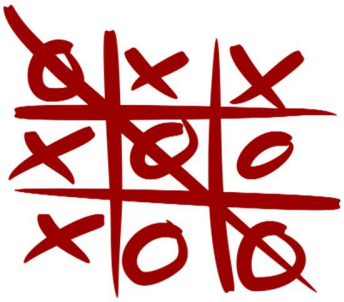
Ex.No.9 **PYTHON LIBRARIES AND PACKAGES**
DATE **(MINI PROJECT)**

Aim:

To develop Python applications by installing and using different Python Libraries and Packages

GAME RULES:

Tic-tac-toe (American English), noughts and crosses (British English), or Xs and Os 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 horizontal, vertical, or diagonal row is the winner.



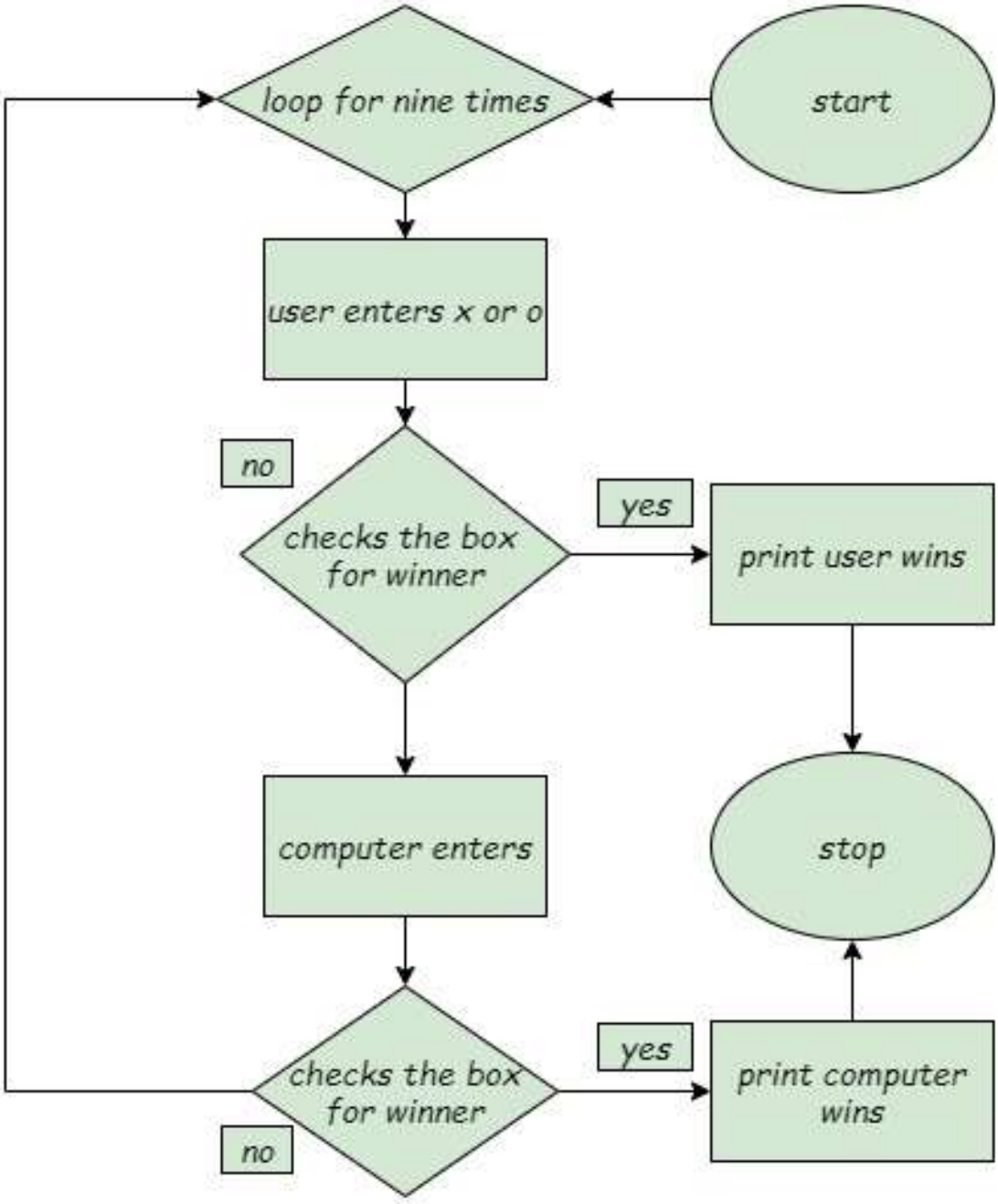
- If the player has two in a row, they can place a third to get three in a row.
- If the opponent has two in a row, the player must play the third themselves to block the opponent.

1.To implement the TIC-TAC-TOE GAME using suitable py library:

Algorithm:

STEP 1: Start
STEP 2: **Loop** for 9 times
STEP 2.1 user enters the box no.
STEP 2.2 checks the box for winner
STEP 2.2.1 computer enters the box no.
STEP 2.2.2 checks the box for winner
STEP 3: Print the winner
STEP 4: Stop

Flow Chart:

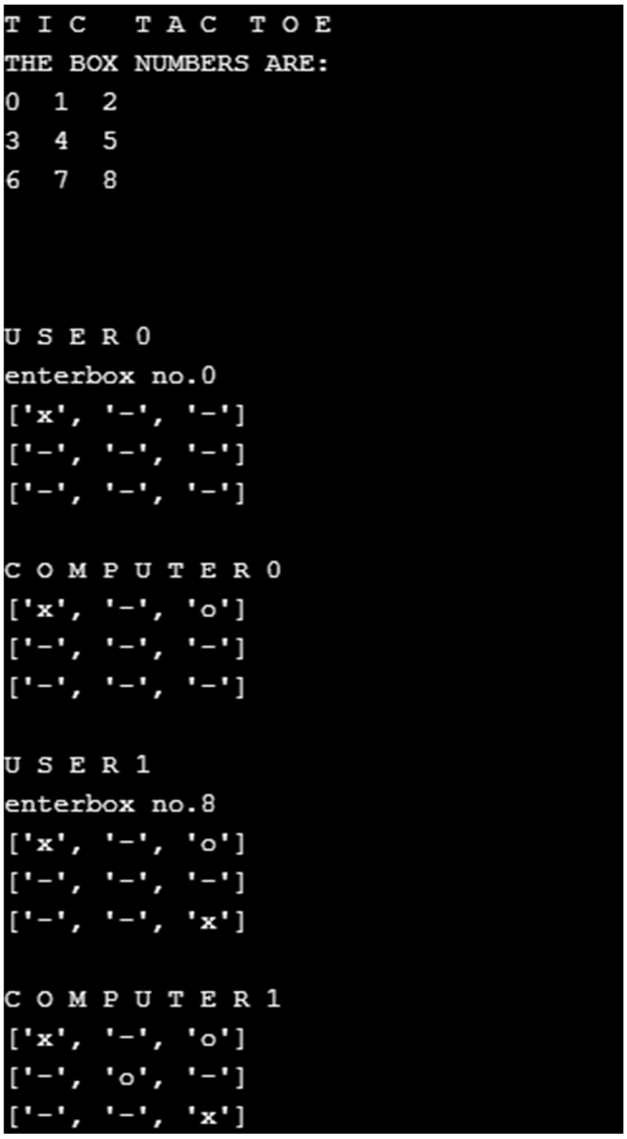

loop for nine times
start
user enters x or o
no
checks the box for winner
yes
print user wins
computer enters
stop
checks the box for winner
yes
print computer wins
no

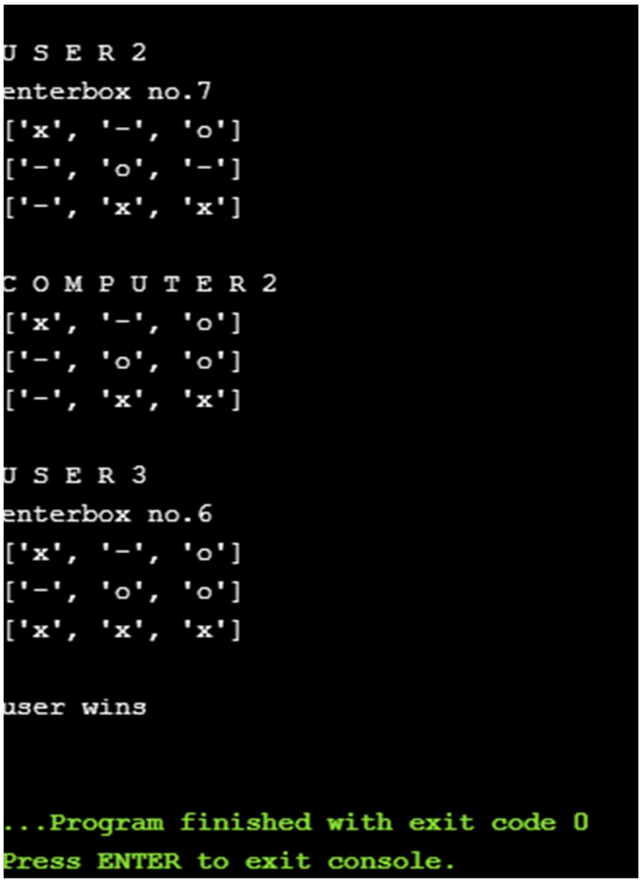
Code:

tictactoe.py

```
print('T I C   T A C  T O E')
print('THE BOX NUMBERS ARE:\n0  1  2 \n3  4  5\n6  7  8\n\n')
import random
avail=[0,1,2,3,4,5,6,7,8]
lst=[['-','-','-'],['-','-','-'],['-','-','-']]
def check(i,j):
    if (lst[0][j]==lst[1][j]==lst[2][j]):
        return True
    elif (lst[i][0]==lst[i][1]==lst[i][2]):
        return True
def diagon(ele):
    if lst[0][0]==lst[1][1]==lst[2][2]==ele:
        return True
    elif lst[0][2]==lst[1][1]==lst[2][0]==ele:
        return True
def ck(ele):
    for i in range(3):
        for j in range(3):
            if lst[i][j]==ele:
                if(check(i,j)):
                    return True
def fprint():
    for i in range(3):
        print(lst[i])
it=0
while it<=8:
    print('\nU S E R',it)
    box=int(input('enterbox no.'))
    lst[box//3][box%3]='x'
    avail.remove(box)
    fprint()
    if ck('x') or diagon('x'):
        print('\nuser wins')
        break
    box=random.choice(avail)
    lst[box//3][box%3]='o'
    avail.remove(box)
    print('\nC O M P U T E R',it)
    fprint()
    if ck('o') or diagon('o'):
        print('\ncomputer wins')
        break
    it+=1
if it==9:
    print('\ndraw')
```

Screen Shots:





Result:

Thus the tic-tac-toe game is developed by using suitable python libraries and the game is developed as mini project successfully.

CO Attainment:

These programs help me to use suitable ***python operators and expressions*** in the simple python programs.

Assessment Rubrics <Ex No:9 >:

Parameters	**Allotted Grade Points**	**Actual Score**
Problem selection and definition	5	
Design Diagram – Modular or Object Oriented Design (Block Diagram, Flow chart, etc)	5	
Project presentation (oral)	5	
Video creation for project explanation	5	
Total	**20**	
Signature of the Faculty with Date		