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import math
PLAYER_X = 'X' # AI
PLAYER_O = 'O' # Human
EMPTY = ''
def print_board(board):
      ""Prints the Tic-Tac-Toe board."""
    for row in board:
        print(" | ".join(row))
print("-" * 9)
def is_winner(board, player):
    """Checks if a player has won the game."""
    for row in board:
        if all(cell == player for cell in row):
            return True
    for col in range(3):
        if all(board[row][col] == player for row in range(3)):
    if all(board[i][i] == player for i in range(3)) or all(board[i][2 - i] == player for i in range(3)):
        return True
    return False
def is_draw(board):
     """Checks if the game is a draw."""
    return all(board[row][col] != EMPTY for row in range(3) for col in range(3))
def evaluate(board):
    """Evaluates the board state."""
    if is_winner(board, PLAYER_X):
        return 10
    if is_winner(board, PLAYER_0):
        return -10
    return 0
def minimax(board, depth, is_maximizing, alpha, beta):
    """Minimax algorithm with alpha-beta pruning."""
    score = evaluate(board)
    if score == 10 or score == -10:
        return score - depth if score == 10 else score + depth
    if is_draw(board):
        return 0
    if is_maximizing:
        max_eval = -math.inf
        for row in range(3):
            for col in range(3):
                if board[row][col] == EMPTY:
                    board[row][col] = PLAYER_X
                    eval = minimax(board, depth + 1, False, alpha, beta)
                    board[row][col] = EMPTY
                    max_eval = max(max_eval, eval)
                    alpha = max(alpha, eval)
                    if beta <= alpha:</pre>
                         break
        return max eval
    else:
        min eval = math.inf
        for row in range(3):
            for col in range(3):
                if board[row][col] == EMPTY:
                    board[row][col] = PLAYER_0
                    eval = minimax(board, depth + 1, True, alpha, beta)
                    board[row][col] = EMPTY
                    min_eval = min(min_eval, eval)
                    beta = min(beta, eval)
                    if beta <= alpha:</pre>
                         break
        return min_eval
def best_move(board):
     """Finds the best move for the AI."""
    best val = -math.inf
    move = (-1, -1)
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for row in range(3):
        for col in range(3):
           if board[row][col] == EMPTY:
               board[row][col] = PLAYER_X
               move_val = minimax(board, 0, False, -math.inf, math.inf)
               board[row][col] = EMPTY
               if move_val > best_val:
                   best_val = move_val
                   move = (row, col)
    return move
def play():
    """Runs a Tic-Tac-Toe game between a human and AI."""
    board = [[EMPTY] * 3 for _ in range(3)]
    print("Tic-Tac-Toe: AI (X) vs. You (0)")
    print_board(board)
    while True:
       row, col = map(int, input("Enter your move (row and column 0-2): ").split())
        if board[row][col] != EMPTY:
           print("Invalid move! Try again.")
           continue
       board[row][col] = PLAYER_0
        if is_winner(board, PLAYER_0):
           print_board(board)
           print("You win! **")
           break
        if is_draw(board):
           print_board(board)
           print("It's a draw! ">")
           break
        ai_row, ai_col = best_move(board)
       board[ai_row][ai_col] = PLAYER_X
        print("\nAI plays:")
       print_board(board)
        if is_winner(board, PLAYER_X):
           print("AI wins! • ")
           break
        if is_draw(board):
           print("It's a draw! ">")
if __name__ == "__main__":
    play()
→ Tic-Tac-Toe: AI (X) vs. You (0)
     Enter your move (row and column 0-2): 0 1
     AI plays:
     X | 0 |
      -----
      Enter your move (row and column 0-2): 1 1
     AI plays:
     X | 0 |
      0 |
      | X |
     Enter your move (row and column 0-2): 2 0
     AI plays:
```

x | 0 | x