Title : Tic Tac Toe Game

Language : Python

Tool : Jupyter

We have implement a project on Tic Tac Toe GUI with Python. This game is very popular and is quite simple in itself. It is a two-player game. In this game, there is a board with 3×3 squares and a player marks one of the 3×3 squares with his symbol (perhaps “X” or “O”) and he aims to create a straight line horizontally or vertically or diagonally with two intensions one is to Create a straight line before your opponent to win the game or Prevent his opponent from creating a straight line first.

To implements this, we have used 9 button in grid layout to make 3x3 squere, used labels and messagebox to display messages.

Team Members

Student No.	Name
EN-000445	Rochan Isudas Khristi
	Simran Jotishi
	Tilakkumar Pravinbhai Patel
	Chanakarn Charumalai
EN-000410	Yilin Wang

Import tkinter for GUI and messagebox for popup message box

In [1]:
```
from tkinter import *
from tkinter import messagebox
```

Create root widget for create window and set window title

Inistialize clicked and count variable. if 'clicked' is True, that means 'X' is clicking and if it is 'False' that means it's time for 'O' to click, while 'count' is to keep track of the total number of turns

In [2]:
```
root = Tk()
root.title('Tic-Tac-Toe')

# initialize clicked and counter varaible
clicked = True
count = 0
```

Load a photos of X and O symbol and resize

In [3]:
```
# Load photos for X and O symbol
Xphoto = PhotoImage(file = "X2.png")
Ophoto = PhotoImage(file = "O2.png")

# Resizing image to fit on button
Xphotoimage = Xphoto.subsample(3,3)
Ophotoimage = Ophoto.subsample(3,3)
```

Create nine buttons, two labels and two button as a global variable and define reset() function

In [4]:
```
def reset():
    global b1, b2, b3, b4, b5, b6, b7, b8, b9, l1, l2, quitButton
    global clicked,count
    clicked=True
    count=0


    # Create buttons with it's properties to set font,height,widhth, background col

    b1 = Button(root, text=" ", font=("Helvetica", 20), height=3, width=6, bg="whit
    b2 = Button(root, text=" ", font=("Helvetica", 20), height=3, width=6, bg="whit
    b3 = Button(root, text=" ", font=("Helvetica", 20), height=3, width=6, bg="whit

    b4 = Button(root, text=" ", font=("Helvetica", 20), height=3, width=6, bg="whit
    b5 = Button(root, text=" ", font=("Helvetica", 20), height=3, width=6, bg="whit
    b6 = Button(root, text=" ", font=("Helvetica", 20), height=3, width=6, bg="whit

    b7 = Button(root, text=" ", font=("Helvetica", 20), height=3, width=6, bg="whit
    b8 = Button(root, text=" ", font=("Helvetica", 20), height=3, width=6, bg="whit
    b9 = Button(root, text=" ", font=("Helvetica", 20), height=3, width=6, bg="whit

    # Label for dispay Player's turn and winner
    l1 = Label(root, text = "Let's Play",bg="blue",height=1,width=11,font=("Helveti
    l2 = Label(root, text = " ",width=11,font=("Helvetica", 12))

    #Quit/Exit button
    quitButton=Button(root,text="Quit",command=Quit,font=("Helvetica",10,"bold"))
    resetButton=Button(root,text="Reset",command=reset,font=("Helvetica",10,"bold")


# Set all widgets on root window in a grid layout

    # Label 1 to display player turn
    l1.grid(row=0,column=1)

    # Label 2 for  display winner
    l2.grid(row=1,column=1)

    #quit and reset game button
    quitButton.grid(row=0,column=2)
    resetButton.grid(row=0,column=0)
```

```
    # 9 buttons 3*3 for tick X or O
    b1.grid(row=2, column=0)
    b2.grid(row=2, column=1)
    b3.grid(row=2, column=2)

    b4.grid(row=3, column=0)
    b5.grid(row=3, column=1)
    b6.grid(row=3, column=2)

    b7.grid(row=4, column=0)
    b8.grid(row=4, column=1)
    b9.grid(row=4, column=2)
```

Define button click event

In [5]:
```
# Button clicked
def b_click(b):
    global clicked, count

# Condition for Player 1 (X) : If button text is blank and cliked is True then disp
    if b["text"] == " " and clicked == True:
        b["text"] = "X"
        b["image"]=Xphotoimage
        b["height"]=114
        b["width"]=100
        l1["text"]="Player 2's turn"
        clicked = False
        count += 1
        l2.pack_forget()
        checkifwon()

# Same condition for second player (O)
    elif b["text"] == " " and clicked == False:
        b["text"] = "O"
        b["image"]=Ophotoimage
        b["height"]=114
        b["width"]=100
        l1["text"]="Player 1's turn"
        clicked = True
        count += 1
        checkifwon()

# Id user click on same button then popup message displayed.
    else:
        messagebox.showerror("Tic Tac Toe", "That box has already been selected.\nP
```

Define function for Player 1 and 2 to check winner

In [6]:
```
def checkifwon():
    global winner
    winner = False

    # Winning condition : row[0]col[0], row[0]col[1], row[0]col[2] button's text ar
    if b1["text"] == "X" and b2["text"] == "X" and b3["text"] == "X":
```

```
        b1.config(bg="limegreen")
        b2.config(bg="limegreen")
        b3.config(bg="limegreen")
        l1["text"]="Winner"
        l1["bg"]="green"
        l2["text"]="Player 1 - X"
        winner = True
        messagebox.showinfo("Tic Tac Toe", "Congratulations, Player 1 wins!!")
        disable_all_buttons()

    # Winning condition : row[1]col[0], row[1]col[2], row[1]col[2] button's text ar
    elif b4["text"] == "X" and b5["text"] == "X" and b6["text"] == "X":
        b4.config(bg="limegreen")
        b5.config(bg="limegreen")
        b6.config(bg="limegreen")
        l1["text"]="Winner"
        l1["bg"]="green"
        l2["text"]="Player 1 - X"
        winner = True
        messagebox.showinfo("Tic Tac Toe", "Congratulations, Player 1 wins!!")
        disable_all_buttons()

    # Winning condition : row[2]col[0], row[2]col[1], row[2]col[2] button's text ar
    elif b7["text"] == "X" and b8["text"] == "X" and b9["text"] == "X":
        b7.config(bg="limegreen")
        b8.config(bg="limegreen")
        b9.config(bg="limegreen")
        l1["text"]="Winner"
        l1["bg"]="green"
        l2["text"]="Player 1 - X"
        winner = True
        messagebox.showinfo("Tic Tac Toe", "Congratulations, Player 1 wins!!")
        disable_all_buttons()

    # Winning condition : row[0]col[0], row[1]col[0], row[2]col[0]  button's text a
    elif b1["text"] == "X" and b4["text"] == "X" and b7["text"] == "X":
        b1.config(bg="limegreen")
        b4.config(bg="limegreen")
        b7.config(bg="limegreen")
        l1["text"]="Winner"
        l1["bg"]="green"
        l2["text"]="Player 1 - X"
        winner = True
        messagebox.showinfo("Tic Tac Toe", "Congratulations, Player 1 wins!!")
        disable_all_buttons()

    # Winning condition : row[0]col[1], row[1]col[1], row[2]col[1]  button's text a
    elif b2["text"] == "X" and b5["text"] == "X" and b8["text"] == "X":
        b2.config(bg="limegreen")
        b5.config(bg="limegreen")
        b8.config(bg="limegreen")
        l1["text"]="Winner"
        l1["bg"]="green"
        l2["text"]="Player 1 - X"
        winner = True
        messagebox.showinfo("Tic Tac Toe", "Congratulations, Player 1 wins!!")
```

```
        disable_all_buttons()

    # Winning condition : row[0]col[2], row[1]col[2], row[2]col[2]  button's text a
    elif b3["text"] == "X" and b6["text"] == "X" and b9["text"] == "X":
        b3.config(bg="limegreen")
        b6.config(bg="limegreen")
        b9.config(bg="limegreen")
        l1["text"]="Winner"
        l1["bg"]="green"
        l2["text"]="Player 1 - X"
        winner = True
        messagebox.showinfo("Tic Tac Toe", "Congratulations, Player 1 wins!!")
        disable_all_buttons()

    # Winning condition : row[0]col[0], row[1]col[1], row[2]col[2]  button's text a
    elif b1["text"] == "X" and b5["text"] == "X" and b9["text"] == "X":
        b1.config(bg="limegreen")
        b5.config(bg="limegreen")
        b9.config(bg="limegreen")
        l1["text"]="Winner"
        l1["bg"]="green"
        l2["text"]="Player 1 - X"
        winner = True
        messagebox.showinfo("Tic Tac Toe", "Congratulations, Player 1 wins!!")
        disable_all_buttons()

    # Winning condition : row[0]col[2], row[1]col[1], row[2]col[0] button's text ar
    elif b3["text"] == "X" and b5["text"] == "X" and b7["text"] == "X":
        b3.config(bg="limegreen")
        b5.config(bg="limegreen")
        b7.config(bg="limegreen")
        l1["text"]="Winner"
        l1["bg"]="green"
        l2["text"]="Player 1 - X"
        winner = True
        messagebox.showinfo("Tic Tac Toe", "Congratulations, Player 1 wins!!")
        disable_all_buttons()


    #Check for Second Player (O)

    # Winning condition : row[0]col[0], row[0]col[1], row[0]col[2] button's text ar
    elif b1["text"] == "O" and b2["text"] == "O" and b3["text"] == "O":
        b1.config(bg="limegreen")
        b2.config(bg="limegreen")
        b3.config(bg="limegreen")
        l1["text"]="Winner"
        l1["bg"]="green"
        l2["text"]="Player 2 - O"
        winner = True
        messagebox.showinfo("Tic Tac Toe", "Congratulations, Player 2 wins!!")
        disable_all_buttons()

    # Winning condition : row[1]col[0], row[1]col[2], row[1]col[2] button's text ar
    elif b4["text"] == "O" and b5["text"] == "O" and b6["text"] == "O":
        b4.config(bg="limegreen")
```

```
        b5.config(bg="limegreen")
        b6.config(bg="limegreen")
        l1["text"]="Winner"
        l1["bg"]="green"
        l2["text"]="Player 2 - O"
        winner = True
        messagebox.showinfo("Tic Tac Toe", "Congratulations, Player 2 wins!!")
        disable_all_buttons()

    # Winning condition : row[2]col[0], row[2]col[1], row[2]col[2] button's text ar
    elif b7["text"] == "O" and b8["text"] == "O" and b9["text"] == "O":
        b7.config(bg="limegreen")
        b8.config(bg="limegreen")
        b9.config(bg="limegreen")
        l1["text"]="Winner"
        l1["bg"]="green"
        l2["text"]="Player 2 - O"
        winner = True
        messagebox.showinfo("Tic Tac Toe", "Congratulations, Player 2 wins!!")
        disable_all_buttons()

    # Winning condition : row[0]col[0], row[1]col[0], row[2]col[0] button's text ar
    elif b1["text"] == "O" and b4["text"] == "O" and b7["text"] == "O":
        b1.config(bg="limegreen")
        b4.config(bg="limegreen")
        b7.config(bg="limegreen")
        l1["text"]="Winner"
        l1["bg"]="green"
        l2["text"]="Player 2 - O"
        winner = True
        messagebox.showinfo("Tic Tac Toe", "Congratulations, Player 2 wins!!")
        disable_all_buttons()

    # Winning condition : row[0]col[1], row[1]col[1], row[2]col[1] button's text ar
    elif b2["text"] == "O" and b5["text"] == "O" and b8["text"] == "O":
        b2.config(bg="limegreen")
        b5.config(bg="limegreen")
        b8.config(bg="limegreen")
        l1["text"]="Winner"
        l1["bg"]="green"
        l2["text"]="Player 2 - O"
        winner = True
        messagebox.showinfo("Tic Tac Toe", "Congratulations, Player 2 wins!!")
        disable_all_buttons()

    # Winning condition : row[0]col[2], row[1]col[2], row[2]col[2] button's text ar
    elif b3["text"] == "O" and b6["text"] == "O" and b9["text"] == "O":
        b3.config(bg="limegreen")
        b6.config(bg="limegreen")
        b9.config(bg="limegreen")
        l1["text"]="Winner"
        l1["bg"]="green"
        l2["text"]="Player 2 - O"
        winner = True
        messagebox.showinfo("Tic Tac Toe", "Congratulations, Player 2 wins!!")
        disable_all_buttons()
```

```
    # Winning condition : row[0]col[0], row[1]col[1], row[2]col[2]  button's text a
    elif b1["text"] == "O" and b5["text"] == "O" and b9["text"] == "O":
        b1.config(bg="limegreen")
        b5.config(bg="limegreen")
        b9.config(bg="limegreen")
        l1["text"]="Winner"
        l1["bg"]="green"
        l2["text"]="Player 2 - O"
        winner = True
        messagebox.showinfo("Tic Tac Toe", "Congratulations, Player 2 wins!!")
        disable_all_buttons()

    # Winning condition : row[0]col[2], row[1]col[1], row[2]col[0] button's text ar
    elif b3["text"] == "O" and b5["text"] == "O" and b7["text"] == "O":
        b3.config(bg="limegreen")
        b5.config(bg="limegreen")
        b7.config(bg="limegreen")
        l1["text"]="Winner"
        l1["bg"]="green"
        l2["text"]="Player 2 - O"
        winner = True
        messagebox.showinfo("Tic Tac Toe", "Congratulations, Player 2 wins!!")
        disable_all_buttons()

#Check if tie
    if count == 9 and winner == False:
        l1["text"]="It's tie"
        l1["bg"]="red"
        l2["text"]="Try Again..."
        messagebox.showinfo("Tic Tac Toe", "Opps... No one is winner !!")
        disable_all_buttons()
```

Define function for disabled nine buttons after check winner.

In [7]:
```
def disable_all_buttons():
    b1.config(state=DISABLED)
    b2.config(state=DISABLED)
    b3.config(state=DISABLED)
    b4.config(state=DISABLED)
    b5.config(state=DISABLED)
    b6.config(state=DISABLED)
    b7.config(state=DISABLED)
    b8.config(state=DISABLED)
    b9.config(state=DISABLED)
```

Define Quit/Exit function

In [8]:
```
def Quit():
    msg=messagebox.askquestion("Confirm","Are you sure want to exit !")
    if msg=='yes':
        root.destroy()
```

In [ ]:
```
reset()
```

```
# Run an infinite loop for root window to display screen/window of tkinter
root.mainloop()
```

In [ ]:

In [ ]: