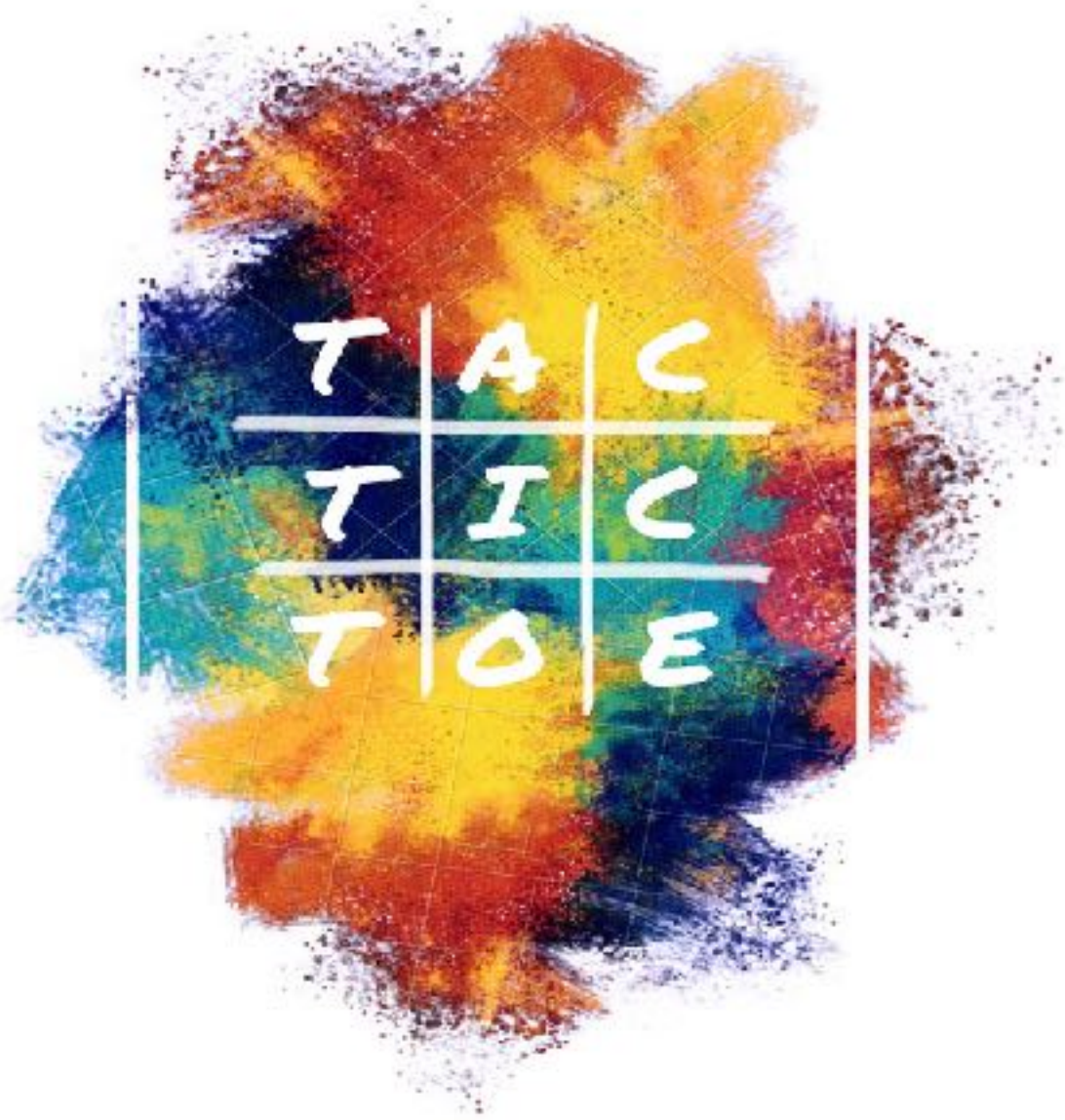

Made by:

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Introduction

What is Tac Tic Toe?

a game in which two players seek in alternate turns to complete a row, a column, or a diagonal with either three O's or three X's drawn in the spaces of a grid of nine squares. It is also another name for Tic Tac Toe

Origin

Tic-tac-toe originated from the ancient Roman Empire around the first century BCE, and it was called Terni Lapilli. The rules of the game differ as each player only had three pieces, moving around the empty spaces to keep playing. First print reference of the game appears in Britain with the name "Noughts and Crosses" in 1864. (1) The name "tic-tac-toe" is renamed from "Noughts and Crosses" in the 20th century USA, and is the earliest known game to display visuals on a video monitor. (2) Although Tic-tac-toe appear simplistic to play, it contains 138 terminal board positions and 255,168 possible ways these terminal board positions is obtained. (3)

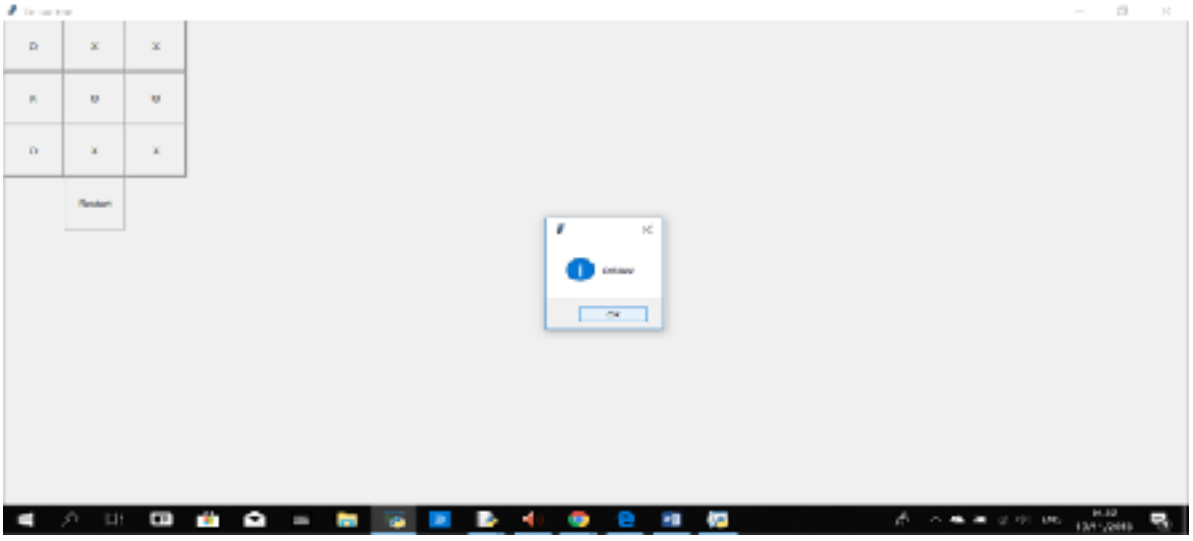
Why is it Commonly Played?

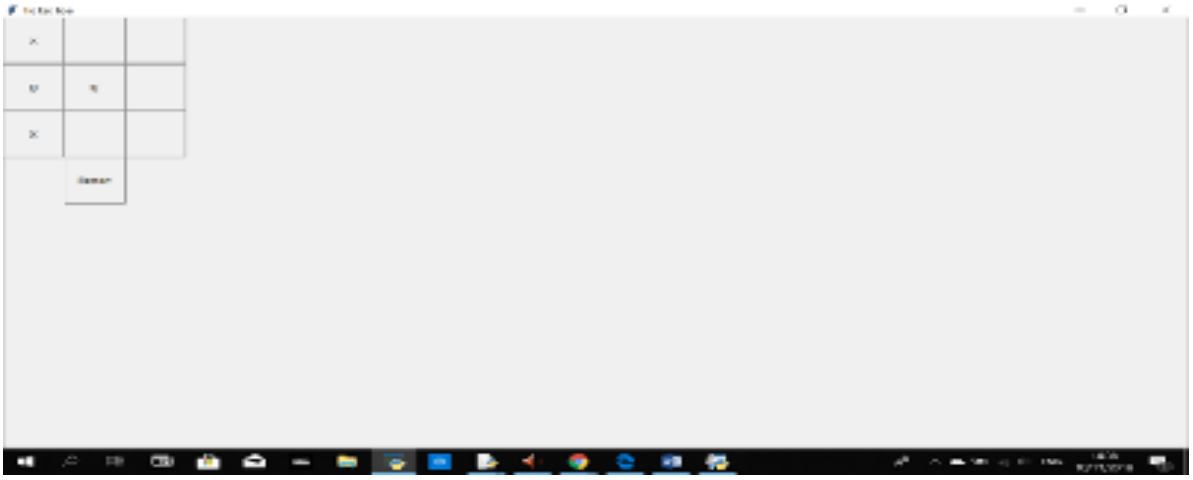
Tic-tac-toe is one of the first games to be played by children due to its fast setup and easy engagement.

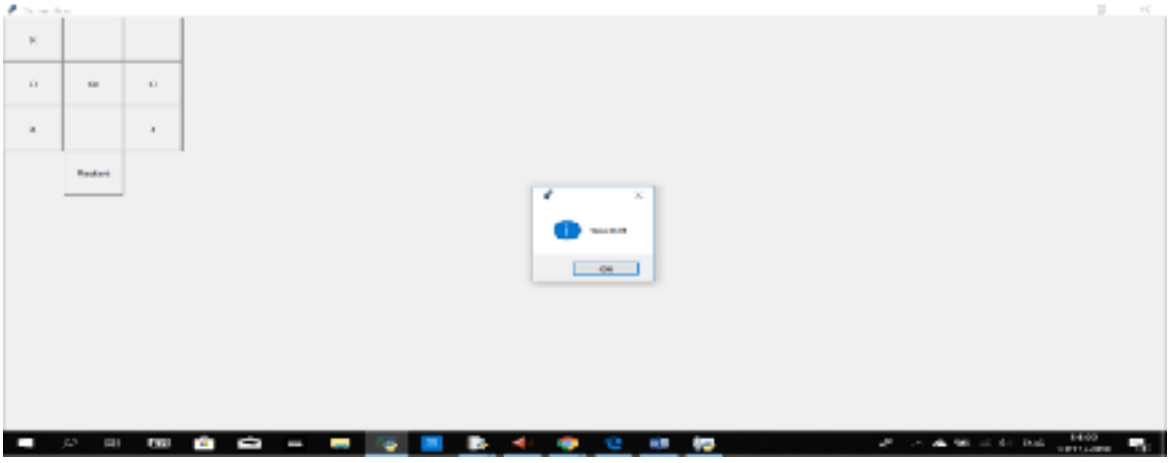
How to Play

The objective of Tic Tac Toe is to get three in a row. You play on a three by three game board. The first player is known as X and the second is O. Players alternate placing X's and O's on the game board until either opponent has three in a row or all nine squares are filled, so it's like the sign X must be placed in a position to get three in a row horizontally, vertically or diagonally. The same goes to O. X always goes first, and in the event that no one has three in a row, the statement is called a cat game.

Screenshots







PYTHON CODE

```
from tkinter import *
import tkinter.messagebox
import random
w=Tk()
w.title("Tic Tac Toe")
##2 players
def click2():
   global w
   global turn
   playerbutton2.pack()
   for button in w.winfo_children():
      button.destroy()
   w.title("Tic tac toe")
   turn="O"
   tkinter.messagebox.showinfo("Game description:", "The objective of Tic Tac Toe is to get three in a row. You play on a three by three game board. The first player is known as X and the second is O. Players alternate placing Xs and Os on the game board until either oppent has three in a row or all nine squares are filled, so it's like the sign X must be placed in a position to get three in a row horizontally, vertically or diagonally. The same goes to O  X always goes first, and in the event that no one has three in a row, the statemate is called a cat game.")
   tkinter.messagebox.showinfo("PLAYERS:", "PLAYER 1:X , PLAYER 2:O")
   tkinter.messagebox.showinfo("Rules:", "player 1 goes first, player 2 goes second")
   def winorloseordraw():
      global turn
      ##for the O
      if (b1["text"]=="O" and b2["text"]=="O" and b3["text"]=="O") or (b1["text"]=="O" and b4["text"]=="O" and b7["text"]=="O") or (b1["text"]=="O" and b5["text"]=="O" and b9["text"]=="O"):
         tkinter.messagebox.showinfo("winner" , "O wins" )
         turn="END"
      elif (b2["text"]=="O" and b5["text"]=="O" and b8["text"]=="O"):
         tkinter.messagebox.showinfo("winner", "O wins")
         turn="END"
      elif (b3["text"]=="O" and b6["text"]=="O" and b9["text"]=="O"):
         tkinter.messagebox.showinfo("winner", "O wins")
         turn="END"
```

```
        elif (b3["text"]=="O" and b5["text"]=="O" and b7["text"]=="O"):
            tkinter.messagebox.showinfo("winner", "O wins")
            turn="END"
        elif (b4["text"]=="O" and b5["text"]=="O" and b6["text"]=="O"):
            tkinter.messagebox.showinfo("winner", "O wins")
            turn="END"
        elif (b5["text"]=="O" and b2["text"]=="O" and b8["text"]=="O"):
            tkinter.meessagebox.showinfo("winner", "O wins")
            turn="END"
        elif (b7["text"]=="O" and b8["text"]=="O" and b9["text"]=="O"):
            tkinter.messagebox.showinfo("winner", "O wins")
            turn="END"
        #for the X
        elif (b1["text"]=="X" and b2["text"]=="X" and b3["text"]=="X") or (b1["text"]=="X" and b4["text"]=="X" and b7["text"]=="X") or
(b1["text"]=="X" and b5["text"]=="X" and b9["text"]=="X"):
            tkinter.messagebox.showinfo("winner", "X wins")
            turn="END"
        elif (b2["text"]=="X" and b5["text"]=="X" and b8["text"]=="X"):
            tkinter.messagebox.showinfo("winner", "X wins")
            turn="END"
        elif (b3["text"]=="X" and b6["text"]=="X" and b9["text"]=="X"):
            tkinter.messagebox.showinfo("winner", "X wins")
            turn="END"
        elif (b3["text"]=="X" and b5["text"]=="X" and b7["text"]=="X"):
            tkinter.messagebox.showinfo("winner", "X wins")
            turn="END"
        elif (b4["text"]=="X" and b5["text"]=="X" and b6["text"]=="X"):
            tkinter.messagebox.showinfo("winner", "X wins")
            turn="END"
        elif (b5["text"]=="X" and b2["text"]=="X" and b8["text"]=="X"):
            tkinter.meessagebox.showinfo("winner", "X wins")
            turn="END"
        elif (b7["text"]=="X" and b8["text"]=="X" and b9["text"]=="X"):
            tkinter.messagebox.showinfo("winner", "X wins")
            turn="END"
```

```
        #for the draw
        elif (b1["text"]!="" and b2["text"]!="" and b3["text"]!="" and b4["text"]!="" and b5["text"]!="" and b6["text"]!="" and b7["text"]!="" and
b8["text"]!="" and b9["text"]!=""):
            tkinter.messagebox.showinfo("", "DRAW")
            turn="END"



    def click1():
        global turn
        if b1["text"]=="" and turn!="END":
            if turn=="X":
                turn="O"
            else:
                turn="X"
            b1["text"]=turn
        winorloseordraw()


    def click2():
        global turn
        if b2["text"]=="" and turn!="END":
            if turn=="X":
                turn="O"
            else:
                turn="X"
            b2["text"]=turn
        winorloseordraw()
    def click3():
        global turn
        if b3["text"]=="" and turn!="END":
            if turn=="X":
                turn="O"
            else:
                turn="X"
            b3["text"]=turn
        winorloseordraw()
```

```
def click4():
    global turn
    if b4["text"]=="" and turn!="END":
        if turn=="X":
            turn="O"
        else:
            turn="X"
        b4["text"]=turn
    winorloseordraw()
def click5():
    global turn
    if b5["text"]=="" and turn!="END":
        if turn=="X":
            turn="O"
        else:
            turn="X"
        b5["text"]=turn
    winorloseordraw()



def click6():
    global turn
    if b6["text"]=="" and turn!="END":
        if turn=="X":
            turn="O"
        else:
            turn="X"
        b6["text"]=turn
    winorloseordraw()


def click7():
    global turn
    if b7["text"]=="" and turn!="END":
        if turn=="X":
            turn="O"
```

```
        else:
            turn="X"
        b7["text"]=turn
    winorloseordraw()
def click8():
    global turn
    if b8["text"]=="" and turn!="END":
        if turn=="X":
            turn="O"
        else:
            turn="X"
        b8["text"]=turn
    winorloseordraw()



def click9():
    global turn
    if b9["text"]=="" and turn!="END":
        if turn=="X":
            turn="O"
        else:
            turn="X"
        b9["text"]=turn
    winorloseordraw()
def restart():
    global turn
    turn="O"
    b1["text"]=""
    b2["text"]=""
    b3["text"]=""
    b4["text"]=""
    b5["text"]=""
    b6["text"]=""
    b7["text"]=""
    b8["text"]=""
```

```
        b9["text"]=""
    b1=Button(w, text="", command=click1, width=8, height=4)
    b1.grid(column=1, row=0)
    b2=Button(w, text="", command=click2,width=8, height=4)
    b2.grid(column=2, row=0)
    b3=Button(w, text="", command=click3,width=8, height=4)
    b3.grid(column=3, row=0)
    b4=Button(w,text="", command=click4,width=8, height=4)
    b4.grid(column=1, row=1)
    b5=Button(w, text="", command=click5,width=8, height=4)
    b5.grid(column=2, row=1)
    b6=Button(w, text="", command=click6,width=8, height=4)
    b6.grid(column=3, row=1)
    b7=Button(w, text="", command=click7,width=8, height=4)
    b7.grid(column=1, row=2)
    b8=Button(w, text="", command=click8,width=8, height=4)
    b8.grid(column=2, row=2)
    b9=Button(w, text="", command=click9,width=8, height=4)
    b9.grid(column=3, row=2)
    restart=Button(w, text="Restart", command=restart, width=8, height=4)
    restart.grid(column=2, row=3)


def click():
    global w
    global turn
    playerbutton1.pack()
    for button in w.winfo_children():
        button.destroy()
    w.title("Tic tac toe")
    turn="X"
    tkinter.messagebox.showinfo("Game description:", "The objective of Tic Tac Toe is to get three in a row. You play on a three by three game board. The first player is known as X and the second is O. Players alternate placing Xs and Os on the game board until either opponent has three in a row or all nine squares are filled, so it's like the sign X must be placed in a position to get three in a row horizontally, vertically or diagonally. The same goes to O.  X always goes first, and in the event that no one has three in a row, the statement is called a cat game.")
    tkinter.messagebox.showinfo("Your character will be X")
```

```
    def winorloseordraw():
        global turn
        #for the X
        if (b1["text"]=="X" and b2["text"]=="X" and b3["text"]=="X") or (b1["text"]=="X" and b4["text"]=="X" and b7["text"]=="X") or (b1["text"]=="X" and b5["text"]=="X" and b9["text"]=="X"):
            tkinter.messagebox.showinfo("winner", "X wins")
            turn="END"
        elif (b2["text"]=="X" and b5["text"]=="X" and b8["text"]=="X"):
            tkinter.messagebox.showinfo("winner", "X wins")
            turn="END"
        elif (b3["text"]=="X" and b6["text"]=="X" and b9["text"]=="X"):
            tkinter.messagebox.showinfo("winner", "X wins")
            turn="END"
        elif (b3["text"]=="X" and b5["text"]=="X" and b7["text"]=="X"):
            tkinter.messagebox.showinfo("winner", "X wins")
            turn="END"
        elif (b4["text"]=="X" and b5["text"]=="X" and b6["text"]=="X"):
            tkinter.messagebox.showinfo("winner", "X wins")
            turn="END"
        elif (b5["text"]=="X" and b2["text"]=="X" and b8["text"]=="X"):
            tkinter.meessagebox.showinfo("winner", "X wins")
            turn="END"
        elif (b7["text"]=="X" and b8["text"]=="X" and b9["text"]=="X"):
            tkinter.messagebox.showinfo("winner", "X wins")
            turn="END"
        #for the robot
        elif (b1["text"]=="O" and b2["text"]=="O" and b3["text"]=="O") or (b1["text"]=="O" and b4["text"]=="O" and b7["text"]=="O") or (b1["text"]=="O" and b5["text"]=="O" and b9["text"]=="O"):
            tkinter.messagebox.showinfo("" , "You lost" )
            turn="END"
        elif (b2["text"]=="O" and b5["text"]=="O" and b8["text"]=="O"):
            tkinter.messagebox.showinfo("", "You lost")
            turn="END"
        elif (b3["text"]=="O" and b6["text"]=="O" and b9["text"]=="O"):
            tkinter.messagebox.showinfo("", "You lost")
            turn="END"
```

```
    elif (b3["text"]=="O" and b5["text"]=="O" and b7["text"]=="O"):
        tkinter.messagebox.showinfo("", "You lost")
        turn="END"
    elif (b4["text"]=="O" and b5["text"]=="O" and b6["text"]=="O"):
        tkinter.messagebox.showinfo("", "You lost")
        turn="END"
    elif (b5["text"]=="O" and b2["text"]=="O" and b8["text"]=="O"):
        tkinter.meessagebox.showinfo("", "You lost")
        turn="END"
    elif (b7["text"]=="O" and b8["text"]=="O" and b9["text"]=="O"):
        tkinter.messagebox.showinfo("", "You lost")
        turn="END"

    #for the draw
    elif (b1["text"]!="" and b2["text"]!="" and b3["text"]!="" and b4["text"]!="" and b5["text"]!="" and b6["text"]!="" and b7["text"]!="" and
b8["text"]!="" and b9["text"]!=""):
        tkinter.messagebox.showinfo("", "DRAW")
        turn="END"


def defense():
    notyetplace=True
    #Strategical defense
    ##strategical defense
    if b6["text"]==b8["text"]=="X" and b9["text"]=="":
        b9["text"]="O"
        notyetplace=False
    ##strategical defense
    elif b1["text"]==b8["text"]=="X" and b4["text"]=="" :
        b4["text"]="O"
        notyetplace=False
    ##1st strategical defense
    elif b1["text"]==b9["text"]=="X" and b4["text"]=="":
        b4["text"]="O"
        notyetplace=False
```

```
##2nd strategical defense
elif b5["text"]==b9["text"]=="X" and b3["text"]=="":
    b3["text"]="O"
    notyetplace=False
## diagonal defense (part of strategical defense)
elif b3["text"]==b5["text"]=="X" and b7["text"]=="":
    b7["text"]="O"
    notyetplace=False
## 3rd strategical defense
elif (b3["text"]==b7["text"]=="X" and b6["text"]=="") or (b3["text"]==b8["text"]=="X" and b6["text"]==""):
    b6["text"]="O"
    notyetplace=False
#ROWS:
#1st row:
elif b1["text"]==b2["text"]=="X" and b3["text"]=="":
    b3["text"]="O"
    notyetplace=False
elif b1["text"]==b3["text"]=="X" and b2["text"]=="":
    b2["text"]="O"
    notyetplace=False
elif b2["text"]==b3["text"]=="X" and b1["text"]=="":
    b1["text"]="O"
    notyetplace=False

#2nd row:
elif b4["text"]==b5["text"]=="X" and b6["text"]=="":
    b6["text"]="O"
    notyetplace=False
elif b4["text"]==b6["text"]=="X" and b5["text"]=="":
    b5["text"]="O"
    notyetplace=False
elif b5["text"]==b6["text"]=="X" and b4["text"]=="":
    b4["text"]="O"
    notyetplace=False
```

```
#3rd row:
elif b7["text"]==b8["text"]=="X" and b9["text"]=="":
    b9["text"]="O"
    notyetplace=False
elif b7["text"]==b9["text"]=="X" and b8["text"]=="":
    b8["text"]="O"
    notyetplace=False
elif b8["text"]==b9["text"]=="X" and b7["text"]=="":
    b7["text"]="O"
    notyetplace=False

#COLUMNS:
#1st column:
elif b1["text"]==b4["text"]=="X" and b7["text"]=="":
    b7["text"]="O"
    notyetplace=False
elif b1["text"]==b7["text"]=="X" and b4["text"]=="":
    b4["text"]="O"
    notyetplace=False
elif b4["text"]==b7["text"]=="X" and b1["text"]=="":
    b1["text"]="O"
    notyetplace=False

#2nd column:
elif b2["text"]==b5["text"]=="X" and b8["text"]=="":
    b8["text"]="O"
    notyetplace=False
elif b2["text"]==b8["text"]=="X" and b5["text"]=="":
    b5["text"]="O"
    notyetplace=False
elif b5["text"]==b8["text"]=="X" and b2["text"]=="":
    b2["text"]="O"
    notyetplace=False
#3rd column:
elif b3["text"]==b6["text"]=="X" and b9["text"]=="":
```

```
        b9["text"]="O"
        notyetplace=False
    elif b3["text"]==b9["text"]=="X" and b6["text"]=="":
        b6["text"]="O"
        notyetplace=False
    elif b6["text"]==b9["text"]=="X" and b3["text"]=="":
        b3["text"]="O"
        notyetplace=False

    #DIAGONALS:
    #1st diagonal:
    elif b1["text"]==b5["text"]=="X" and b9["text"]=="":
        b9["text"]="O"
        notyetplace=False
    elif b1["text"]==b9["text"]=="X" and b5["text"]=="":
        b5["text"]="O"
        notyetplace=False
    elif b5["text"]==b9["text"]=="X" and b1["text"]=="":
        b1["text"]="O"
        notyetplace=False

    #2nd diagonal:
    elif b3["text"]==b5["text"]=="X" and b7["text"]=="":
        b7["text"]="O"
        notyetplace=False
    elif b3["text"]==b7["text"]=="X" and b5["text"]=="":
        b5["text"]="O"
        notyetplace=False
    elif b5["text"]==b7["text"]=="X" and b3["text"]=="":
        b3["text"]="O"
        notyetplace=False
    return notyetplace



def win():
```

```
#ROWS:
#1st row:
if b1["text"]==b2["text"]=="O" and b3["text"]=="":
    b3["text"]="O"
    notyetplace=False
elif b1["text"]==b3["text"]=="O" and b2["text"]=="":
    b2["text"]="O"
    notyetplace=False
elif b2["text"]==b3["text"]=="O" and b1["text"]=="":
    b1["text"]="O"
    notyetplace=False

#2nd row:
elif b4["text"]==b5["text"]=="O" and b6["text"]=="":
    b6["text"]="O"
    notyetplace=False
elif b4["text"]==b6["text"]=="O" and b5["text"]=="":
    b5["text"]="O"
    notyetplace=False
elif b5["text"]==b6["text"]=="O" and b4["text"]=="":
    b4["text"]="O"
    notyetplace=False

#3rd row:
elif b7["text"]==b8["text"]=="O" and b9["text"]=="":
    b9["text"]="O"
    notyetplace=False
elif b7["text"]==b9["text"]=="O" and b8["text"]=="":
    b8["text"]="O"
    notyetplace=False
elif b8["text"]==b9["text"]=="O" and b7["text"]=="":
    b7["text"]="O"
    notyetplace=False

#COLUMNS:
```

```
#1st column:
elif b1["text"]==b4["text"]=="O" and b7["text"]=="":
    b7["text"]="O"
    notyetplace=False
elif b1["text"]==b7["text"]=="O" and b4["text"]=="":
    b4["text"]="O"
    notyetplace=False
elif b4["text"]==b7["text"]=="O" and b1["text"]=="":
    b1["text"]="O"
    notyetplace=False

#2nd column:
elif b2["text"]==b5["text"]=="O" and b8["text"]=="":
    b8["text"]="O"
    notyetplace=False
elif b2["text"]==b8["text"]=="O" and b5["text"]=="":
    b5["text"]="O"
    notyetplace=False
elif b5["text"]==b8["text"]=="O" and b2["text"]=="":
    b2["text"]="O"
    notyetplace=False
#3rd column:
elif b3["text"]==b6["text"]=="O" and b9["text"]=="":
    b9["text"]="O"
    notyetplace=False
elif b3["text"]==b9["text"]=="O" and b6["text"]=="":
    b6["text"]="O"
    notyetplace=False
elif b6["text"]==b9["text"]=="O" and b3["text"]=="":
    b3["text"]="O"
    notyetplace=False

#DIAGONALS:
#1st diagonal:
elif b1["text"]==b5["text"]=="O" and b9["text"]=="":
```

```
        b9["text"]="O"
        notyetplace=False
    elif b1["text"]==b9["text"]=="O" and b5["text"]=="":
        b5["text"]="O"
        notyetplace=False
    elif b5["text"]==b9["text"]=="O" and b1["text"]=="":
        b1["text"]="O"
        notyetplace=False

    #2nd diagonal:
    elif b3["text"]==b5["text"]=="O" and b7["text"]=="":
        b7["text"]="O"
        notyetplace=False
    elif b3["text"]==b7["text"]=="O" and b5["text"]=="":
        b5["text"]="O"
        notyetplace=False
    elif b5["text"]==b7["text"]=="O" and b3["text"]=="":
        b3["text"]="O"
        notyetplace=False
    else:
        notyetplace=True
    return notyetplace



def strategy():
    notyetplace=True
    ##1st strategy middle spot
    if b5["text"]=="":
        b5["text"]="O"
        notyetplace=False
    elif (b5["text"]=="O") or (b5["text"]=="") or (b5["text"]=="X"):
        if b1["text"]=="":
            b1["text"]="O"
            notyetplace=False
        elif b3["text"]=="":
```

```
        b3["text"]="O"
        notyetplace=False
    elif b7["text"]=="":
        b7["text"]="O"
        notyetplace=False
    elif b9["text"]=="":
        b9["text"]="O"
        notyetplace=False
##2nd strategy 236
elif b2["text"]=="":
    b2["text"]="O"
    notyetplace=False
elif (b2["text"]=="") or (b2["text"]=="O"):
    if b3["text"]=="":
        b3["text"]="O"
        notyetplace=False
    elif b6["text"]=="":
        b6["text"]="O"
        notyetplace=False
##4th strategy 124
elif b1["text"]=="":
    b1["text"]="O"
    notyetplace=False
elif b1["text"]=="" or b1["text"]=="O":
    if b2["text"]=="":
        b2["text"]="O"
        notyetplace=False
    elif b4["text"]=="":
        b4["Text"]="O"
        notyetplace=False
##5th strategy 478
elif b7["text"]=="":
    b7["text"]="O"
    notyetplace=False
elif b7["text"]=="" or b7["text"]=="O":
```

```
    if b8["text"]=="":
        b8["text"]="O"
        notyetplace=False
    elif b4["text"]=="":
        b4["Text"]="O"
        notyetplace=False
##6th strategy 986
elif b9["text"]=="":
    b9["text"]="O"
    notyetplace=False
elif b9["text"]=="" or b9["text"]=="O":
    if b6["text"]=="":
        b6["text"]=="O"
        notyetplace=False
    elif b8["text"]=="":
        b8["text"]="O"
        notyetplace=False
##7th strategy 179
elif b1["text"]=="":
    b1["text"]="O"
    notyetplace=False
elif b1["text"]=="" or b1["text"]=="O":
    if b7["text"]=="":
        b7["text"]="O"
        notyetplace=False
    elif b9["text"]=="":
        b9["text"]="O"
        notyetplace=False
##8th strategy 397
elif b3["text"]=="":
    b3["text"]="O"
    notyetplace=False
elif b3["text"]=="" or b3["text"]=="O":
    if b7["text"]=="":
        b7["text"]="O"
```

```
            notyetplace=False
        elif b9["text"]=="":
            b9["text"]="O"
            notyetplace=False
    #just to tell the strategy status
    return notyetplace
def computer():
    z=win()
    if z==True:
        x=defense()
        if x==True:
            y=strategy()
            if y==True:
                notyetplace=True
                grn=[]
                while notyetplace!=False and len(grn)<9:
                    buttonnumber=random.randint(1,9)
                    if buttonnumber not in grn:
                        grn.append(buttonnumber)
                        if buttonnumber==1 and notyetplace==True:
                            if b1["text"]=="":
                                b1["text"]="O"
                                notyetplace=False
                            else:
                                notyetplace=True
                        elif buttonnumber==2 and notyetplace==True:
                            if b2["text"]=="":
                                b2["text"]="O"
                                notyetplace=False
                            else:
                                notyetplace=True
                        elif buttonnumber==3 and notyetplace==True:
                            if b3["text"]=="":
                                b3["text"]="O"
                                notyetplace=False
```

```
    else:
        notyetplace=True
elif buttonnumber==4 and notyetplace==True:
    if b4["text"]=="":
        b4["text"]="O"
        notyetplace=False
    else:
        notyetplace=True
elif buttonnumber==5 and notyetplace==True:
    if b5["text"]=="":
        b5["text"]="O"
        notyetplace=False
    else:
        notyetplace=True
elif buttonnumber==6 and notyetplace==True:
    if b6["text"]=="":
        b6["text"]="O"
        notyetplace=False
    else:
        notyetplace=True
elif buttonnumber==7 and notyetplace==True:
    if b7["text"]=="":
        b7["text"]="O"
        notyetplace=False
    else:
        notyetplace=True
elif buttonnumber==8 and notyetplace==True:
    if b8["text"]=="":
        b8["text"]="O"
        notyetplace=False
    else:
        notyetplace=True
elif buttonnumber==9 and notyetplace==True:
    if b9["text"]=="":
        b9["text"]="O"
```

```
                    notyetplace=False
                else:
                    notyetplace=True
##for all the clicks, make sure to follow the def click1()
def click1():
    #make a global turn because its for every function that has a click on it
    global turn
    if b1["text"]=="" and turn!="END":
        if turn=="X":
            b1["text"]="X"
        computer()
    winorloseordraw()


def click2():
    global turn
    if b2["text"]=="" and turn!="END":
        if turn=="X":
            b2["text"]="X"
        computer()
    winorloseordraw()
def click3():
    global turn
    if b3["text"]=="" and turn!="END":
        if turn=="X":
            b3["text"]="X"
        computer()
    winorloseordraw()
def click4():
    global turn
    if b4["text"]=="" and turn!="END":
        if turn=="X":
            b4["text"]="X"
        computer()
    winorloseordraw()
def click5():
```

```
    global turn
    if b5["text"]=="" and turn!="END":
        if turn=="X":
            b5["text"]="X"
        computer()
    winorloseordraw()
def click6():
    global turn
    if b6["text"]=="" and turn!="END":
        if turn=="X":
            b6["text"]="X"
        computer()
    winorloseordraw()


def click7():
    global turn
    if b7["text"]=="" and turn!="END":
        if turn=="X":
            b7["text"]="X"
        computer()
    winorloseordraw()
def click8():
    global turn
    if b8["text"]=="" and turn!="END":
        if turn=="X":
            b8["text"]="X"
        computer()
    winorloseordraw()



def click9():
    global turn
    if b9["text"]=="" and turn!="END":
        if turn=="X":
            b9["text"]="X"
```

```
        computer()
    winorloseordraw()
def restart():
    global turn
    turn="X"
    b1["text"]=""
    b2["text"]=""
    b3["text"]=""
    b4["text"]=""
    b5["text"]=""
    b6["text"]=""
    b7["text"]=""
    b8["text"]=""
    b9["text"]=""

b1=Button(w, text="", command=click1, width=8, height=4)
b1.grid(column=1, row=0)
b2=Button(w, text="", command=click2,width=8, height=4)
b2.grid(column=2, row=0)
b3=Button(w, text="", command=click3,width=8, height=4)
b3.grid(column=3, row=0)
b4=Button(w,text="", command=click4,width=8, height=4)
b4.grid(column=1, row=1)
b5=Button(w, text="", command=click5,width=8, height=4)
b5.grid(column=2, row=1)
b6=Button(w, text="", command=click6,width=8, height=4)
b6.grid(column=3, row=1)
b7=Button(w, text="", command=click7,width=8, height=4)
b7.grid(column=1, row=2)
b8=Button(w, text="", command=click8,width=8, height=4)
b8.grid(column=2, row=2)
b9=Button(w, text="", command=click9,width=8, height=4)
b9.grid(column=3, row=2)
restar=Button(w, text="Restart", command=restart, width=8, height=4)
restar.grid(column=2, row=3)
```

```
playerbutton1=Button(w, text="1 player mode", command=click)

playerbutton2=Button(w, text="2 player mode", command=click2)

playerbutton1.pack()

playerbutton2.pack()

w.mainloop()
```

PSEUDOCODE

```
DECLARE w: tkinter.Tk

DECLARE b1, b2, b3, b4, b5, b6, b7, b8, b9: tkinter.Button

DECLARE turn,title: STRING

FROM tkinter IMPORT *

IMPORT tkinter.messagebox

IMPORT random

w←Tk()

w.title("Tic Tac Toe")

PROCEDURE click2():

  global w

  global turn

  playerbutton2.pack()

  FOR button IN w.winfo_children():

    button.destroy()

  w.title("Tic tac toe")

  turn←"O"

  CALL tkinter.messagebox.showinfo("Game description:", "The objective of Tic Tac Toe is to get three in a row. You play on a three by three game board. The first player is known as X and the second is O. Players alternate placing Xs and Os on the game board until either oppent has three in a row or all nine squares are filled, so it's like the sign X must be placed in a position to get three in a row horizontally, vertically or diagonally. The same goes to O  X always goes first, and in the event that no one has three in a row, the statemate is called a cat game.")

  CALL tkinter.messagebox.showinfo("PLAYERS:", "PLAYER 1:X , PLAYER 2:O")

  CALL tkinter.messagebox.showinfo("Rules:", "player 1 goes first, player 2 goes second")

  PROCEDURE winorloseordraw():

    global turn

    IF (b1["text"]="O" AND b2["text"]="O" AND b3["text"]="O") OR (b1["text"]="O" AND b4["text"]="O" AND b7["text"]="O") OR (b1["text"]="O" AND b5["text"]="O" AND b9["text"]="O")

      THEN

        CALL tkinter.messagebox.showinfo("winner" , "O wins" )

        turn←"END"

      ELSE:
```

```
IF (b2["text"]="O" AND b5["text"]="O" AND b8["text"]="O")
  THEN
    CALL tkinter.messagebox.showinfo("winner", "O wins")
    turn←"END"
  ELSE:
    IF (b3["text"]="O" AND b6["text"]="O" AND b9["text"]="O")
      THEN
        CALL tkinter.messagebox.showinfo("winner", "O wins")
        turn←"END"
      ELSE:
        IF (b3["text"]="O" AND b5["text"]="O" AND b7["text"]="O")
          THEN
            CALL tkinter.messagebox.showinfo("winner", "O wins")
            turn←"END"
          ELSE:
            IF (b4["text"]="O" AND b5["text"]="O" AND b6["text"]="O")
              THEN
                CALL tkinter.messagebox.showinfo("winner", "O wins")
                turn←"END"
              ELSE:
                IF (b5["text"]="O" AND b2["text"]="O" AND b8["text"]="O")
                  THEN
                    CALL tkinter.meessagebox.showinfo("winner", "O wins")
                    turn←"END"
                  ELSE:
                    IF (b7["text"]="O" AND b8["text"]="O" AND b9["text"]="O")
                      THEN
                        CALL tkinter.messagebox.showinfo("winner", "O wins")
                        turn←"END"
                      ELSE:
                        IF (b1["text"]="X" AND b2["text"]="X" AND b3["text"]="X") OR (b1["text"]="X" AND
b4["text"]="X" AND b7["text"]="X") OR (b1["text"]="X" AND b5["text"]="X" AND b9["text"]="X")
                          THEN
```

```
    CALL tkinter.messagebox.showinfo("winner", "X wins")
    turn←"END"

ELSE:
    IF (b2["text"]="X" AND b5["text"]="X" AND b8["text"]="X")
        THEN
            CALL tkinter.messagebox.showinfo("winner", "X wins")
            turn←"END"
        ELSE:
            IF (b3["text"]="X" AND b6["text"]="X" AND b9["text"]="X")
                THEN
                    CALL tkinter.messagebox.showinfo("winner", "X wins")
                    turn←"END"
                ELSE:
                    IF (b3["text"]="X" AND b5["text"]="X" AND b7["text"]="X")
                        THEN
                            CALL tkinter.messagebox.showinfo("winner", "X wins")
                            turn←"END"
                        ELSE:
                            IF (b4["text"]="X" AND b5["text"]="X" AND b6["text"]="X")
                                THEN
                                    CALL tkinter.messagebox.showinfo("winner", "X wins")
                                    turn←"END"
                                ELSE:
                                    IF (b5["text"]="X" AND b2["text"]="X" AND b8["text"]="X")
                                        THEN
                                            CALL tkinter.meessagebox.showinfo("winner", "X wins")
                                            turn←"END"
                                        ELSE:
                                            IF (b7["text"]="X" AND b8["text"]="X" AND b9["text"]="X")
                                                THEN
                                                    CALL tkinter.messagebox.showinfo("winner", "X wins")
                                                    turn←"END"
```

```
                                                    ENDIF
                                                ENDIF
                                            ENDIF
                                        ENDIF
                                    ENDIF
                                ENDIF
                            ENDIF
                        ENDIF
                    ENDIF
                ENDIF
            ENDIF
        ENDIF
    ENDIF

    IF (b1["text"]<>"" AND b2["text"]<>"" AND b3["text"]<>"" AND b4["text"]<>"" AND b5["text"]<>"" AND b6["text"]<>"" AND
b7["text"]<>"" AND b8["text"]<>"" AND b9["text"]<>"") THEN
        CALL tkinter.messagebox.showinfo("", "DRAW")
        turn←"END"
    END IF
  ENDPROCEDURE


  PROCEDURE click1():
    global turn
    IF b1["text"]="" AND turn<>"END":
      IF turn="X":
        turn←"O"
      ELSE:
        turn←"X"
      b1["text"]←turn
    winorloseordraw()
      ENDIF
```

```
    ENDIF
ENDPROCEDURE

PROCEDURE click2():
    global turn
    IF b2["text"]="" AND turn<>"END":
        IF turn="X":
            turn←"O"
        ELSE:
            turn←"X"
        b2["text"]←turn
    winorloseordraw()
        ENDIF
    ENDIF
ENDPROCEDURE

PROCEDURE click3():
    global turn
    IF b3["text"]="" AND turn<>"END":
        IF turn="X":
            turn←"O"
        ELSE:
            turn←"X"
        b3["text"]←turn
    winorloseordraw()
        ENDIF
    END IF
ENDPROCEDURE

PROCEDURE click4():
    global turn
    IF b4["text"]="" AND turn<>"END":
        IF turn="X":
```

```
        turn←"O"
      ELSE:
        turn←"X"
      b4["text"]←turn
    winorloseordraw()
      ENDIF
    ENDIF
ENDPROCEDURE

PROCEDURE click5():
    global turn
    IF b5["text"]="" AND turn<>"END":
      IF turn="X":
        turn←"O"
      ELSE:
        turn←"X"
      b5["text"]←turn
    winorloseordraw()
      ENDIF
    ENDIF
ENDPROCEDURE



PROCEDURE click6():
    global turn
    IF b6["text"]="" AND turn<>"END":
      IF turn="X":
        turn←"O"
      ELSE:
        turn←"X"
      b6["text"]←turn
    winorloseordraw()
      ENDIF
```

```
    ENDIF
ENDPROCEDURE

PROCEDURE click7():
    global turn
    IF b7["text"]="" AND turn<>"END":
        IF turn="X":
            turn←"O"
        ELSE:
            turn←"X"
        b7["text"]←turn
    winorloseordraw()
        ENDIF
    ENDIF
ENDPROCEDURE

PROCEDURE click8():
    global turn
    IF b8["text"]="" AND turn<>"END":
        IF turn="X":
            turn←"O"
        ELSE:
            turn←"X"
        b8["text"]←turn
    winorloseordraw()
        ENDIF
    ENDIF
ENDPROCEDURE

PROCEDURE click9():
    global turn
    IF b9["text"]="" AND turn<>"END":
        IF turn="X":
```

```
        turn←"O"
      ELSE:
        turn←"X"
      b9["text"]←turn
    winorloseordraw()
      ENDIF
    ENDIF
ENDPROCEDURE

PROCEDURE restart():
    global turn
    turn←"O"
    b1["text"]←""
    b2["text"]←""
    b3["text"]←""
    b4["text"]←""
    b5["text"]←""
    b6["text"]←""
    b7["text"]←""
    b8["text"]←""
    b9["text"]←""
ENDPROCEDURE

settingb1←Setting(w, text←"", command←click1, width←8, height←4)
b1.grid(column←1, row←0)
settingb2←Setting(w, text←"", command←click2,width←8, height←4)
b2.grid(column←2, row←0)
settingb3←Setting(w, text←"", command←click3,width←8, height←4)
b3.grid(column←3, row←0)
settingb4←Setting(w,text←"", command←click4,width←8, height←4)
b4.grid(column←1, row←1)
settingb5←Setting(w, text←"", command←click5,width←8, height←4)
b5.grid(column←2, row←1)
```

```
    settingb6←Setting(w, text←"", command←click6,width←8, height←4)
    b6.grid(column←3, row←1)
    settingb7←Setting(w, text←"", command←click7,width←8, height←4)
    b7.grid(column←1, row←2)
    settingb8←Setting(w, text←"", command←click8,width←8, height←4)
    b8.grid(column←2, row←2)
    settingb9←Setting(w, text←"", command←click9,width←8, height←4)
    b9.grid(column←3, row←2)
    settingrestart←Setting(w, text←"Restart", command←restart, width←8, height←4)
    restart.grid(column←2, row←3)
ENDPROCEDURE
PROCEDURE click():
    global w
    global turn
    playerbutton1.pack()
    FOR button IN w.winfo_children():
        button.destroy()
    w.title("Tic tac toe")
    turn←"X"
    CALL tkinter.messagebox.showinfo("Game description:", "The objective of Tic Tac Toe is to get three in a row. You play on a three by three game board. The first player is known as X and the second is O. Players alternate placing Xs and Os on the game board until either opponent has three in a row or all nine squares are filled, so it's like the sign X must be placed in a position to get three in a row horizontally, vertically or diagonally. The same goes to O.  X always goes first, and in the event that no one has three in a row, the statement is called a cat game.")
    CALL tkinter.messagebox.showinfo("Your character will be X")

    PROCEDURE winorloseordraw():
        global turn
        IF (b1["text"]="O" AND b2["text"]="O" AND b3["text"]="O") OR (b1["text"]="O" AND b4["text"]="O" AND b7["text"]="O") OR (b1["text"]="O" AND b5["text"]="O" AND b9["text"]="O")
            THEN
                CALL tkinter.messagebox.showinfo("winner" , "You lost" )
                turn←"END"
            ELSE:
                IF (b2["text"]="O" AND b5["text"]="O" AND b8["text"]="O")
```

```
THEN
   CALL tkinter.messagebox.showinfo("winner", "You lost")
   turn←"END"
ELSE:
   IF (b3["text"]="O" AND b6["text"]="O" AND b9["text"]="O")
      THEN
         CALL tkinter.messagebox.showinfo("winner", "You lost")
         turn←"END"
      ELSE:
         IF (b3["text"]="O" AND b5["text"]="O" AND b7["text"]="O")
            THEN
               CALL tkinter.messagebox.showinfo("winner", "You lost")
               turn←"END"
            ELSE:
               IF (b4["text"]="O" AND b5["text"]="O" AND b6["text"]="O")
                  THEN
                     CALL tkinter.messagebox.showinfo("winner", "You lost")
                     turn←"END"
                  ELSE:
                     IF (b5["text"]="O" AND b2["text"]="O" AND b8["text"]="O")
                        THEN
                           CALL tkinter.meessagebox.showinfo("winner", "You lost")
                           turn←"END"
                        ELSE:
                           IF (b7["text"]="O" AND b8["text"]="O" AND b9["text"]="O")
                              THEN
                                 CALL tkinter.messagebox.showinfo("winner", "You lost")
                                 turn←"END"
                              ELSE:
                                 IF (b1["text"]="X" AND b2["text"]="X" AND b3["text"]="X") OR (b1["text"]="X" AND
b4["text"]="X" AND b7["text"]="X") OR (b1["text"]="X" AND b5["text"]="X" AND b9["text"]="X")
                                    THEN
                                       CALL tkinter.messagebox.showinfo("winner", "X wins")
```

```
    turn←"END"


ELSE:
    IF (b2["text"]="X" AND b5["text"]="X" AND b8["text"]="X")
        THEN
            CALL tkinter.messagebox.showinfo("winner", "X wins")
            turn←"END"
        ELSE:
            IF (b3["text"]="X" AND b6["text"]="X" AND b9["text"]="X")
                THEN
                    CALL tkinter.messagebox.showinfo("winner", "X wins")
                    turn←"END"
                ELSE:
                    IF (b3["text"]="X" AND b5["text"]="X" AND b7["text"]="X")
                        THEN
                            CALL tkinter.messagebox.showinfo("winner", "X wins")
                            turn←"END"
                        ELSE:
                            IF (b4["text"]="X" AND b5["text"]="X" AND b6["text"]="X")
                                THEN
                                    CALL tkinter.messagebox.showinfo("winner", "X wins")
                                    turn←"END"
                                ELSE:
                                    IF (b5["text"]="X" AND b2["text"]="X" AND b8["text"]="X")
                                        THEN
                                            CALL tkinter.meessagebox.showinfo("winner", "X wins")
                                            turn←"END"
                                        ELSE:
                                            IF (b7["text"]="X" AND b8["text"]="X" AND b9["text"]="X")
                                                THEN
                                                    CALL tkinter.messagebox.showinfo("winner", "X wins")
                                                    turn←"END"
                                            ENDIF
```

```
                                                ENDIF
                                            ENDIF
                                        ENDIF
                                    ENDIF
                                ENDIF
                            ENDIF
                        ENDIF
                    ENDIF
                ENDIF
            ENDIF
        ENDIF
    ENDIF

    IF (b1["text"]<>"" AND b2["text"]<>"" AND b3["text"]<>"" AND b4["text"]<>"" AND b5["text"]<>"" AND b6["text"]<>"" AND
b7["text"]<>"" AND b8["text"]<>"" AND b9["text"]<>"") THEN
        CALL tkinter.messagebox.showinfo("", "DRAW")
        turn←"END"
    END IF
ENDPROCEDURE

FUNCTION defense():
    notyetplace←TRUE
    IF b6["text"]=b8["text"]="X" and b9["text"]=""
        THEN
            b9["text"]←"O"
            notyetplace←FALSE
        ELSE:
            IF b1["text"]=b8["text"]="X" and b4["text"]=""
                THEN
                    b4["text"]←"O"
                    notyetplace←FALSE
                ELSE:
```

```
IF b1["text"]=b9["text"]="X" and b4["text"]=""
  THEN
    b4["text"]←"O"
    notyetplace←FALSE
  ELSE:
    IF b5["text"]=b9["text"]="X" and b3["text"]=""
      THEN
        b3["text"]←"O"
        notyetplace←FALSE
      ELSE:
        IF b3["text"]=b5["text"]="X" and b7["text"]=""
          THEN
            b7["text"]←"O"
            notyetplace←FALSE
          ELSE:
            IF (b3["text"]=b7["text"]="X" and b6["text"]="") or (b3["text"]=b8["text"]="X" and b6["text"]="")
              THEN
                b6["text"]←"O"
                notyetplace←FALSE
              ELSE:
                IF b1["text"]=b2["text"]="X" and b3["text"]=""
                  THEN
                    b3["text"]←"O"
                    notyetplace←FALSE
                  ELSE:
                    IF b1["text"]=b3["text"]="X" and b2["text"]=""
                      THEN
                        b2["text"]←"O"
                        notyetplace←FALSE
                      ELSE:
                        IF b2["text"]=b3["text"]="X" and b1["text"]=""
                          THEN
                            b1["text"]←"O"
```

```
    notyetplace←FALSE
  ELSE:
    IF b4["text"]=b5["text"]="X" and b6["text"]=""
      THEN
        b6["text"]←"O"
        notyetplace←FALSE
      ELSE:
        IF b4["text"]=b6["text"]="X" and b5["text"]=""
          THEN
            b5["text"]←"O"
            notyetplace←FALSE
        ELSE:
          IF b5["text"]=b6["text"]="X" and b4["text"]=""
            THEN
              b4["text"]←"O"
            ELSE:
              IF b7["text"]=b8["text"]="X" and b9["text"]=""
                THEN
                  b9["text"]←"O"
                  notyetplace←FALSE
                ELSE:
                  IF b7["text"]=b9["text"]="X" and b8["text"]=""
                    THEN
                      b8["text"]←"O"
                    ELSE:
                      IF b8["text"]=b9["text"]="X" and b7["text"]=""
                        THEN
                          b7["text"]←"O"
                          notyetplace←FALSE
                        ELSE:
                          IF b1["text"]=b4["text"]="X" and b7["text"]=""
                            THEN
                              b7["text"]←"O"
```

```
                notyetplace←FALSE
            ELSE:
                IF b1["text"]=b7["text"]="X" and b4["text"]=""
                    THEN
                        b4["text"]←"O"
                        notyetplace←FALSE
                    ELSE:
                        IF b4["text"]=b7["text"]="X" and b1["text"]=""
                            THEN
                                b1["text"]←"O"
                                notyetplace←FALSE
                            ELSE:
                                IF b2["text"]=b5["text"]="X" and
b8["text"]=""
                                    THEN
                                        b8["text"]←"O"
                                        notyetplace←FALSE
                                    ELSE:
                                        IF b2["text"]=b8["text"]="X" and
b5["text"]=""
                                            THEN
                                                b5["text"]←"O"
                                                notyetplace←FALSE
                                            ELSE:
                                                IF b5["text"]=b8["text"]="X" and
b2["text"]=""
                                                    THEN
                                                        b2["text"]←"O"
                                                        notyetplace←FALSE
                                                    ELSE:
                                                        IF b3["text"]=b6["text"]="X" and
b9["text"]=""
                                                            THEN
                                                                b9["text"]←"O"
                                                                notyetplace←FALSE
```

```
                                                                    ELSE:
                                                                      IF b3["text"]=b9["text"]="X"
and b6["text"]=""
                                                                        THEN
                                                                          b6["text"]←"O"
                                                                          notyetplace←FALSE
                                                                        ELSE:
                                                                          IF
b6["text"]=b9["text"]="X" and b3["text"]=""
                                                                            THEN
                                                                              b3["text"]←"O"

notyetplace←FALSE
                                                                            ELSE:
                                                                              IF
b1["text"]=b5["text"]="X" and b9["text"]=""
                                                                                THEN

b9["text"]←"O"

notyetplace←FALSE
                                                                                ELSE:
                                                                                  IF
b1["text"]=b9["text"]="X" and b5["text"]=""
                                                                                    THEN

b5["text"]←"O"

notyetplace←FALSE
                                                                                    ELSE:
                                                                                      IF
b5["text"]=b9["text"]="X" and b1["text"]=""
                                                                                        THEN

b1["text"]←"O"

notyetplace←FALSE
                                                                                        ELSE:
```

IF

b3["text"]=b5["text"]="X" and b7["text"]=""

THEN

b7["text"]←"O"

notyetplace←FALSE

ELSE:

IF b3["text"]=b7["text"]="X" and b5["text"]=""

THEN

b5["text"]←"O"

notyetplace←FALSE

ELSE:

IF b5["text"]=b7["text"]="X" and b3["text"]=""

THEN

b3["text"]←"O"

notyetplace←FALSE

ENDIF

ENDIF

ENDIF

ENDIF

ENDIF

ENDIF

ENDIF

ENDIF

```
                                                                ENDIF
                                                            ENDIF
                                                        ENDIF
                                                    ENDIF
                                                ENDIF
                                            ENDIF
                                        ENDIF
                                    ENDIF
                                ENDIF
                            ENDIF
                        ENDIF
                    ENDIF
                ENDIF
            ENDIF
        ENDIF
    ENDIF
ENDIF
RETURN notyetplace
ENDFUNCTION



FUNCTION win():
   IF b1["text"]=b2["text"]="O" AND b3["text"]=""
      THEN
         b3["text"]←"O"
         notyetplace←FALSE
      ELSE:
         IF b1["text"]=b3["text"]="O" AND b2["text"]=""
            THEN
```

```
    b2["text"]←"O"
    notyetplace←FALSE
  ELSE:
    IF b2["text"]=b3["text"]="O" AND b1["text"]=""
      THEN
        b1["text"]←"O"
        notyetplace←FALSE
      ELSE:
        IF b4["text"]=b5["text"]="O" AND b6["text"]=""
          THEN
            b6["text"]←"O"
            notyetplace←FALSE
          ELSE:
            IF b4["text"]=b6["text"]="O" AND b5["text"]=""
              THEN
                b5["text"]←"O"
                notyetplace←FALSE
              ELSE:
                IF b5["text"]=b6["text"]="O" AND b4["text"]=""
                  THEN
                    b4["text"]←"O"
                    notyetplace←FALSE
                  ELSE:
                    IF b7["text"]=b8["text"]="O" AND b9["text"]=""
                      THEN
                        b9["text"]←"O"
                        notyetplace←FALSE
                      ELSE:
                        IF b7["text"]=b9["text"]="O" AND b8["text"]=""
                          THEN
                            b8["text"]←"O"
                            notyetplace←FALSE
                          ELSE:
```

```
IF b8["text"]=b9["text"]="O" AND b7["text"]=""
   THEN
      b7["text"]←"O"
      notyetplace←FALSE
   ELSE:
      IF b1["text"]=b4["text"]="O" AND b7["text"]=""
         THEN
            b7["text"]←"O"
            notyetplace←FALSE
         ELSE:
            IF b1["text"]=b7["text"]="O" AND b4["text"]=""
               THEN
                  b4["text"]←"O"
                  notyetplace←FALSE
               ELSE:
                  IF b4["text"]=b7["text"]="O" AND b1["text"]=""
                     THEN
                        b1["text"]←"O"
                        notyetplace←FALSE
                     ELSE:
                        IF b2["text"]=b5["text"]="O" AND b8["text"]=""
                           THEN
                              b8["text"]←"O"
                              notyetplace←FALSE
                           ELSE:
                              IF b2["text"]=b8["text"]="O" AND b5["text"]=""
                                 THEN
                                    b5["text"]←"O"
                                    notyetplace←FALSE
                                 ELSE:
                                    IF b5["text"]=b8["text"]="O" AND b2["text"]=""
                                       THEN
                                          b2["text"]←"O"
```

```
                notyetplace←FALSE
            ELSE:
                IF b3["text"]=b6["text"]="O" AND b9["text"]=""
                    THEN
                        b9["text"]←"O"
                        notyetplace←FALSE
                    ELSE:
                        IF b3["text"]=b9["text"]="O" AND b6["text"]=""
                            THEN
                                b6["text"]←"O"
                                notyetplace←FALSE
                            ELSE:
                                IF b6["text"]=b9["text"]="O" AND b3["text"]=""
                                    THEN
                                        b3["text"]←"O"
                                        notyetplace←FALSE


                                    ELSE:
                                        IF b1["text"]=b5["text"]="O" AND
b9["text"]=""
                                            THEN
                                                b9["text"]←"O"
                                                notyetplace←FALSE
                                            ELSE:
                                                IF b1["text"]=b9["text"]="O" AND
b5["text"]=""
                                                    THEN
                                                        b5["text"]←"O"
                                                        notyetplace←FALSE
                                                    ELSE:
                                                        IF b5["text"]=b9["text"]="O" AND
b1["text"]=""
                                                            THEN
                                                                b1["text"]←"O"
```

```
                                                                notyetplace←FALSE
                                                            ELSE:
                                                                IF b3["text"]=b5["text"]="O"
AND b7["text"]=""
                                                                    THEN
                                                                        b7["text"]←"O"
                                                                        notyetplace←FALSE
                                                                    ELSE:
                                                                        IF
b3["text"]=b7["text"]="O" AND b5["text"]=""
                                                                            THEN
                                                                                b5["text"]←"O"
                                                                                notyetplace←FALSE
                                                                            ELSE:
                                                                                IF
b5["text"]=b7["text"]="O" AND b3["text"]=""
                                                                                    THEN
                                                                                        b3["text"]←"O"
notyetplace←FALSE
                                                                                ENDIF
ENDIF
ENDIF
                                                                                        ENDIF
                                                                                    ENDIF
                                                                                ENDIF
                                                                            ENDIF
                                                                        ENDIF
                                                                    ENDIF
                                                                ENDIF
                                                            ENDIF
                                                        ENDIF
                                                    ENDIF
                                                ENDIF
                                            ENDIF
                                        ENDIF
```

```
                                                                ENDIF
                                                            ENDIF
                                                        ENDIF
                                                    ENDIF
                                                ENDIF
                                            ENDIF
                                        ENDIF
                                    ENDIF
                                ENDIF
                            ENDIF
                        ENDIF
                    ENDIF
                ENDIF
            ENDIF
        ENDIF
    ENDIF
ENDIF
RETURN notyetplace
ENDFUNCTION


FUNCTION strategy():
   notyetplace←TRUE
   IF notyetplace←TRUE
      THEN
        IF b5["text"]=""
           THEN
              b5["text"]←"O"
              notyetplace←FALSE
        ENDIF
           ELSE:
              IF (b5["text"]="O") OR (b5["text"]="") OR (b5["text"]="X")
                 THEN
```

```
        IF b1["text"]=""
          THEN
            b1["text"]←"O"
            notyetplace←FALSE
        ENDIF
    ENDIF
    IF b3["text"]=""
      THEN
        b3["text"]←"O"
        notyetplace←FALSE
    ENDIF
    IF b7["text"]=""
      THEN
        b7["text"]←"O"
        notyetplace←FALSE
    ENDIF
    IF b9["text"]=""
      THEN
        b9["text"]←"O"
        notyetplace←FALSE
    ENDIF
   IF b2["text"]=""
     THEN
        b2["text"]←"O"
        notyetplace←FALSE
    ENDIF
IF (b2["text"]="") OR (b2["text"]="O")
    THEN
      IF b3["text"]=""
        THEN
          b3["text"]←"O"
          notyetplace←FALSE
      ENDIF
```

```
        ELSE:
          IF b6["text"]=""
            THEN
              b6["text"]←"O"
              notyetplace←FALSE
          ENDIF
ENDIF
IF b1["text"]=""
  THEN
    b1["text"]←"O"
    notyetplace←FALSE
  ENDIF
IF b1["text"]="" OR b1["text"]="O"
    THEN
      IF b2["text"]=""
        THEN
          b2["text"]←"O"
          notyetplace←FALSE
        ELSE:
          IF b4["text"]=""
            THEN
              b4["Text"]←"O"
              notyetplace←FALSE
          ENDIF
      ENDIF
ENDIF

ELSE:
  IF b7["text"]="" THEN
    b7["text"]←"O"
    notyetplace←FALSE
  ENDIF
IF b7["text"]="" OR b7["text"]="O"
```

```
   THEN
      IF b8["text"]=""
         THEN
            b8["text"]←"O"
            notyetplace←FALSE
         ELSE:
            IF b4["text"]=""
               THEN
                  b4["Text"]←"O"
                  notyetplace←FALSE
            ENDIF
      ENDIF
ENDIF
IF b9["text"]=""
   THEN
      b9["text"]←"O"
      notyetplace←FALSE
ENDIF
IF b9["text"]="" OR b9["text"]="O"
   THEN
      IF b6["text"]=""
         THEN
            b6["text"]←"O"
            notyetplace←FALSE
      IF b8["text"]=""
         THEN
            b8["text"]←"O"
            notyetplace←FALSE
      ENDIF
      ENDIF
ENDIF
ELSE:
   IF b1["text"]="" THEN
```

```
            b1["text"]←"O"
            notyetplace←FALSE
          ENDIF
        IF b1["text"]="" OR b1["text"]="O"
          THEN
            IF b7["text"]=""
              THEN
                b7["text"]←"O"
                notyetplace←FALSE
            IF b9["text"]=""
              THEN
                b9["text"]←"O"
                notyetplace←FALSE

        IF b3["text"]=""
          THEN
            b3["text"]←"O"
            notyetplace←FALSE
        ENDIF
        IF b3["text"]="" OR b3["text"]="O"
          THEN
            IF b7["text"]=""
              THEN
                b7["text"]←"O"
                notyetplace←FALSE
            IF b9["text"]=""
              THEN
                b9["text"]←"O"
                notyetplace←FALSE
            ENDIF
            ENDIF
        ENDIF
ENDIF
```

```
    RETURN notyetplace
ENDFUNCTION



FUNCTION computer():
    z←win()
    IF z=TRUE THEN
        x←defense()
    ENDIF
        IF x=TRUE THEN
            y←strategy()
        ENDIF
            IF y=TRUE THEN
                notyetplace←TRUE
                grn←[]
            ENDIF
                WHILE notyetplace<>FALSE AND len(grn)<9:
                    buttonnumber←random.randint(1,9)
                    IF buttonnumber NOT IN grn THEN
                        grn.append(buttonnumber)
                        IF buttonnumber=1 AND notyetplace=TRUE
                            THEN
                                IF b1["text"]="" THEN
                                    b1["text"]←"O"
                                    notyetplace←FALSE
                                ELSE:
                                    notyetplace←TRUE
                                     ENDIF
                        ENDIF
                        IF buttonnumber=2 AND notyetplace=TRUE
                            THEN
                                IF b2["text"]=""
                                    THEN
```

```
            b2["text"]←"O"
            notyetplace←FALSE
          ELSE:
            notyetplace←TRUE
        ENDIF
    ENDIF
    IF buttonnumber=3 AND notyetplace=TRUE
      THEN
        IF b3["text"]=""
          THEN
            b3["text"]←"O"
            notyetplace←FALSE
          ELSE:
            notyetplacet←TRUE
         ENDIF
    ENDIF
    IF buttonnumber=4 AND notyetplace=TRUE
      THEN
        IF b4["text"]=""
          THEN
            b4["text"]←"O"
            notyetplace←FALSE
          ELSE:
          notyetplace←TRUE
        ENDIF
    ENDIF
   IF buttonnumber=5 AND notyetplace=TRUE
     THEN
        IF b5["text"]=""
          THEN
            b5["text"]←"O"
            notyetplace←FALSE
          ELSE:
```

```
            notyetplacet←TRUE
        ENDIF
    ENDIF
    IF buttonnumber=6 AND notyetplace=TRUE
      THEN
        IF b6["text"]=""
          THEN
            b6["text"]←"O"
            notyetplace←FALSE
          ELSE:
            notyetplacet←TRUE
        ENDIF
    ENDIF
    IF buttonnumber=7 AND notyetplace=TRUE
      THEN
        IF b7["text"]=""
          THEN
            b7["text"]←"O"
            notyetplace←FALSE
          ELSE:
            notyetplacet←TRUE
        ENDIF
    ENDIF
    IF buttonnumber=8 AND notyetplace=TRUE
      THEN
        IF b8["text"]=""
          THEN
            b8["text"]←"O"
            notyetplace←FALSE
          ELSE:
            notyetplace←TRUE
        ENDIF
    ENDIF
```

```
                IF buttonnumber=9 AND notyetplace=TRUE
                  THEN
                    IF b9["text"]=""
                      THEN
                        b9["text"]←"O"
                        notyetplace←FALSE
                      ELSE:
                        notyetplace←TRUE
                    ENDIF
                ENDIF
              ENDIF
            ENDWHILE
ENDFUNCTION
PROCEDURE click1():
  global turn
  IF b1["text"]="" AND turn<>"END" THEN
    IF turn="X" THEN
      b1["text"]←"X"
    computer()
  winorloseordraw()
    ENDIF
  ENDIF
ENDPROCEDURE

PROCEDURE click2():
  global turn
  IF b2["text"]="" AND turn<>"END" THEN
    IF turn="X" THEN
      b2["text"]←"X"
    computer()
  winorloseordraw()
    ENDIF
  ENDIF
```

```
ENDPROCEDURE


PROCEDURE click3():
   global turn
   IF b3["text"]="" AND turn<>"END" THEN
      IF turn="X" THEN
         b3["text"]←"X"
      computer()
   winorloseordraw()
      ENDIF
   ENDIF
ENDPROCEDURE

PROCEDURE click4():
   global turn
   IF b4["text"]="" AND turn<>"END" THEN
      IF turn="X" THEN
        b4["text"]←"X"
      computer()
   winorloseordraw()
      ENDIF
   ENDIF
ENDPROCEDURE

PROCEDURE click5():
   global turn
   IF b5["text"]="" AND turn<>"END" THEN
      IF turn="X" THEN
         b5["text"]←"X"
      computer()
   winorloseordraw()
      ENDIF
   ENDIF
```

```
ENDPROCEDURE

PROCEDURE click6():
  global turn
  IF b6["text"]="" AND turn<>"END" THEN
    IF turn="X" THEN
      b6["text"]←"X"
    computer()
  winorloseordraw()
    ENDIF
  ENDIF
ENDPROCEDURE

PROCEDURE click7():
  global turn
  IF b7["text"]="" AND turn<>"END" THEN
    IF turn="X" THEN
      b7["text"]←"X"
    computer()
  winorloseordraw()
    ENDIF
  ENDIF
ENDPROCEDURE

PROCEDURE click8():
  global turn
  IF b8["text"]="" AND turn<>"END" THEN
    IF turn="X" THEN
      b8["text"]←"X"
    computer()
  winorloseordraw()
    ENDIF
  ENDIF
```

```
ENDPROCEDURE


PROCEDURE click9():
   global turn
   IF b9["text"]="" AND turn<>"END" THEN
      IF turn="X" THEN
        b9["text"]←"X"
      computer()
   winorloseordraw()
      ENDIF
   ENDIF
ENDPROCEDURE


PROCEDURE restart():
   global turn
   turn←"X"
   b1["text"]←""
   b2["text"]←""
   b3["text"]←""
   b4["text"]←""
   b5["text"]←""
   b6["text"]←""
   b7["text"]←""
   b8["text"]←""
   b9["text"]←""
ENDPROCEDURE


settingb1←Setting(w, text←"", command←click1, width←8, height←4)
b1.grid(column←1, row←0)
settingb2←Setting(w, text←"", command←click2,width←8, height←4)
b2.grid(column←2, row←0)
settingb3←Setting(w, text←"", command←click3,width←8, height←4)
b3.grid(column←3, row←0)
```

```
    settingb4←Setting(w,text←"", command←click4,width←8, height←4)
    b4.grid(column←1, row←1)
    settingb5←Setting(w, text←"", command←click5,width←8, height←4)
    b5.grid(column←2, row←1)
    settingb6←Setting(w, text←"", command←click6,width←8, height←4)
    b6.grid(column←3, row←1)
    settingb7←Setting(w, text←"", command←click7,width←8, height←4)
    b7.grid(column←1, row←2)
    settingb8←Setting(w, text←"", command←click8,width←8, height←4)
    b8.grid(column←2, row←2)
    settingb9←Setting(w, text←"", command←click9,width←8, height←4)
    b9.grid(column←3, row←2)
    settingrestar←Setting(w, text←"Restart", command←restart, width←8, height←4)
    restar.grid(column←2, row←3)
ENDPROCEDURE
playerbutton1←Button(w, text←"1 player mode", command←click)
playerbutton2←Button(w, text←"2 player mode", command←click2)
playerbutton1.pack()
playerbutton2.pack()
w.mainloop()
```

Structure Chart