit View Insert Runtime Tools Help All changes saved

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else:
print('Thank you')

Do you want to play ?

	1		2		3	

	4		5		6	

	7		8		9	

Let us start the game!!
Second person should play first
Enter the second user input:1
Enter your marker correctly:

Tic-Tac-Toe.ipynb

File Edit View Insert Runtime Tools Help

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else:
print('Thank you')

Do you want to play ?

	1		2		3	

	4		5		6	

	7		8		9	

Let us start the game!!
Second person should play first
Enter the second user input:1
Enter your marker correctly:x
Enter your marker correctly:o
Your marker is o

	o			

Enter the first user input:2

Tic-Tac-Toe.ipynb

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+ Code + Text

	7		8		9	
--	---	--	---	--	---	--

Let us start the game!!
Second person should play first
Enter the second user input:1
Enter your marker correctly:x
Enter your marker correctly:o
Your marker is o

	o			

Enter the first user input:2
Enter your marker correctly:

Tic-Tac-Toe.ipynb

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RAM

Disk

Editing

Enter the first user input:2
Enter your marker correctly:x
Your marker is x

o	x	

Enter the second user input:

Tic-Tac-Toe.ipynb

File Edit View Insert Runtime Tools Help All changes saved

+ Code + Text

RAM

Disk

Editing

Enter the first user input:2
Enter your marker correctly:x
Your marker is x

o	x	

Enter the second user input:5
Enter your marker correctly:

Tic-Tac-Toe.ipynb

File Edit View Insert Runtime Tools Help

+ Code + Text

RAM

Disk

Editing

Enter the second user input:5
Enter your marker correctly:o
Your marker is o

o	x	
	o	

Enter the first user input:3
Enter your marker correctly:



In this way it goes on ...

Later , it shows the winner and if it is tie , it shows as the tie between both..

Finally it asks whether to play again or exiting from the game..