Vietnamese-German University

Fundamentals of Telecommunication

**Dakhoo**

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1. **Introduction**

With the rise in number of people using Internet, it is becoming essential to have a tool to connect the world. The aim of this project was to create a friendly program which is used to connect hosts in LAN. For security, the user’s name is the Facebook account. Moreover, with Internet, there are many cools stuff for the users to explore. This report presents the source code, libraries and features of this program.

1. **Implementation**
2. **Client**
   1. **Login**

Firstly, the Facebook access token is got from <<https://developers.facebook.com/tools/explorer>> . By getting access token, the client can log in this app by Facebook account and does not have to create another account. After login, Dakhoo app will take the name, it also can take more information but this is for future development.

A further explanation for Facebook access token - User Access Token: The user token is the most commonly used type of token. This kind of access token is needed any time the app calls an API to read, modify or write a specific person's Facebook data on their behalf. User access tokens are generally obtained via a login dialog and require a person to permit your app to obtain one (according to Facebook developers).

* + 1. ***Virtual assistant***

Virtual assistant is an interesting addition feature for Dakhoo app. We use the library WolframAlpha to support this feature. When typing any question on virtual assistant dialog, this question will be sent to Wolfram machine through Internet, then it send the answer back.

Wolfram Alpha is a computational knowledge engine or answer engine developed by Wolfram Research. It is an online serveice that answers factual queries directly by computing the answer from externally sourced “curated data” rather than proving a list of documents or web pages that might contain the answer as search engine might. (According to Wolfram Alpha Wikipedia).

* + 1. ***News***

With this useful feature, client can read the title article from online newspaper. When a news dialog appear, it is necessary to type a website address. In order to give the headlines articles, we found <CanolaExtractor> which is the best filter.

* 1. **Connect to server**

If the Server IP address is typed correctly, client and server would be connected together and main features would be enabled. By using <ArrayList> to define the user for each connection, the number of users are unlimited.

* + 1. ***Friend list***

In Friend List, there are Add button and Remove button. When typing the name on Add Friend dialog, a message requirement will be sent to that friend. By getting the acceptation, the friend will be added to friend list.

* + 1. ***Chat room***

Chat room is the main feature of this app, allow client can chat with unlimited members. However, one client can join only one chat room. While opening the Chat Room feature, both online user list and offline user list appear. In order to choose user from online list and offline list, <ListIterator> was used as a pointer to select all expected users and then move them to room member box.

* + 1. ***Black List***

With Black List feature, by typing the name whose user does not want to make friend with. That name will be deleted from friend list and cannot send invite friend as well as send messages anymore. Because we treat Black List as a condition before starting a communication action.

* 1. **Client architecture**

For all feature above we used one structure which repeat so many times, such as or . Because there is class IncomingReader to process these command. , with <split> to separate the sentence to different part by colon (:). For example, data[0] is the name of user, data[1] is message, text and data[2] is action for each feature connect, add friend ….

By this way, we can save time and easy for us to develop app in future as well as perform each task better.

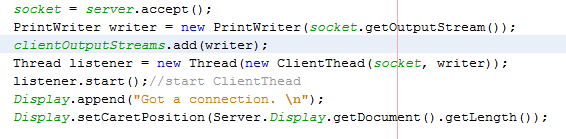
1. **Server**
   1. **Show IP address**

Typing correctly the Server IP address is necessary, therefore we have a feature for server which is “Show IP and Port number”. These basic command can perform well:



* 1. **Server Architecture**

We work with TCP for this Dakhoo app. The most important part is class ServerStart which has socketserver, clientOutputstream,… but it also has ClientThread for multithread and many users.



Server handle request from client and then forward it to another. However, server is not stored too much information – get the server lighter and process quicker.

1. **Conclusion**
2. **Lessons Learnt**

Through this project, we learn:

* How to establish TCP between server and client
* Reduce delay, increase the stability
* Design interface (GUI) for a Java program
* Search and apply libraries for a lot of interesting features

1. **Future development**

In the future, Dakhoo app can be constructed owned database and apply more new features specified voice chat and camera chat. For further, our app can be developed into multifunctional social network.