

# TCR INTERNSHIP

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## PYTHON PROJECT

### **PROJECT 1**

#### **AIM: Number-Guess-Game**

```
import random

print("Let's play the game")
print("Welcome to Number Guess Game ")

a=int(input("Enter the start number : "))
b=int(input("Enter the end number : "))

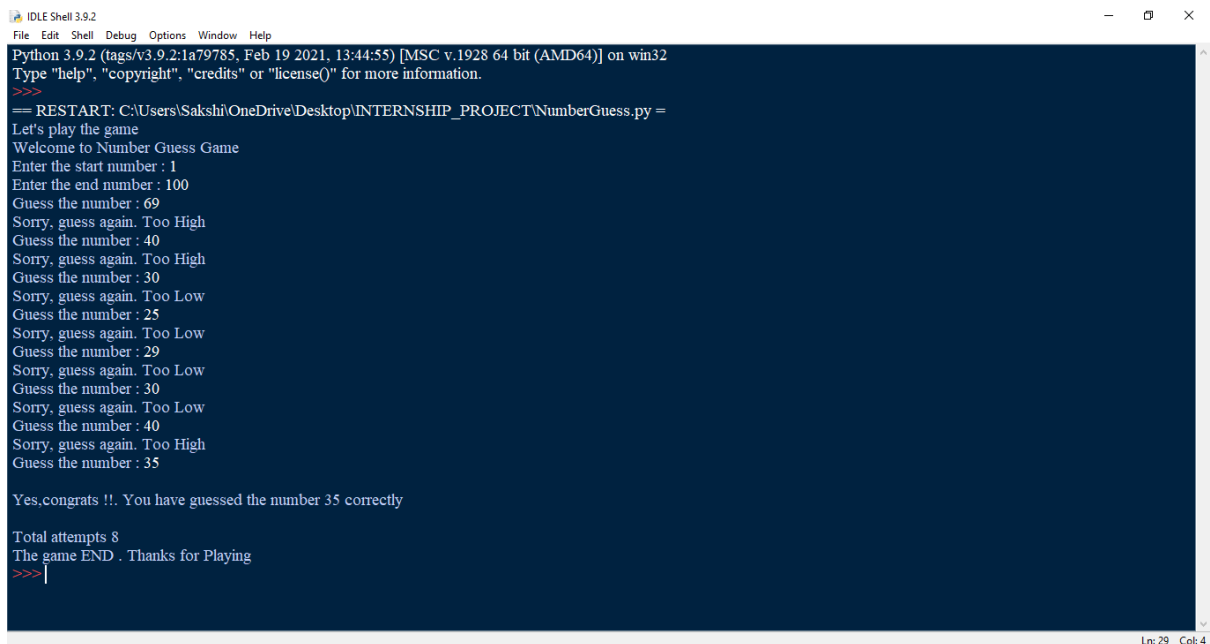
attempts=0
guess=0

random_number=random.randint(a,b)
while True:
    attempts+=1
    guess=int(input("Guess the number : "))
    if guess < random_number:
        print("Sorry, guess again. Too Low")
    elif guess > random_number:
```

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```
        print("Sorry, guess again. Too High")
    else:
        print(" ")
        print(f'Yes,congrats !!. You have guessed the number
{random_number} correctly')
        print(" ")
        print(f'Total attempts {attempts} ')
        break
print("The game END . Thanks for Playing")
```

## Output:



```
IDLE Shell 3.9.2
File Edit Shell Debug Options Window Help
Python 3.9.2 (tags/v3.9.2:1a79785, Feb 19 2021, 13:44:55) [MSC v.1928 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
== RESTART: C:\Users\Sakshi\OneDrive\Desktop\INTERNSHIP_PROJECT\NumberGuess.py =
Let's play the game
Welcome to Number Guess Game
Enter the start number : 1
Enter the end number : 100
Guess the number : 69
Sorry, guess again. Too High
Guess the number : 40
Sorry, guess again. Too High
Guess the number : 30
Sorry, guess again. Too Low
Guess the number : 25
Sorry, guess again. Too Low
Guess the number : 29
Sorry, guess again. Too Low
Guess the number : 30
Sorry, guess again. Too Low
Guess the number : 40
Sorry, guess again. Too High
Guess the number : 35
Yes,congrats !!. You have guessed the number 35 correctly

Total attempts 8
The game END . Thanks for Playing
>>> |
```

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## **PROJECT 2**

### **AIM: Rock-Paper-Scissor**

#### **Code:**

```
import random
```

```
print("LET'S START THE GAME .....")
```

```
print("Welcome to ROCK-PAPER-SCISSOR ")
```

```
comp_win = 0
```

```
player_win = 0
```

```
def choose_options():
```

```
    player_choice = input("Choose Rock, Paper or Scissors : ")
```

```
    player_choice.upper()
```

```
    if player_choice in ["Rock", "rock", "ROCK", "r", "R", "1"]:
```

```
        player_choice = "r"
```

```
    elif player_choice in ["Paper", "PAPER", "paper", "p", "P", "2"]:
```

```
        player_choice = "p"
```

```
    elif player_choice in ["Scissors", "SCISSORS",  
"scissors", "s", "S", "3"]:
```

```
        player_choice = "s"
```

```
    else :
```

```
        print("I don't understand, Try again ")
```

```
        choose_option()
```

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```
return player_choice
```

```
def computer_options() :
```

```
    comp_choice = random.randint(1,3)
```

```
    if comp_choice == 1:
```

```
        comp_choice = "r"
```

```
    elif comp_choice == 2 :
```

```
        comp_choice = "p"
```

```
    else :
```

```
        comp_choice = "s"
```

```
    return comp_choice
```

```
while True :
```

```
    print(" ")
```

```
    player_choice = choose_options()
```

```
    comp_choice = computer_options()
```

```
    print(" ")
```

```
    if player_choice == "r" :
```

```
        if comp_choice == "r" :
```

```
            print("You choose rock. The computer also choose rock. \n It's  
a TIE ")
```

```
        elif comp_choice == "p" :
```

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```
print("You choose rock. The computer choose paper. ")
print("Paper covers Rock. \n You lose.")
comp_win += 1
elif comp_choice == "s" :
    print("You choose rock. The computer choose scissor. ")
    print("Rock smashes SCISSOR. \n You win.")
    player_win += 1
elif player_choice == "p" :
    if comp_choice == "p" :
        print("You choose paper. The computer also choose paper. \n
It's a TIE ")
```

```
elif comp_choice == "r" :
    print("You choose paper. The computer choose rock. ")
    print("Paper covers Rock. \n You win.")
    player_win += 1
```

```
elif comp_choice == "s" :
    print("You choose paper. The computer choose scissor. ")
    print("SCISSOR tears PAPER. \n You lose.")
    comp_win += 1
```

```
elif player_choice == "s" :
    if comp_choice == "s" :
```

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```
    print("You choose scissor. The computer also choose scissor.  
\n It's a TIE")
```

```
elif comp_choice == "p" :  
    print("You choose scissor. The computer choose paper. ")  
    print("SCISSOR tears PAPER. \n You win.")  
    player_win += 1
```

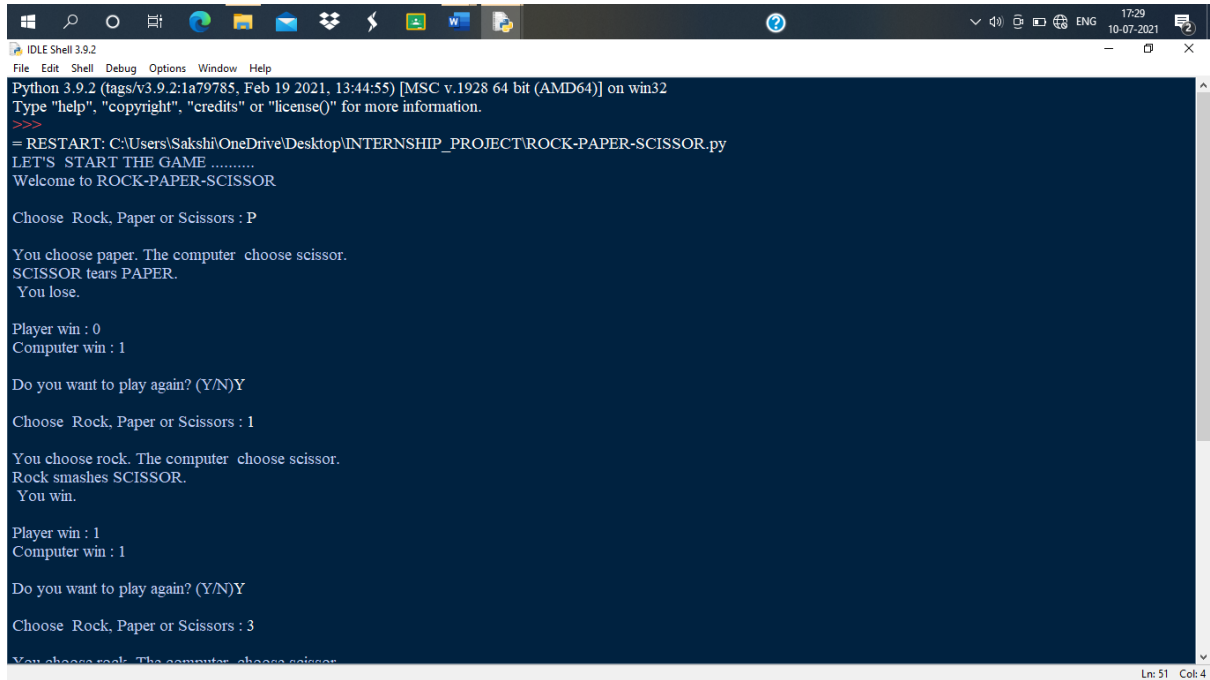
```
elif comp_choice == "r" :  
    print("You choose rock. The computer choose scissor. ")  
    print("Rock smashes SCISSOR. \n You lose.")  
    comp_win += 1
```

```
print(" ")  
print("Player win : " + str (player_win))  
print("Computer win : " + str (comp_win))  
print(" ")
```

```
player_choice = input("Do you want to play again? (Y/N)")  
if player_choice in ["Y", "YES", "y", "yes"] :  
    pass  
elif player_choice in ["N", "NO", "n", "no"]:  
    break  
else :  
    break
```

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# Output:



```
Python 3.9.2 (tags/v3.9.2:1a79785, Feb 19 2021, 13:44:55) [MSC v.1928 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: C:\Users\Sakshi\OneDrive\Desktop\INTERNSHIP_PROJECT\ROCK-PAPER-SCISSOR.py
LET'S START THE GAME .....
Welcome to ROCK-PAPER-SCISSOR

Choose Rock, Paper or Scissors : P

You choose paper. The computer choose scissor.
SCISSOR tears PAPER.
You lose.

Player win : 0
Computer win : 1

Do you want to play again? (Y/N)Y

Choose Rock, Paper or Scissors : 1

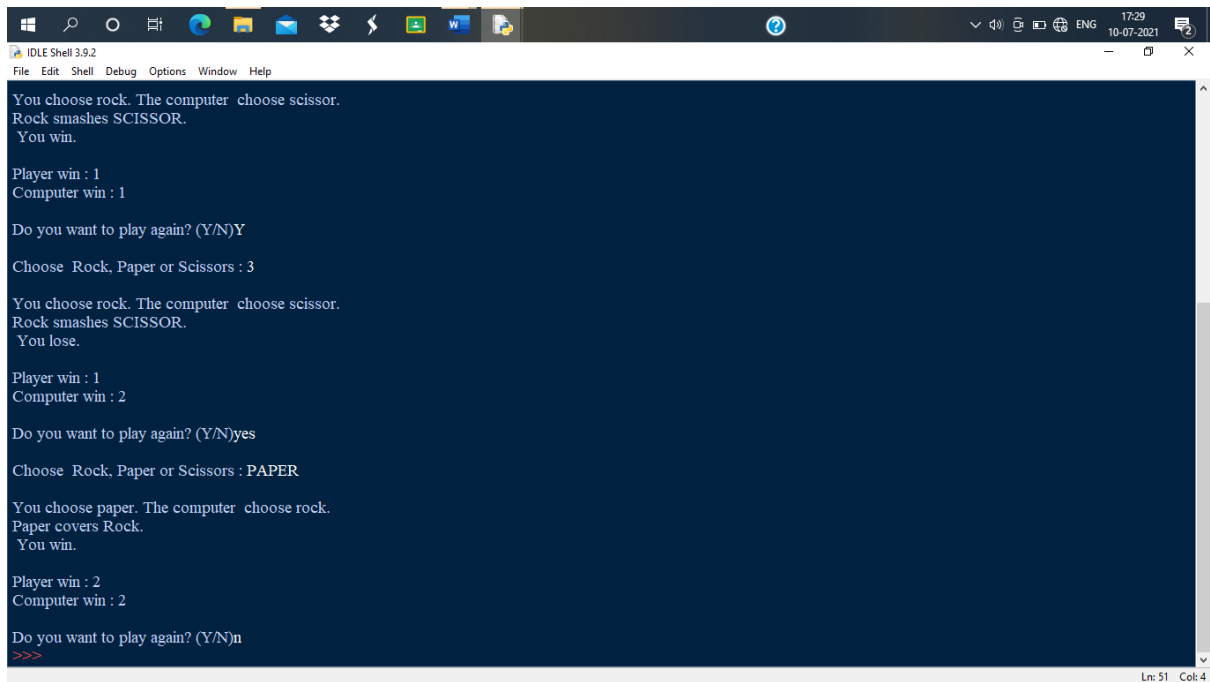
You choose rock. The computer choose scissor.
Rock smashes SCISSOR.
You win.

Player win : 1
Computer win : 1

Do you want to play again? (Y/N)Y

Choose Rock, Paper or Scissors : 3

You choose rock. The computer choose scissor.
```



```

You choose rock. The computer choose scissor.
Rock smashes SCISSOR.
You win.

Player win : 1
Computer win : 1

Do you want to play again? (Y/N)Y

Choose Rock, Paper or Scissors : 3

You choose rock. The computer choose scissor.
Rock smashes SCISSOR.
You lose.

Player win : 1
Computer win : 2

Do you want to play again? (Y/N)yes

Choose Rock, Paper or Scissors : PAPER

You choose paper. The computer choose rock.
Paper covers Rock.
You win.

Player win : 2
Computer win : 2

Do you want to play again? (Y/N)n
>>>
```

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## **PROJECT 2**

### **AIM: Rock-Paper-Scissor**

#### **Code:**

```
board = [' ' for x in range(10)]
```

```
def insertLetter(letter, pos):
```

```
    board[pos] = letter
```

```
def spaceIsFree(pos):
```

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

```
def printBoard(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(' | |')
```

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```
def isWinner(bo, le):
```

```
    return (bo[7] == le and bo[8] == le and bo[9] == le) or (bo[4] == le
and bo[5] == le and bo[6] == le) or (bo[1] == le and bo[2] == le and
bo[3] == 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)
```

```
def playerMove():
```

```
    run = True
```

```
    while run:
```

```
        move = input('Please select a position to place an \'X\' (1-9): ')
    try:
```

```
        move = int(move)
```

```
        if move > 0 and move < 10:
```

```
            if spaceIsFree(move):
```

```
                run = False
```

```
                insertLetter('X', move)
```

```
            else:
```

```
                print('Sorry, this space is occupied!')
```

```
        else:
```

```
            print('Please type a number within the range!')
```

```
    except:
```

```
        print('Please type a number!')
```

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```
def compMove():
    possibleMoves = [x for x, letter in enumerate(board) if letter == ' '
and x != 0]
    move = 0

    for let in ['O', 'X']:
        for i in possibleMoves:
            boardCopy = board[:]
            boardCopy[i] = let
            if isWinner(boardCopy, let):
                move = i
            return move

    cornersOpen = []
    for i in possibleMoves:
        if i in [1,3,7,9]:
            cornersOpen.append(i)

    if len(cornersOpen) > 0:
        move = selectRandom(cornersOpen)
        return move

    if 5 in possibleMoves:
        move = 5
        return move
```

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```
edgesOpen = []
for i in possibleMoves:
    if i in [2,4,6,8]:
        edgesOpen.append(i)

if len(edgesOpen) > 0:
    move = selectRandom(edgesOpen)

return move
```

```
def selectRandom(li):
    import random
    ln = len(li)
    r = random.randrange(0,ln)
    return li[r]
```

```
def isBoardFull(board):
    if board.count(' ') > 1:
        return False
    else:
        return True
```

```
def main():
```

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```
print("Let's start playing the Game ")
```

```
print('Welcome to Tic Tac Toe!')
```

```
printBoard(board)
```

```
while not(isBoardFull(board)):
```

```
    if not(isWinner(board, 'O')):
```

```
        playerMove()
```

```
        printBoard(board)
```

```
    else:
```

```
        print('Sorry, O\'s won this time!')
```

```
        break
```

```
if not(isWinner(board, 'X')):
```

```
    move = compMove()
```

```
    if move == 0:
```

```
        print('Tie Game!')
```

```
    else:
```

```
        insertLetter('O', move)
```

```
        print('Computer placed an \'O\' in position', move , ':')
```

```
        printBoard(board)
```

```
else:
```

```
    print('X\'s won this time! Good Job!')
```

```
    break
```

```
if isBoardFull(board):
```

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```
print('Tie Game!')
```

while True:

```
    main()
```

```
    answer = input('Do you want to play again? (Y/N)')
```

```
    if answer.lower() == 'y' or answer.lower == 'yes':
```

```
        board = [' ' for x in range(10)]
```

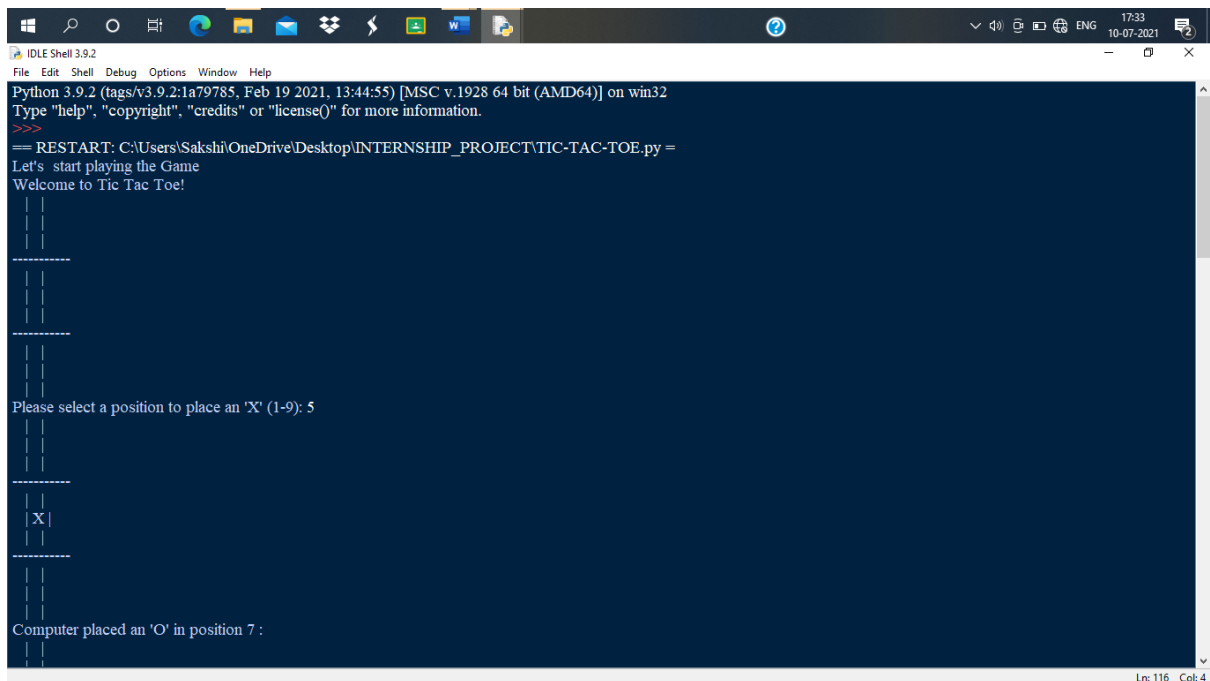
```
        print('-----')
```

```
        main()
```

```
    else:
```

```
        break
```

## Output:



```
Python 3.9.2 (tags/v3.9.2:1a79785, Feb 19 2021, 13:44:55) [MSC v.1928 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
== RESTART: C:\Users\Sakshi\OneDrive\Desktop\INTERNSHIP_PROJECT\TIC-TAC-TOE.py =
Let's start playing the Game
Welcome to Tic Tac Toe!

| |
| |
| |
-----
| |
| |
| |
-----
Please select a position to place an 'X' (1-9): 5

| |
| X|
| |
-----
Computer placed an 'O' in position 7 :

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

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The screenshot shows the IDLE Shell 3.9.2 window with a dark blue background. The game board is represented by a grid of vertical bars. The current state of the board is as follows:  

```
| |  
| |  
| |  
-----  
|X|  
| |  
-----  
O| |  
| |  
Please select a position to place an 'X' (1-9): 8  
| |  
|X|  
| |  
-----  
O|X|  
| |  
Computer placed an 'O' in position 2 :  
| |  
|O|
```

The status bar at the bottom right indicates "Ln: 116 Col: 4".

Windows taskbar: File Explorer, Edge, Mail, Photos, Settings, IDLE Shell 3.9.2, Word, PowerPoint, Help.

Terminal Title: IDLE Shell 3.9.2

Terminal Menu: File, Edit, Shell, Debug, Options, Window, Help

```

| |
O | X |
| |
Computer placed an 'O' in position 2 :
| |
| O |
| |
-----
| |
| X |
| |
-----
| |
O | X |
| |
Please select a position to place an 'X' (1-9): 9
| |
| O |
| |
-----
| |
| X |
| |
-----
| |
O | X | X
| |
Computer placed an 'O' in position 1 :
| |
O | O |
| |

```

Status Bar: Ln: 116 Col: 4

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```

IDLE Shell 3.9.2
File Edit Shell Debug Options Window Help
-----
| |
O | X | X
| |
Please select a position to place an 'X' (1-9): 3
| |
O | O | X
| |
-----
| |
| X |
| |
-----
| |
O | X | X
| |
Computer placed an 'O' in position 4 :
| |
O | O | X
| |
-----
| |
O | X |
| |
-----
| |
O | X | X
| |
Sorry, O's won this time!
Do you want to play again? (Y/N)N
>>>
Ln: 116 Col: 4
```

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