Northwestern Polytechnical University

Object Oriented Programming

(U10M12004)

Group Project Report

Title	JAVA CHAT
Group No.	03
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I. Introduction

"Java Chat" Application is a desktop based application.

This client server chat application is based on java swing, socket programming and some concept of java networking. This application/program is a good example of using java.io, java.net package to create a group chat application.

Chatting is a method of using technology to bring people and ideas "together" despite of the geographical barriers. The technology has been available for years but the acceptance it was quit recent. Our project is an example of a multiple client chat server.

It is made up of 2 applications (4 client classes) the client application, which runs on the user's Pc and server application which runs on any Pc on the network. To start chatting client should get connected to server. We will focus on TCP and UDP socket connections which are a fundamental part of socket programming.

II. Problem Statement

"Java Chat" Application is a group chat desktop application by which we can chat with the group members of a specific group on the network. Every group member can see and reply others messages and also can observe who sent which message.

III. Core Design

The user interface required to be developed for the system should be user friendly and attractive. There are two sets of Java APIs for graphics programming:

AWT (Abstract Windowing Toolkit) and Swing.

AWT API was introduced in JDK 1.0. Most of the AWT components have become obsolete and should be replaced by newer Swing components. Swing API, a much more comprehensive set of graphics libraries that enhances the AWT, was introduced as part of Java Foundation Classes (JFC) after the release of JDK
JFC consists of Swing, Java2D, Accessibility, Internationalization, and Pluggable Look-and-Feel Support APIs. JFC was an add-on to JDK previously but has been integrated into core Java since JDK upgraded version.

We use programming language as JAVA and also Socket Programming of Java Networking.

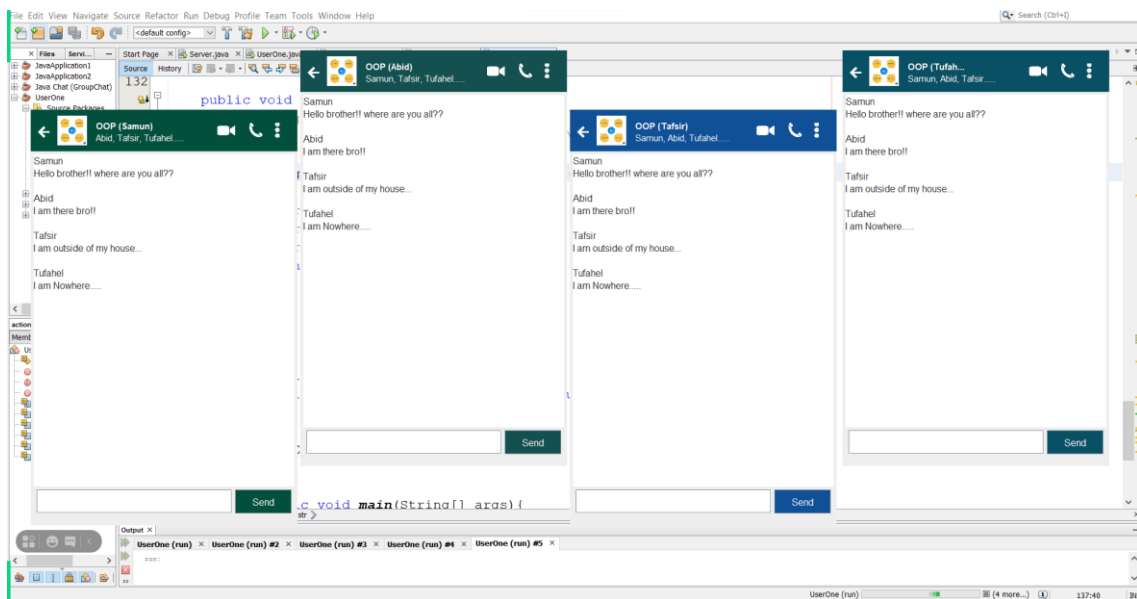Operation of the application based on the inputs given by the user:
When the run button is clicked then the chat form is initialized with a connection
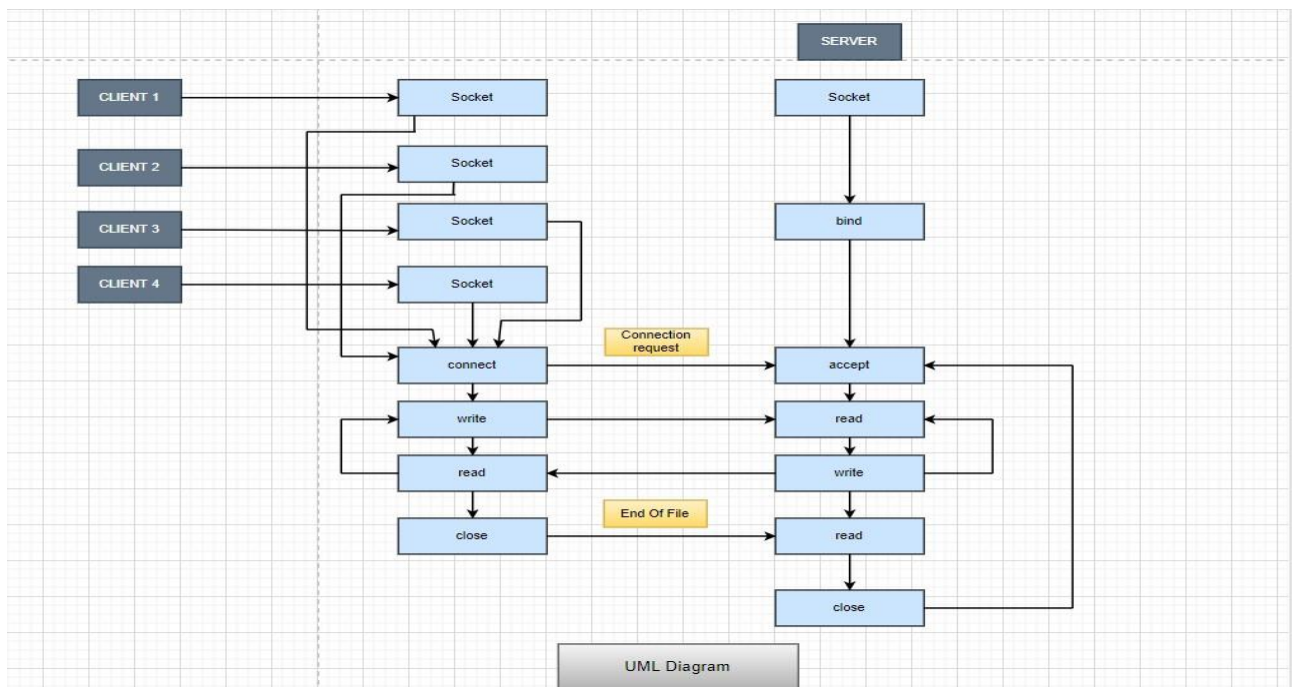
· between the host and the 4 client machines.

Note: server must be started at first before a client start.

· Contains a rich textbox which send messages from one user to another

· Contains a textbox for messages to be written that is sent across the network.

· Contains a Send button

. When the sent button is clicked, in the background, the text in the textbox is encoded and sent as a packet over the network to the client machine. **Here a demo figure is given.**

DEMO FIGURE:

UML DESIGN:

IV. Case Study

While using java swing for designing and socket programming for java networking we have gone through our OOP Theory class and Other websites. Here are some links of the websites we have studied for Case Study.

1-https://cs.lmu.edu/~ray/notes/javanetexamples/

2.https://www.academia.edu/34252609/Build_a_Real_time_Distributed_Chatting_Application

3.https://www.slideshare.net/MuhammadAshiqurRahma/chat-application-full-documentation

4. https://support.csis.pace.edu/CSISWeb/docs/MSThesis/AhujaJasmine.pdf

5. https://www.baeldung.com/a-guide-to-java-sockets

6. https://www.net.t-labs.tu-berlin.de/teaching/computer_networking/02.06.htm

7. https://www.journaldev.com/741/java-socket-programming-server-client

8. https://www.simform.com/how-to-build-messaging-app-whatsapp-telegram-slack/

9. https://www.ijeat.org/wp-content/uploads/papers/v9i5/E9578069520.pdf

10. https://www.infoworld.com/article/2853780/socket-programming-for-scalable-systems.html

11. https://hackernoon.com/how-to-make-a-personal-chat-application-like-whatsapp-fda6dd4bcb5b

V. Contribution of Group Members

SAMUN ISLAM AHMED and AHMED TUFAHEL have covered the Socket Programming part of this Project. ABID ALI and TAFSIR MUBTASIM MAHMOOD have covered the designing area using Java Swing.

VI. Conclusion

We Developed network applications in Java by using sockets, threads, and Web services. This software is portable, efficient, and easily maintainable for large number of clients. Our developed web-based chatting software is unique in its features and more importantly easily customizable.