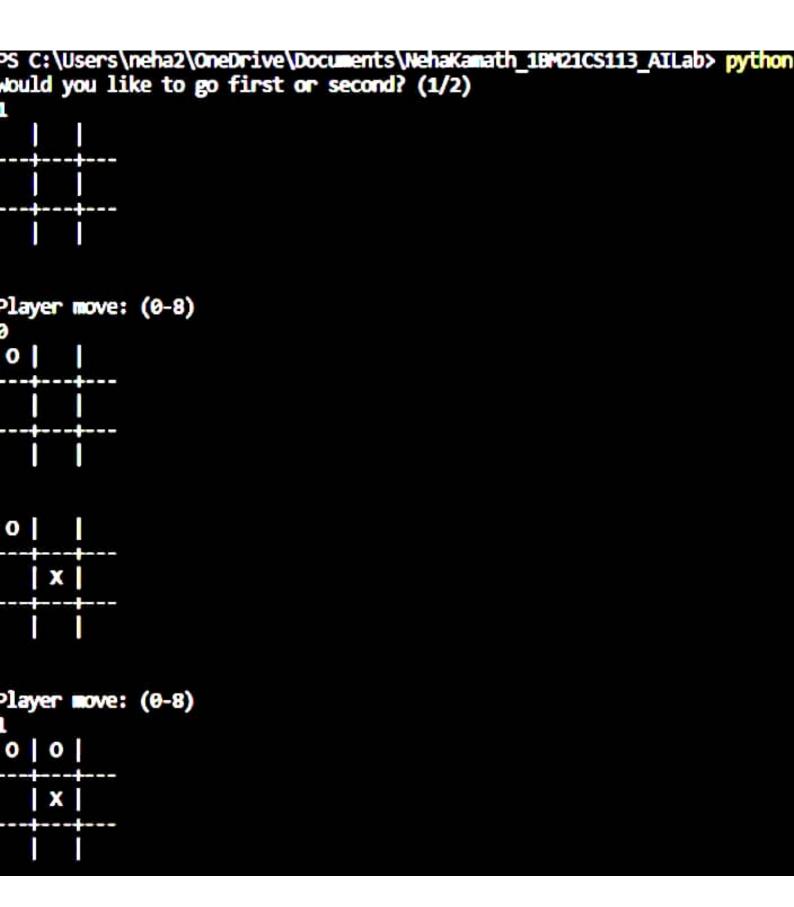17 - 11 - 23

Program 1: Implement Tic Tac Toe Game

```
board = ["" for x in range(10)]
def insert letter (letter, pos):
    board [pos] = letter

def space is free (pos):
    return board [pos] == ' '

def print Board (board):
    print ('  |  |  ')
    print (' ' + board [1] + ' | ' + board [2] + ' | ' + board [3])
    print ('  |  | ')
    print ('------')
    print ('  |  | ')
    print (' ' + board [4] + ' | ' + board [5] + ' | ' + board [6])
    print ('  | | ')
    print ('------')
    print ('  |  | ')
    print (' ' + board [7] + ' | ' + board [8] + ' | ' + board [9])
    print ('  |  | ')

def is Winner ( bo, le):
    return ( bo[1] == le and bo [2] == le and bo[3] == le)
        or
        ( bo[4] == le and bo[5] == le and bo [6] == le)
        or
        (bo[7] == le and bo [8] == le and bo [9] == le)
        or
        ( bo[1] == le and bo [4] == le and bo[7] == le)
        or
        ( bo[2] == le and bo[5] == le and bo[8] == le)
        or
        (bo[3] == le and bo[6] == le and bo [9] == le)
        or
        ( bo[1] == le and bo[5] == le and bo [9] == le)
        or
        ... [7] == le and bo[5] == le and bo[7] == le)
```

```
def playerMove ():
    run = True
    while run:
        move = int(input ("Enter the position where you want to place: "))
        if (move > 0 and move < 10):
            if spaceIsFree (move):
                run = False
                insertLetter ('X', move)
            else:
                print (" Enter another position, this position is occupied.")
        else:
            print ("Enter position within the range.")


def compMove ():
    run = True
    while run:
        move = random.randrange (1, 10)
        if (move > 0 and move < 10):
            if space IsFree (move):
                run = False
                insertLetter ('0', move)
            else:
                continue
        else:
            continue


def main ():
    while if not (board. count (' ') < 10):
        player Move ();
        printBoard (board)
        if ( is Winner (board, 'X')):
            print ("You won")
            break
        else:
            compMove()
            print Board (board)
            if ( is Winner (board, '0')):
                print (" Computer won")
                break
    else:
        print ("This is a tie")
```

```
PS C:\Users\neha2\OneDrive\Documents\NehaKamath_1BM21CS113_AILab> python
would you like to go first or second? (1/2)
1
  |   |
--+---+---
  |   |
--+---+---
  |   |


Player move: (0-8)
0
 O |   |
--+---+---
  |   |
--+---+---
  |   |



 O |   |
--+---+---
  | X |
--+---+---
  |   |


Player move: (0-8)
1
 O | O |
--+---+---
  | X |
--+---+---
  |   |
```

```
O | O | X
---+---+---
  | X |
---+---+---
  |   |
```

Player move: (0-8)
6
```
O | O | X
---+---+---
  | X |
---+---+---
O |   |
```

```
O | O | X
---+---+---
X | X |
---+---+---
O |   |
```

Player move: (0-8)
5
```
O | O | X
---+---+---
X | X | O
---+---+---
O |   |
```

```
O | O | X
---+---+---
X | X | O
---+---+---
O |   | X
```

```
Player move: (0-8)
7

 O | O | X
---+---+---
 X | X | O
---+---+---
 O | O | X
The game was a draw.
```