29. Minimax Algorithm for Tic Tac Toe AI

def minimax(board, depth, is\_max):

if check\_win(board, 'O'):

return 1

if check\_win(board, 'X'):

return -1

if is\_full(board):

return 0

if is\_max:

best = -float('inf')

for i in range(3):

for j in range(3):

if board[i][j] == ' ':

board[i][j] = 'O'

best = max(best, minimax(board, depth+1, False))

board[i][j] = ' '

return best

else:

best = float('inf')

for i in range(3):

for j in range(3):

if board[i][j] == ' ':

board[i][j] = 'X'

best = min(best, minimax(board, depth+1, True))

board[i][j] = ' '

return best

def best\_move(board):

best\_val = -float('inf')

move = (-1, -1)

for i in range(3):

for j in range(3):

if board[i][j] == ' ':

board[i][j] = 'O'

move\_val = minimax(board, 0, False)

board[i][j] = ' '

if move\_val > best\_val:

best\_val = move\_val

move = (i, j)

return move