Project Report

CSE 486/586 Distributed Systems Project 0

Simple Messenger on Android

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The project 0 wanted the students to make a simple messenger on the android platform. This messenger basically would send and receive messages over two android platforms or emulators. This app basically contains two main components. The first component is the List Adapter which displays a menu on the start of the application. The chat messenger app is on the first option of the menu i.e the FinalchatActivity option. The other two options are the About us option and the Details of the project which are pretty much what the name means.

Basically I have written one Activity class and several other classes. In the onCreate() method im starting the server thread which indirectly is invoking the server class which contains creating a serversocket and accepting the serversocket and then sending the data to the handler which is updating the textview through the handler thread which solves the purpose of updating the UI thread . So in this class the server starts listening for an incoming connection and after establishing the connection the server then reads the data and sends it to the handler for printing the messages received by it. Also in the server class I have used the 'synchronized' block of code which normally does is synchronize the two threads which are trying to access the same block of resource in the code. In this case the whole block of code which contains the receving of the data and accepting the socket connection comes under the synchronized method. This is just a precautionary method implemented to make sure that no exceptions or errors occur in the program.

The client thread is invoked inside the activity class on the event of a button click. In my project that button is the send button which will invoke the client class through that thread. In this class I have used the Telephony manager method to find out which emulator is being the client and which one is being the server. After comparing the results I have made that particular client socket or you can say I have made the client socket on the particular port of that particular emulator. After this step the client sends the data through the PrintWriter method which is inbuilt in java. This message is then send in the form of bytes through the socket to the server which then receives it and then sends it to the handler for updating it in the UI thread. The two hard-coded strings contain the phone numbers of the two emulators 5554 and 5556.

The other components in this app are the two other options in the menu which contain the basic information related to the application. I have launched the intent of the Menu first and then made the rest of them default. The difficulties I faced in this app were the connecting of the sockets and writing a code which serves the purpose of both a client and a server at the same time. The creating and synchronizing and threads was another difficulty and also the telephony manager was a idea which I saw posted by professor steven which made me implement the idea. The other difficulty was the use of a handler and also I was initially writing the code and trying to make a socket from the main thread so I wasted a lot of time on that as well. I must have put roughly around 20-25 hours in this project in total which also included watching the basic tutorial videos of android and how to start an activity and making the xml file as I have no background in the android field I had to start from scratch.

To run this app, just start the app and select the first option from the menu. After starting the two emulators go to cmd an type telnet localhost 5554 for the first emulator. Then after reaching into the localhost for the first emulator type redir add tcp:6060:8888 . Similarly for the second emulator type telnet localhost 5556 and then inside its localhost type redir add tcp:5050:8888.

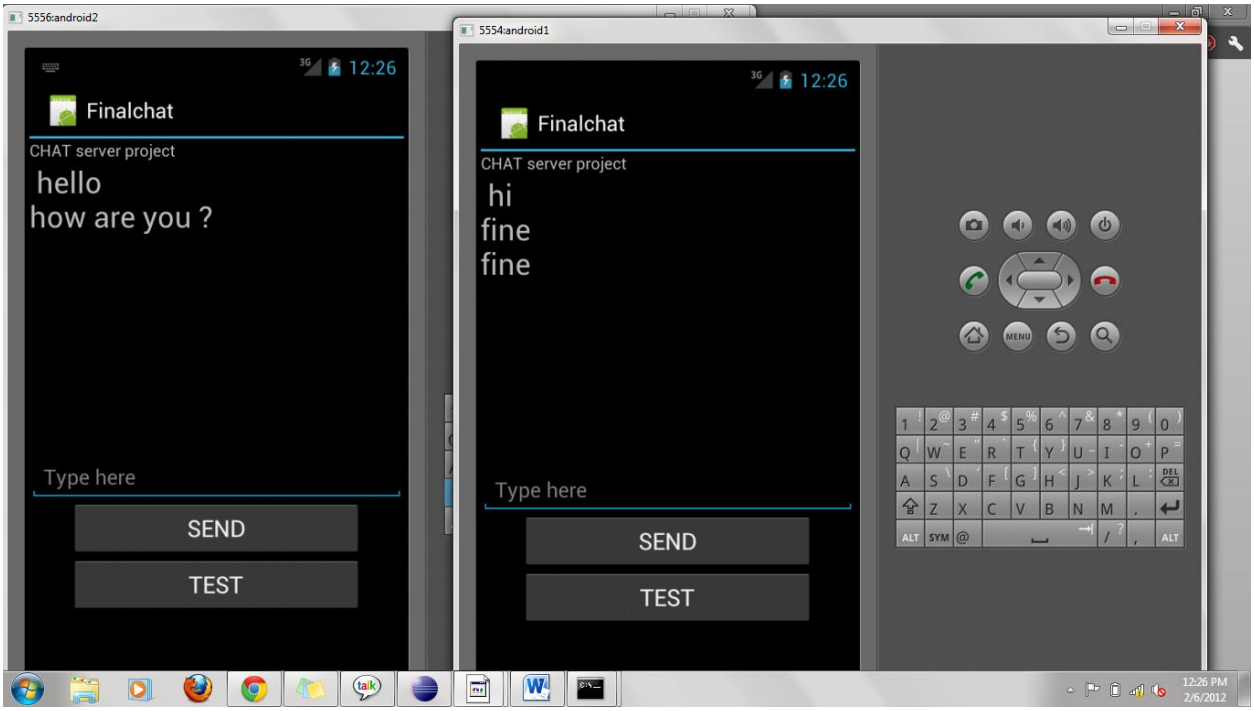
Basically the client port numbers are 5050 and 6060 while the server port is 8888.

After setting up the redrection ,just type a message in the editText field where it says “type a message” here and press the send button .After doing this after around 5 seconds initially the message will be displayed on the other screen and vice versa. I Have also implemented history or basically appended the text to the existing message.

I have read many documents and tutorials and videos regarding this app.

References: thenewboston.org, stackoverflow.com

These references were used to solve some of the doubts I had related to things earlier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