Assignment 2, SDJ2
(Sockets, MVVM, Observer, Factory method, Singleton/Multiton)

The assignment:
You must design and implement a simple client/server application as a chat system with multiple clients.

Requirements
- The application must use Sockets connecting client and server, with the server being multithreaded
- The client must be able to 1) send messages, 2) receive messages broadcasted to all clients and 3) request an information from the server not to be broadcasted to other clients, e.g. number of connected chatters, list of connected chatters or similar.
- You must use MVVM with at least two windows. Some ideas:
  - Actual chat window
  - Set user name / alias window
  - List of friends window
  - Login window
- You must use the Observer design pattern as part of the solution.
- You must use the Factory method design pattern as part of the solution (e.g. in the View)
- You must use either Singleton or Multiton as a log to the server console and to file(s). It should always be possible to find all the communication for an entire day – text, ip address, date and time.
- It is required to make a class diagram for the final solution (in Astah). In the diagram you must be able to identify the MVVM, the Observer pattern, The Factory method and the design of the sockets related classes

Deadline
Sunday the 28th of March (week 12) at 22:00

Format
It is ok to work in groups, but you each have to hand in a single zip-file with
- Class diagram (where the different patterns and the sockets classes are clearly identified)
- Source code for all Java classes
- Related resources like fxml files, txt files, and if used, external jar files

Evaluation
Your hand-in will be registered and counts for one of the exam requirements. No feedback will be given.