**TCP Chat Room**

**(20 points):**As a user, I want to be able to chat with another person over the local network, so that I can keep in communication with friends and family.

**(10 points):**As a developer, I want to implement the observer design pattern, so that I can send out a notification to all users that a new person has joined the chat room.

**(10 points):**As a developer, I want to implement dependency injection for logging, so that I can log all messages, log when someone joins the chat, and log when someone leaves the chat.

**(10 points):**As a developer, I want to use a dictionary, so that I can store the users in my chat program.

**(10 points):**As a developer, I want to use a queue, so that I can store and process incoming messages.

**(10 points):** As a developer, I want to use C# best practices, SOLID design principles, and good naming conventions on the project.

**(10 points (5 points each))**: As a developer, I want pinpoint at least two places where I used one of the SOLID design principles and discuss my reasoning, so that I can properly understand good code design.

**(Bonus 5 points):**As a user, I want the ability to send and receive direct messages, so that I can choose a specific user to talk to.

**(Bonus 5 points):**As a developer, I want the ability to create private chat rooms, so that users can join a channel for themselves.

**(Bonus 5 points):**As a developer, I want to implement a Graphical User Interface (GUI), so that my users don’t have to do everything in the console.

**HINT:** Use TCPclient instead of raw socket class. This will make things a little bit easier.

**HINT:** There should be two projects in the same solution: one client-side (Client) and one server-side (Server)