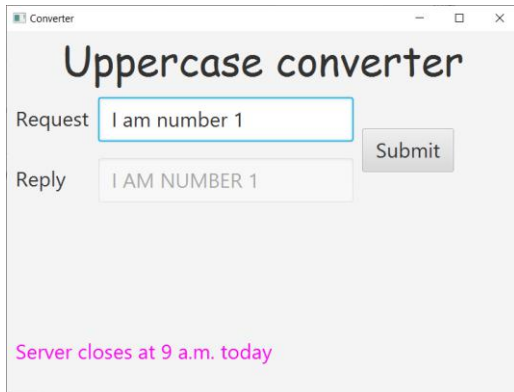


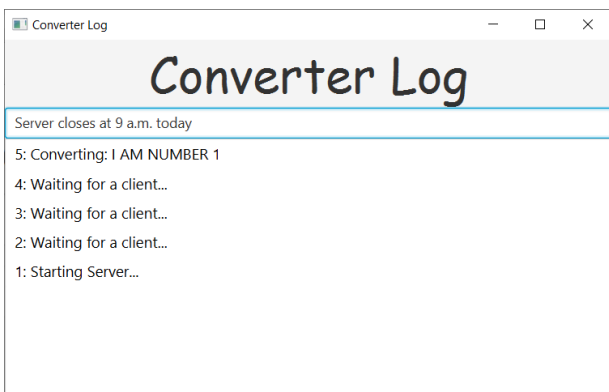
Exercise: MVVM-Uppercase-Client including a broadcast from server

The MVVM Uppercase server from a previous exercises has an option to add a message that should be send to all clients

Client view



Server view



Your exercise is to make the Client application such that it could handle a broadcast message from the server AND still can convert to uppercase.

The server side: In the ClientHandler, remember to add a listener for the broadcast message coming from the Model, in which you send the message on the out stream to the Client.

- 1) Design a solution (presented at least as a class diagram) of how to handle a combination of request-reply (converting to uppercase) and broadcast (receiving a message from the server).
 - Another label to show broadcasts or reuse the output label
 - Sending an object (type and text), e.g. ("Message", "Server closing soon") or ("Converting", "I AM THE FIRST ONE") – either as Json or serialized object.
 - Client class could be split up into a class sending and another class receiving. One or more methods in the sending class to be called when the object from the receiving class receives an object from server. The receiving class may be responsible for checking which type of object it receives, a "Convert" or a "Message" (a reply or a broadcast)
 - Either introduce more methods in the Client model (interface and ModelManager) or use the Observer pattern with the Client class as a subject firing an event when a broadcast is received, and the ModelManager being a Listener to these events (in the ModelManager's `propertyChange` method you fire an event to be reached by the ViewModel)
- 2) Implement your designed solution