**Sidramesh V Hiremath**

**4AL18CS082**

ASSIGNMENT

# Application Development using Python [18CS55]

Question:

Design and Implement python code for Tic Tac Toe. Code:

|  |
| --- |
| from IPython.display import clear\_output |
| def display\_board(board): |
| clear\_output() |
| print(' ||') |
| print(' ' + board[7] + ' | ' + board[8] + ' | ' + board[9]) |
| print(' ||') |
| print(' ') |
| print(' ||') |
| print(' ' + board[4] + ' | ' + board[5] + ' | ' + board[6]) |
| print(' ||') |
| print(' ') |
| print(' ||') |
| print(' ' + board[1] + ' | ' + board[2] + ' | ' + board[3]) |
| print(' ||') |
| test\_board=["#","X","0","X","0","X","0","X","0","X"] |
| def player\_input(): |
| marker = '' |
| while not (marker == 'X' or marker == 'O'): |

|  |
| --- |
| marker = input('Player 1: Do you want to be X or O? ').upper() |
| if marker == 'X': |
| return ('X', 'O') |
| else: |
| return ('O', 'X') |
| def place\_marker(board,marker,position): |
| board[position]=marker |
| def win\_check(board,mark): |
| return((board[7]==mark and board[8]==mark and board[9]==mark)or(board[4]==mark and board[5]==mark and board[6]==mark)or(board[1]==mark and board[2]==mark and board[3]==mark)or(board[7]==mark and board[4]==mark and board[1]==mark)or(board[8]==mark and board[5]==mark and board[2]==mark)or(board[9]==mark and board[6]==mark and board[3]==mark)or(board[7]==mark and board[5]==mark and board[3]==mark)or(board[9]==mark and board[5]==mark and board[1]==mark)) |
| win\_check(test\_board,'X') |
| import random |
| def choose\_first(): |
| if random.randint(0,1)==0: |
| return 'Player 2' |
| else: |
| return 'Player 1' |
| def space\_check(board,position): |
| return board[position]==' ' |
| def full\_board\_check(board): |
| for i in range(1,10): |
| if space\_check(board,i): |
| return False |
| return True |

|  |
| --- |
| def player\_choice(board): |
| position=0 |
| turn = choose\_first() |
| while position not in [1,2,3,4,5,6,7,8,9] or not space\_check(board,position): |
| position=int(input(turn+' '+'Choose your next position:(1-9)')) |
| return position |
| def replay(): |
| return input('Do you want to play again?Enter Yes or No:').lower().startswith('y') |
| print('Welcome to Tic Tac Toe!') |
| while True: |
| # Reset the board |
| theBoard = [' '] \* 10 |
| player1\_marker, player2\_marker = player\_input() |
| turn = choose\_first() |
| print(turn + ' will go first.') |
| play\_game = input('Are you ready to play? Enter Yes or No.') |
| if play\_game.lower()[0] == 'y': |
| game\_on = True |
| else: |
| game\_on = False |
| while game\_on: |
| if turn == 'Player 1': |
| # Player1's turn. |
| display\_board(theBoard) |
| position = player\_choice(theBoard) |
| place\_marker(theBoard, player1\_marker, position) |
| if win\_check(theBoard, player1\_marker): |

|  |
| --- |
| display\_board(theBoard) |
| print('Congratulations! You have won the game!') |
| game\_on = False |
| else: |
| if full\_board\_check(theBoard): |
| display\_board(theBoard) |
| print('The game is a draw!') |
| break |
| else: |
| turn = 'Player 2' |
| else: |
| # Player2's turn. |
| display\_board(theBoard) |
| position = player\_choice(theBoard) |
| place\_marker(theBoard, player2\_marker, position) |
| if win\_check(theBoard, player2\_marker): |
| display\_board(theBoard) |
| print('Player 2 has won!') |
| game\_on = False |
| else: |
| if full\_board\_check(theBoard): |
| display\_board(theBoard) |
| print('The game is a draw!') |
| break |
| else: |
| turn = 'Player 1' |
| if not replay(): |
| break |

|  |
| --- |
| Output: |
|  |