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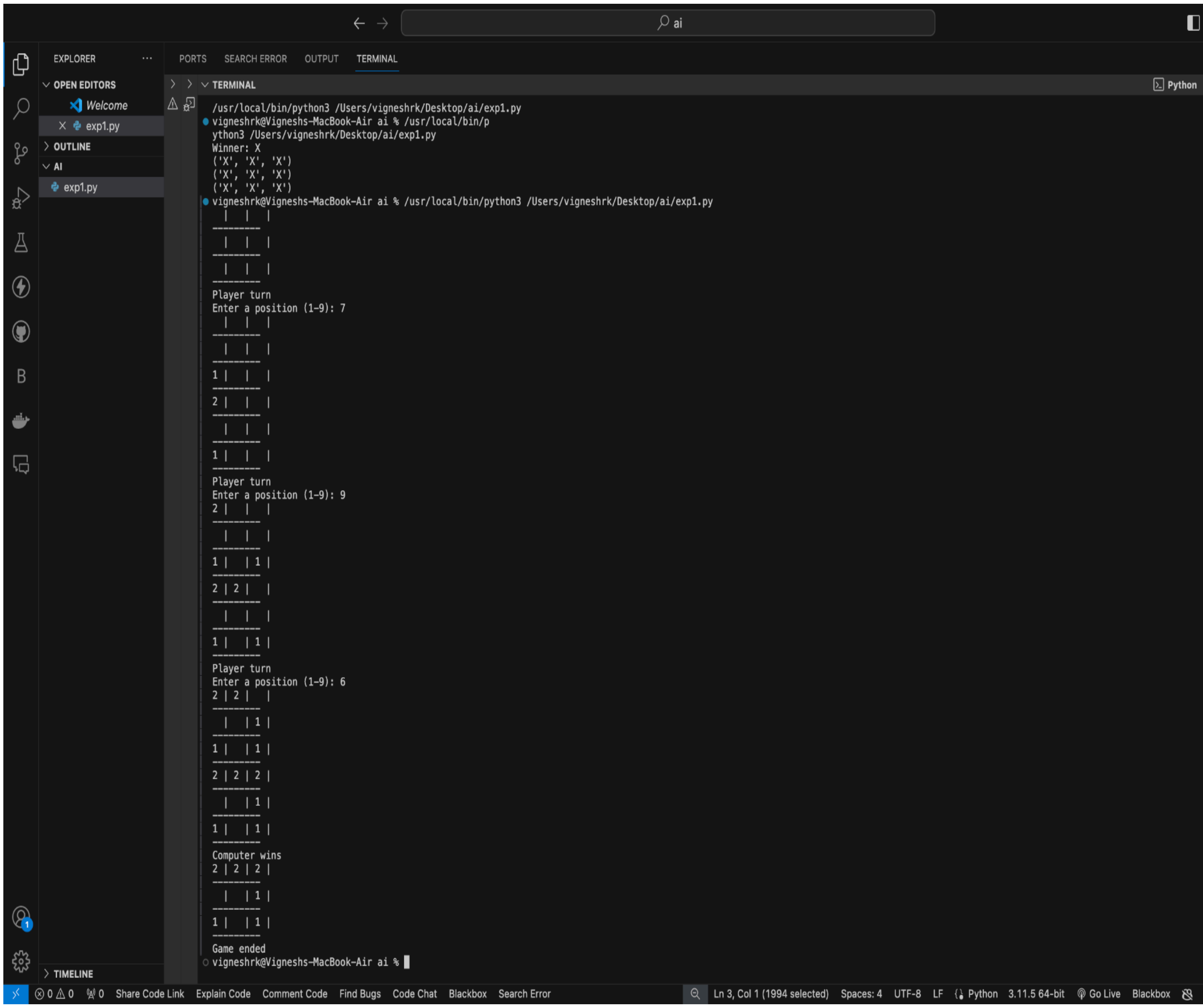
TE COMPS-A

EXP-1

Code:
```
class TicTacToeBruteForce:
   WINNING_POSITIONS = [
       # Rows
       [0, 1, 2], [3, 4, 5], [6, 7, 8],
       # Columns
       [0, 3, 6], [1, 4, 7], [2, 5, 8],
       # Diagonals
       [0, 4, 8], [2, 4, 6]
   ]

   @staticmethod
   def get_winner(board):
       for positions in TicTacToeBruteForce.WINNING_POSITIONS:
           if board[positions[0]] == board[positions[1]] == board[positions[2]] != 0:
               return board[positions[0]]
       return 0

   @staticmethod
   def print_board(board):
       for i in range(3):
           for j in range(3):
               print(board[i * 3 + j] if board[i * 3 + j] != 0 else " ", end=" | ")
           print("\n---------")

   @staticmethod
   def is_board_full(board):
       return all(cell != 0 for cell in board)

   @staticmethod
   def play_game():
       board = [0] * 9
       player_turn = True

       while True:
           TicTacToeBruteForce.print_board(board)
           winner = TicTacToeBruteForce.get_winner(board)
```

```
            if winner:
                print("Player wins" if winner == 1 else "Computer wins")
                break
            if TicTacToeBruteForce.is_board_full(board):
                print("Tie game")
                break

            if player_turn:
                position = int(input("Player turn\nEnter a position (1-9): ")) - 1
                if board[position] == 0:
                    board[position] = 1
                    player_turn = False
            else:
                # Computer's turn
                position = TicTacToeBruteForce.get_computer_move(board)
                board[position] = 2
                player_turn = True

        TicTacToeBruteForce.print_board(board)
        print("Game ended")

    @staticmethod
    def get_computer_move(board):
        # Simple strategy: choose the first available empty position
        for i in range(9):
            if board[i] == 0:
                return i


TicTacToeBruteForce.play_game()
```

Output:



```
/usr/local/bin/python3 /Users/vigneshrk/Desktop/ai/exp1.py
vigneshrk@Vigneshs-MacBook-Air ai % /usr/local/bin/p
ython3 /Users/vigneshrk/Desktop/ai/exp1.py
Winner: X
('X', 'X', 'X')
('X', 'X', 'X')
('X', 'X', 'X')
vigneshrk@Vigneshs-MacBook-Air ai % /usr/local/bin/python3 /Users/vigneshrk/Desktop/ai/exp1.py
  |   |   |
---------
  |   |   |
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  |   |   |
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Player turn
Enter a position (1-9): 7
  |   |   |
---------
  |   |   |
---------
1 |   |   |
---------
2 |   |   |
---------
  |   |   |
---------
1 |   |   |
---------
Player turn
Enter a position (1-9): 9
2 |   |   |
---------
  |   |   |
---------
1 |   | 1 |
---------
2 | 2 |   |
---------
  |   |   |
---------
1 |   | 1 |
---------
Player turn
Enter a position (1-9): 6
2 | 2 |   |
---------
  |   | 1 |
---------
1 |   | 1 |
---------
2 | 2 | 2 |
---------
  |   | 1 |
---------
1 |   | 1 |
---------
Computer wins
2 | 2 | 2 |
---------
  |   | 1 |
---------
1 |   | 1 |
---------
Game ended
vigneshrk@Vigneshs-MacBook-Air ai %
```