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implementation used: 4.1

How to run programs:

make

./tts PORT

./tt IPADDRESS PORT

basic summary of functions:

ttts.c

1. `send_message()`: Sends a message to a client over a socket connection. Takes several parameters such as the socket file descriptor, message code, and additional fields. It constructs the message and sends it over the socket connection.
2. `recv_message()`: Receives a message from a client over a socket connection. Takes several parameters such as the socket file descriptor, and pointers to variables that will hold the values of the various message fields. It reads the message from the socket and extracts the fields.
3. `print_board()`: Prints the current state of the Tic Tac Toe board.
4. `is_board_full()`: Checks whether the Tic Tac Toe board is full or not.
5. `is_winner()`: Checks whether a player has won the game or not.
6. `main()`: The main function that sets up the socket, binds it to a port, listens for incoming connections, accepts client connections, sends and receives messages to and from clients, and manages the game flow.

ttt.c:

1. `send_message()`: This function sends a message to the server. It takes a socket file descriptor (`sockfd`), message code (`code`), field 3 (`field3`), field 4 (`field4`), and identifier (`identifier`) as input.
2. `recv_message()`: This function receives a message from the server. It takes a socket file descriptor (`sockfd`), message code (`code`), field 3 (`field3`), a pointer to field 4 (`**field4`), and identifier (`identifier`) as input.
3. `main()`: This is the main function that establishes a connection with the server, sends and receives messages to and from the server, and manages the game.

Test Plan:

- Test a game where the board fills and calls a draw → successful
- Test a game where player1 wins vertically → successful
- Test a game where player1 wins horizontally → successful
- Test a game where player1 wins diagonally → successful
- Test a game where player2 wins vertically → successful
- Test a game where player2 wins horizontally → successful
- Test a game where player2 wins diagonally → successful
- Test a game where player1 resigns → successful
- Test a game where player2 resigns → successful
- Test a game where player suggests a draw → partially successful
- Test a game where a player chooses a spot already occupied → successful INVL