17 - 11 - 23

Program 1: Implement Tic Tac Toe Game

```python
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
    ( bo[3] == le and bo[5] == le and bo[7] == le)
```

```python
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 spaceIsfree(move):
                run = False
                insertletter('0', move)
            else:
                continue
        else:
            continue


def main():
    while (board.count(' ') < 10):
        playerMove();
        printBoard(board)
        if(isWinner(board, 'X')):
            print("You won")
            break
        else:
            compMove()
            printBoard(board)
            if(isWinner(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.
```