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COSC 311

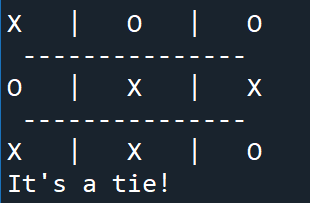
Homework 2

Dr. Wang

**Tic Tac Toe**

1. Text

   Description automatically generated
2. A screenshot of a computer screen

   Description automatically generated with medium confidence
3. 
4. Text

   Description automatically generated

**Source Code :**

def runGame():

# Function for printing board

def printBoard():

for i in row0:

print(i, end = ' ')

print("\n", bar)

for i in row1:

print(i, end = ' ')

print("\n", bar)

for i in row2:

print(i, end = ' ')

# Function for checking winner

def checkGame():

winner = ' '

# Check rows for winner

if (row0[0] == row0[4] and row0[0] == row0[8] and row0[0] != ' '):

winner = row0[0]

if (row1[0] == row1[4] and row1[0] == row1[8] and row1[0] != ' '):

winner = row1[0]

if (row2[0] == row2[4] and row2[0] == row2[8] and row2[0] != ' '):

winner = row2[0]

# Check columns for winner

if (row0[0] == row1[0] and row0[0] == row2[0] and row0[0] != ' '):

winner = row0[0]

if (row0[4] == row1[4] and row0[4] == row2[4] and row0[4] != ' '):

winner = row0[4]

if (row0[8] == row1[8] and row0[8] == row2[8] and row0[8] != ' '):

winner = row0[8]

# Check diagonals for winner

if (row0[0] == row1[4] and row0[0] == row2[8] and row0[0] != ' '):

winner = row0[0]

if (row2[0] == row1[4] and row2[0] == row0[8] and row2[0] != ' '):

winner = row2[0]

return winner

# Check for valid row/column input

def checkInput(player\_input):

if (player\_input < 0 or player\_input > 2):

print("Invalid input")

return False

else:

return True

# Check move to avoid overwriting previous move's

def checkBlock(row, column):

if (row == 0):

if (row0[column \* 4] != ' '):

return False

elif (row == 1):

if (row1[column \* 4] != ' '):

return False

elif (row == 2):

if (row2[column \* 4] != ' '):

return False

else:

return True

# Plays move in correct position

def playMove(row, column, player):

if (row == 0):

row0[column \* 4] = player

if (row == 1):

row1[column \* 4] = player

if (row == 2):

row2[column \* 4] = player

# Establish User Interface

row0 = [' ',' ','|',' ',' ',' ','|',' ',' ']

row1 = [' ',' ','|',' ',' ',' ','|',' ',' ']

row2 = [' ',' ','|',' ',' ',' ','|',' ',' ']

bar = '---------------'

row\_input = -1

column\_input = -1

# Run the game

for i in range(0,9):

# Print Board

printBoard()

# Check Player Turn

if (i % 2 == 0):

print("\n\nX player's turn:\n")

else:

print("\n\nO player's turn:\n'")

# Create inputs for error checking input

check = False

while (check == False):

row\_input = int(input("Enter a valid row for move ( 0 - 2 ) : "))

column\_input = int(input("Enter a valid column for move ( 0 - 2 ) : "))

check = checkBlock(row\_input, column\_input)

if (checkInput(row\_input) == False or checkInput(column\_input) == False):

print("Invalid Input")

check = False

elif (check == False):

print("Invalid Move")

# Check Player Turn for successful Move

if (i % 2 == 0):

playMove(row\_input, column\_input, 'X')

else:

playMove(row\_input, column\_input, 'O')

# Check for Win

check\_win = checkGame()

if (check\_win != ' '):

break

# Print Results

printBoard()

if (check\_win == ' '):

print("\nIt's a tie!")

else:

print("\nCongratulations, player", check\_win, "wins!")

player\_play = input("Would you like to play tic tac toe? (enter 'yes' or 'no') ")

while(player\_play == 'yes'):

runGame()

player\_play = input("Would you like to play again? (enter 'yes' or 'no') ")