Exercise 13

board = [' ']\*9

def win(b,p):

lines = [(0,1,2),(3,4,5),(6,7,8),(0,3,6),(1,4,7),(2,5,8),(0,4,8),(2,4,6)]

return any(b[a]==b[b]==b[c]==p for a,b,c in lines)

def minimax(b, p):

if win(b,'O'): return 1

if win(b,'X'): return -1

if ' ' not in b: return 0

scores = []

for i in range(9):

if b[i]==' ':

b[i] = p

scores.append(minimax(b, 'O' if p=='X' else 'X'))

b[i] = ' '

return max(scores) if p=='O' else min(scores)

def best\_move():

moves = [(minimax(board[:i]+['O']+board[i+1:], 'X'), i) for i in range(9) if board[i]==' ']

return max(moves)[1]

while True:

print(' '.join(board[0:3]))

print(' '.join(board[3:6]))

print(' '.join(board[6:9]))

x = int(input("Your move (0-8): "))

if board[x]!=' ': continue

board[x] = 'X'

if win(board,'X'):

print("You win!")

break

if ' ' not in board:

print("Tie!")

break

o = best\_move()

board[o] = 'O'

if win(board,'O'):

print("AI wins!")

break

if ' ' not in board:

print("Tie!")

break

