

ACM RECRUITMENT TASKS

TIC TAC TOE

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Program code :

```
import random
```

```
board =[' ']*10
```

```
compt = 'X'
```

```
humn = 'O'
```

```
def disp(board):
```

```
    print('\n')
```

```
    print(f'{{board[1]}} | {{board[2]}} | {{board[3]}}')
```

```
    print('--|---|--')
```

```
    print(f'{{board[4]}} | {{board[5]}} | {{board[6]}}')
```

```
    print('--|---|--')
```

```
    print(f'{{board[7]}} | {{board[8]}} | {{board[9]}}')
```

```
    print('\n')
```

```
def win():
```

```
    combo=[(1, 2, 3), (4, 5, 6), (7, 8, 9),
```

```
            (1, 4, 7), (2, 5, 8), (3, 6, 9),
```

```
            (1, 5, 9), (7,5,3)]
```

```
    for (a,b,c) in combo:
```

```
        if board[a]==board[b]==board[c] and board[a]!=' ':
```

```
    return True
```

```
    return False
```

```
def draw():
```

```
    return ' ' not in board[1:]
```

```
def avail(pos):
```

```
    return board[pos] == ' '
```

```
def insert(num, pos):
```

```
    if avail(pos):
```

```
        board[pos]=num
```

```
    if win():
```

```
        if num=='X':
```

```
            disp(board)
```

```
            print("Computer Wins!")
```

```
        else:
```

```
            disp(board)
```

```
            print("You win!")
```

```
    exit()
```

```
    if draw():
```

```
        disp(board)
```

```
        print("Its a draw!")
```

```
    exit()
```

```
else:
```

```
    print("Position already filled. Please try again")
```

```
    if num=='O':
```

```
        hum(num)
```

```
    else:
```

```
        comp(num)
```

```
def hum(num):
```

```
    while True:
```

```
        try:
```

```
            pos = int(input("Enter the position to insert:"))
```

```
            if pos<0 or pos>9:
```

```
                print("Invalid option.Please try again")
```

```
            elif not avail(pos):
```

```
                print("Position already filled.Please try again")
```

```
            else:
```

```
                insert(num,pos)
```

```
                break
```

```
        except ValueError:
```

```
            print("Enter position between 1 and 9:")
```

```
def comp(num):
```

```
    pos=random.randint(1, 9)
```

```
while not avail(pos):  
    pos=random.randint(1,9)  
insert(num,pos)
```

```
# main loop
```

```
while True:  
    disp(board)  
    hum(humn)  
    if win() or draw():  
        break  
    comp(compt)  
    if win() or draw():  
        break
```

Program output:

1) User wins:

```

|   |
--|---|
|   |
--|---|
|   |

```

Enter the position to insert:1

```

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

```

Enter the position to insert:2

```

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

```

Enter the position to insert:3

```

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

```

You win!

|

2) Computer wins:

```

|   |
--|---|--
|   |
--|---|--
|   |

```

Enter the position to insert:2

```

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

```

Enter the position to insert:9

```

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

```

Enter the position to insert:8

```

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

```

Computer Wins!
|

3) Draw:

```
= RESTART: D:\Amrita\acm\reg\tic tac toe\tic tac toe.py
```

```
  |  |  |  
--|---|--  
  |  |  |  
--|---|--  
  |  |  |
```

```
Enter the position to insert:1
```

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

```
Enter the position to insert:9
```

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

```
Enter the position to insert:4
```

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

Enter the position to insert:3

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

Enter the position to insert:8

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

Its a draw!