TCR INTERNSHIP

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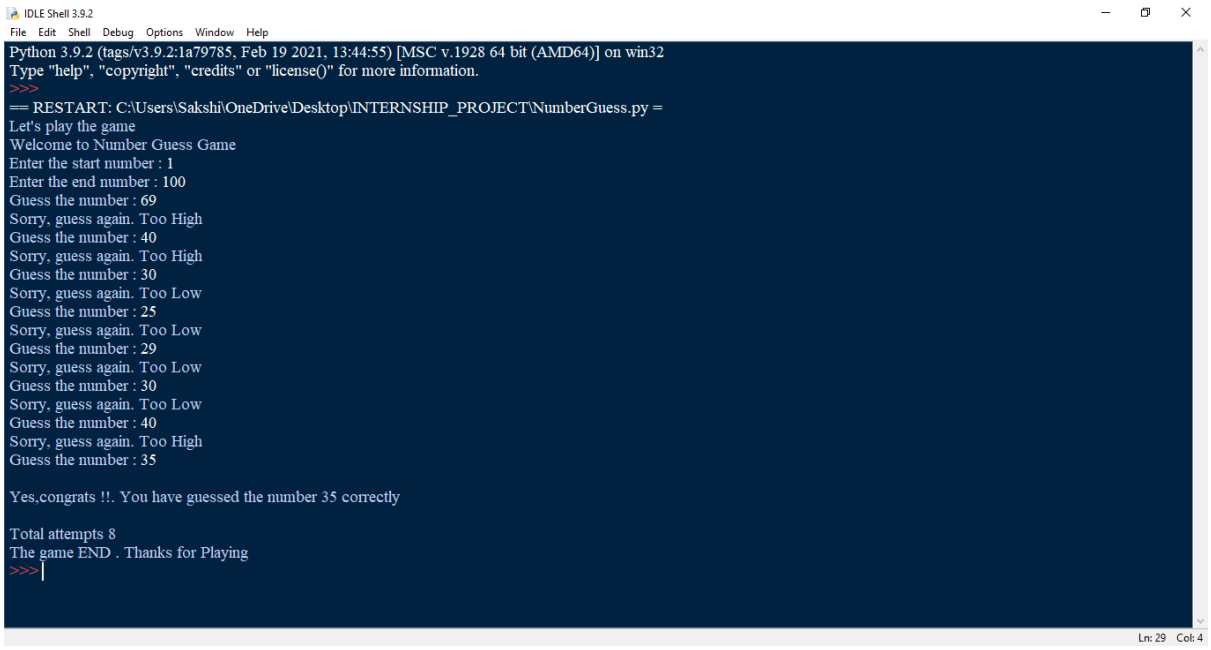
```
        print("Sorry, guess again. Too High")
    else:
        print(" ")
        print(f'Yes,congrats !!. You have guessed the number {random_number} correctly')
        print(" ")
        print(f'Total attempts {attempts} ')
        break
print("The game END . Thanks for Playing")
```

Output:



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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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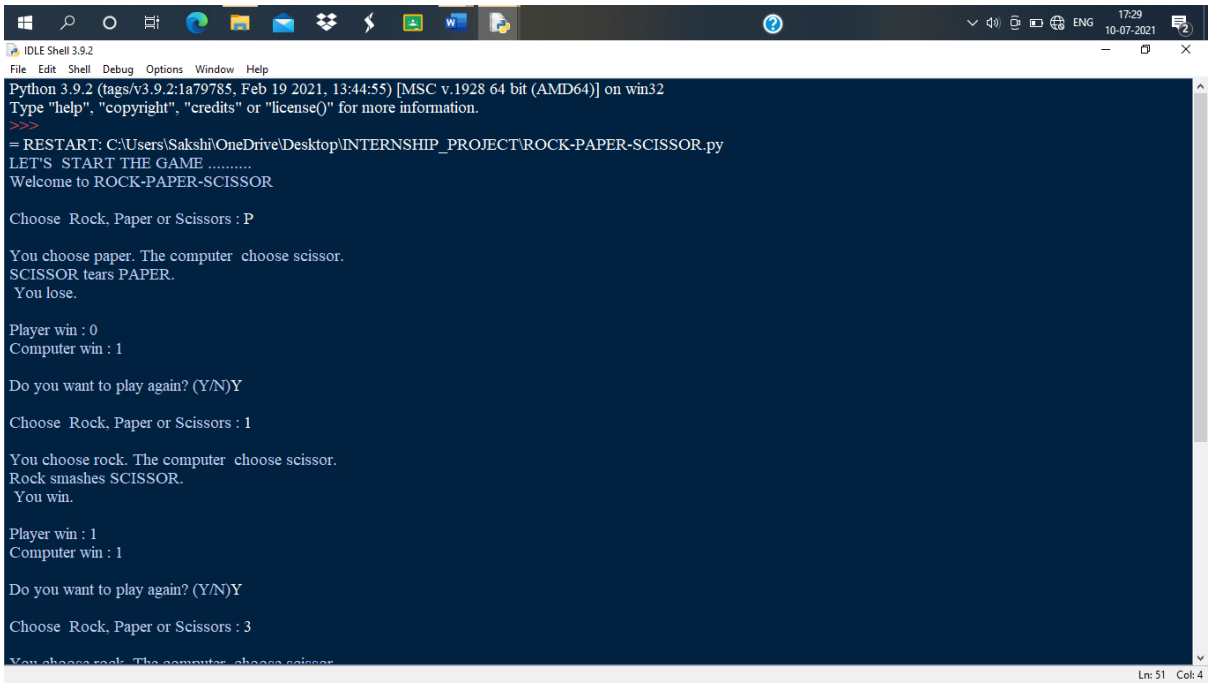
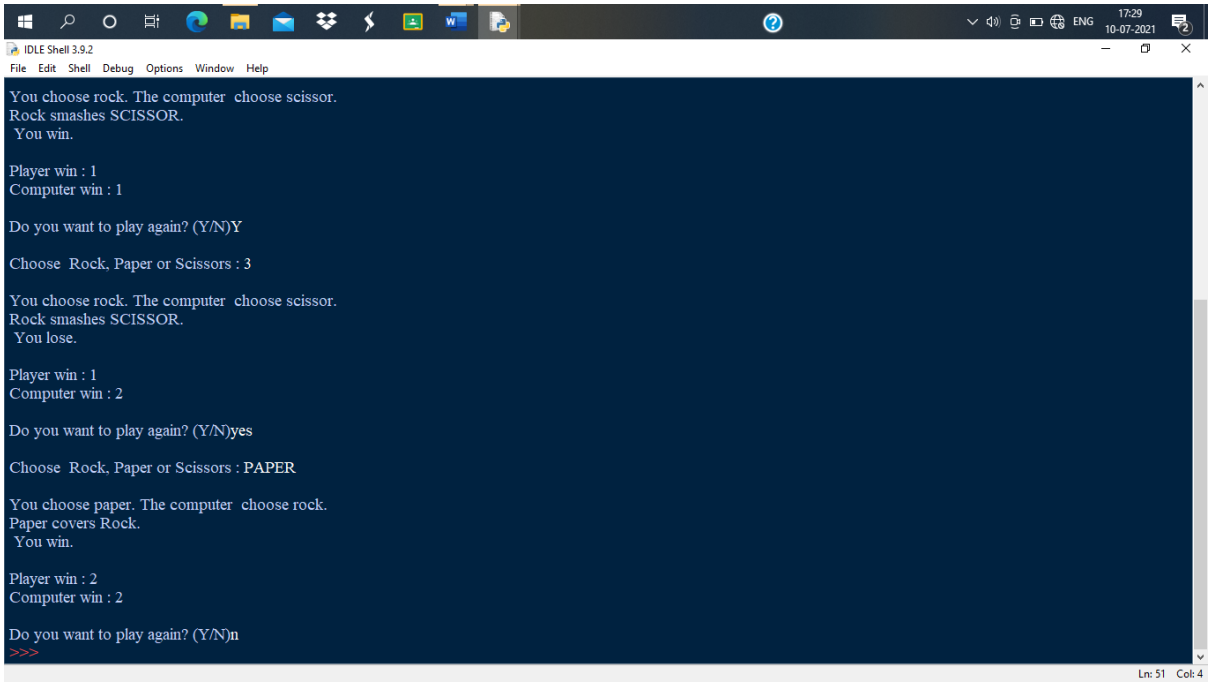
Output:





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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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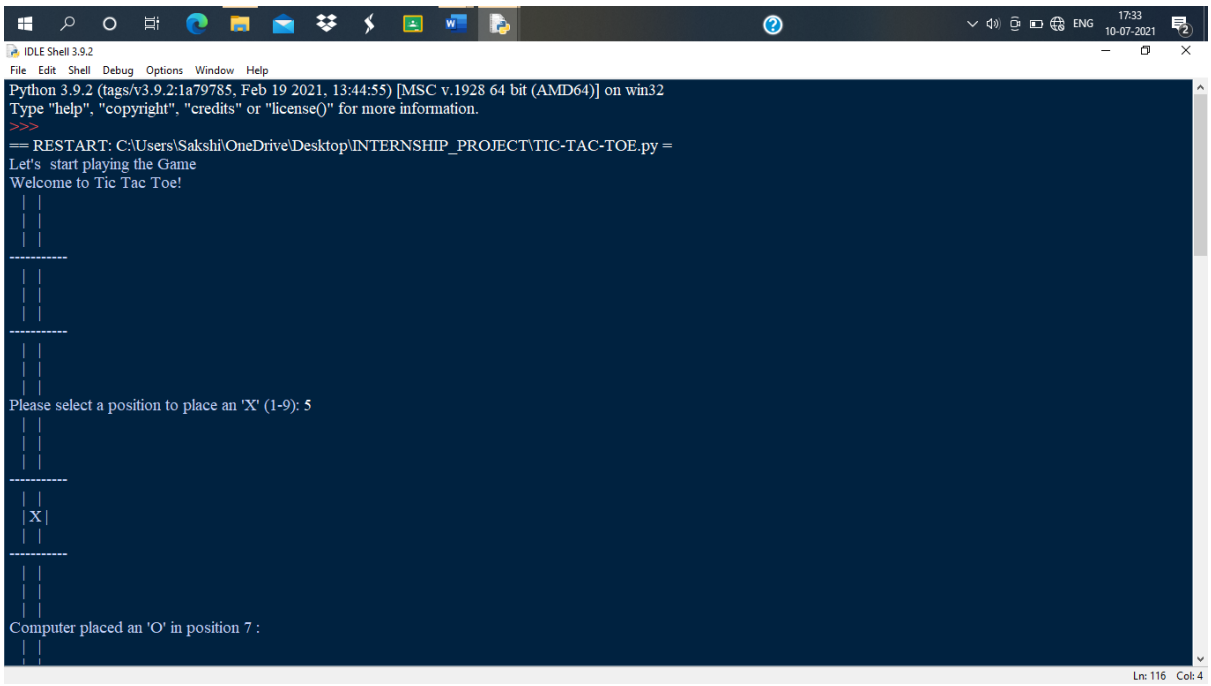
```
        print('Tie Game!')


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:



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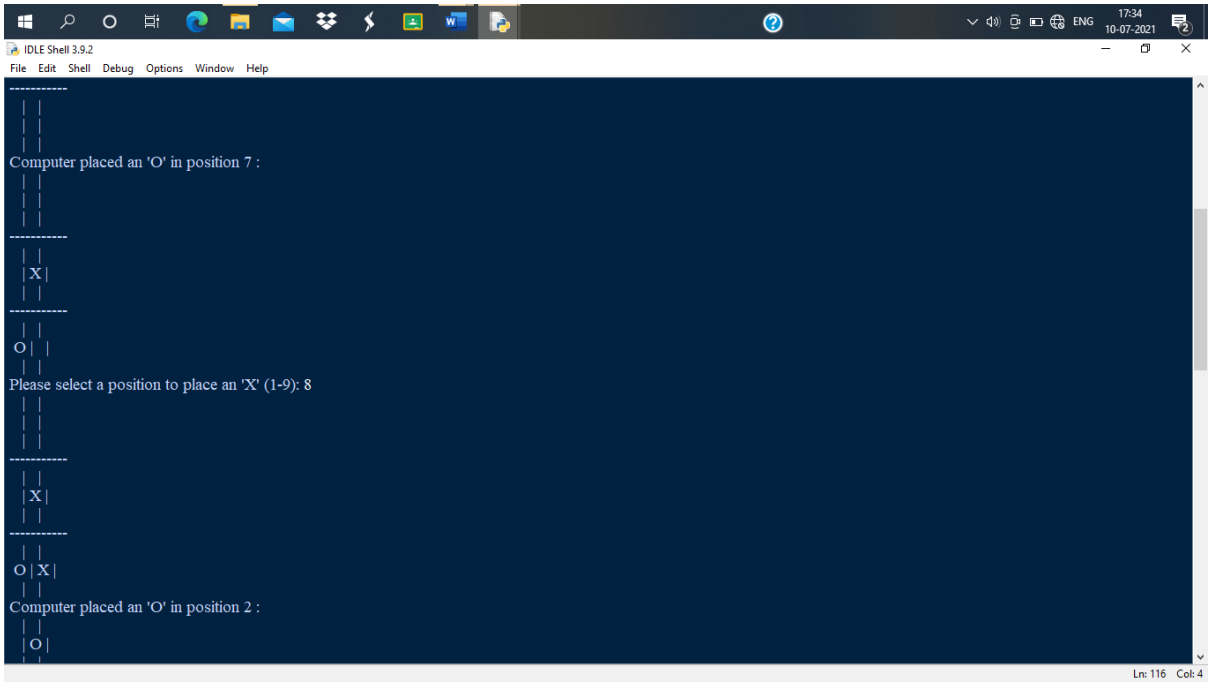

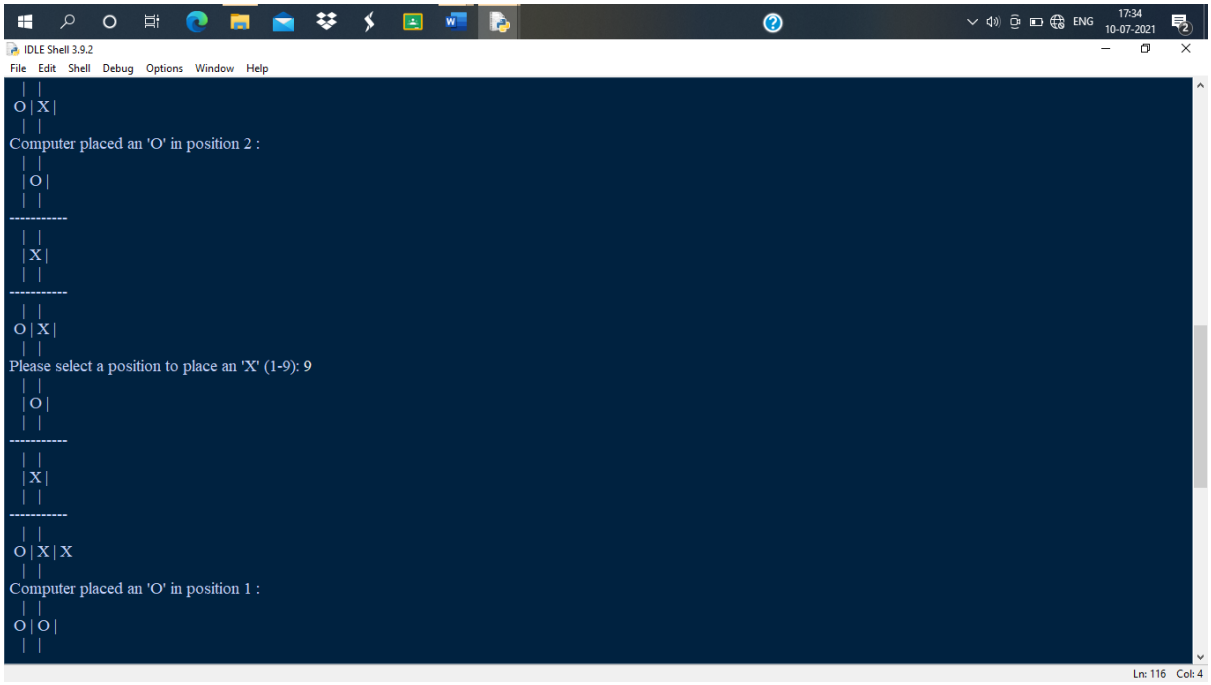

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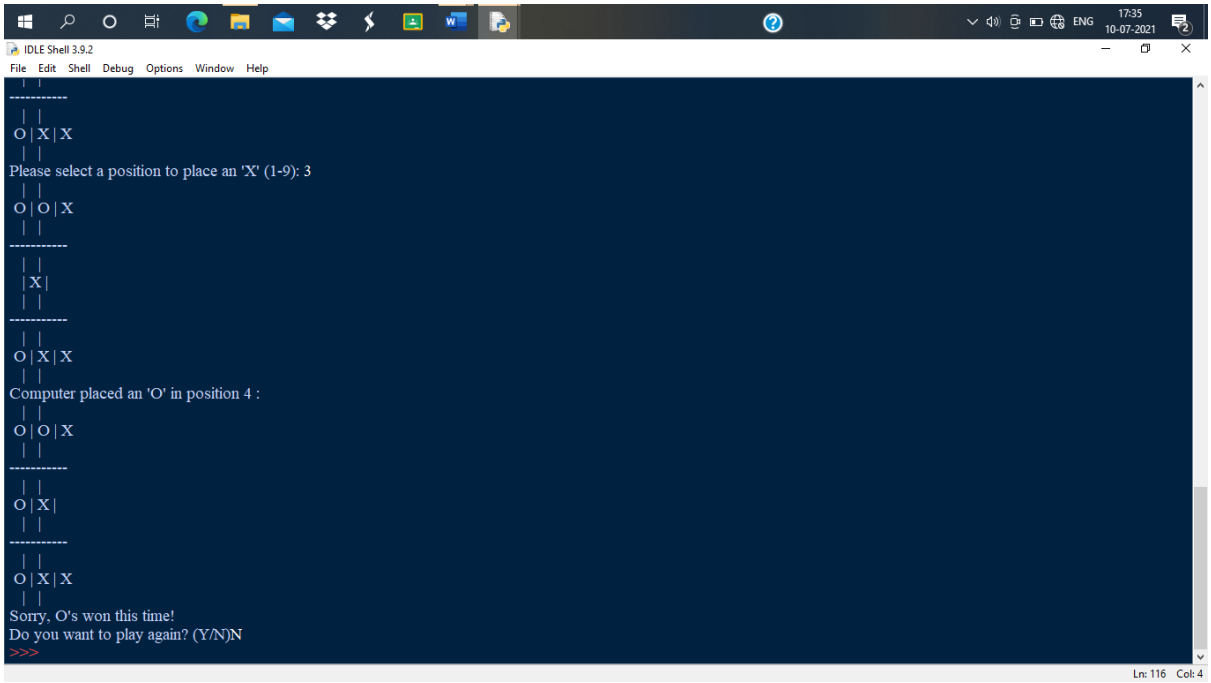

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