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**The Task ::**

The task involved developing a Peer-to-Peer (P2P) Application using Java Socket Programming. The application facilitates chatting between multiple clients over a network. The project was divided into two parts:

Part 1: Implementing a P2P Chatting Application using UDP Sockets.

Part 2: Enhancing the application with TCP Socket Programming and adding additional features.

* **Introduction:**

The project aimed to create a user-friendly application for real-time communication between users connected to the same network. It utilized Java Socket Programming to establish communication channels between clients and facilitate message exchange.

* **Objectives:**

The main objectives of the project were:

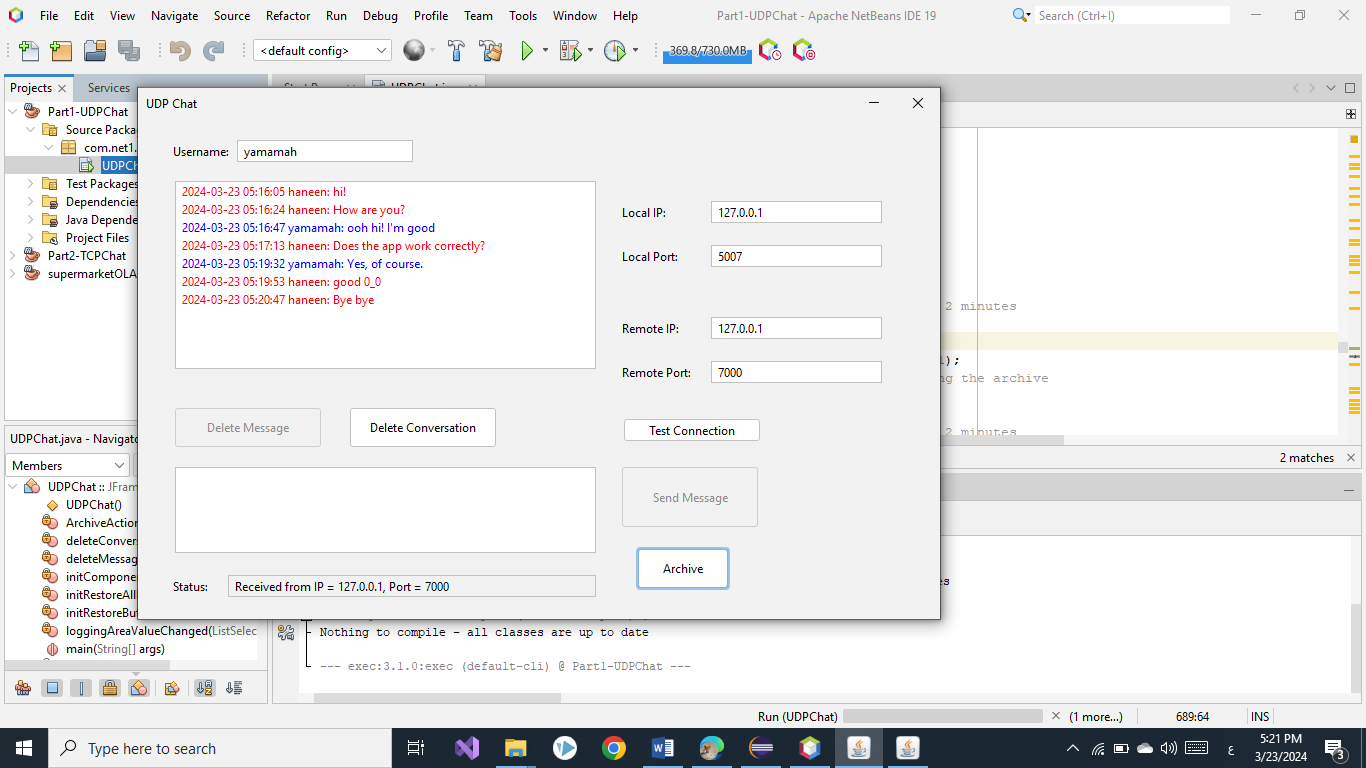
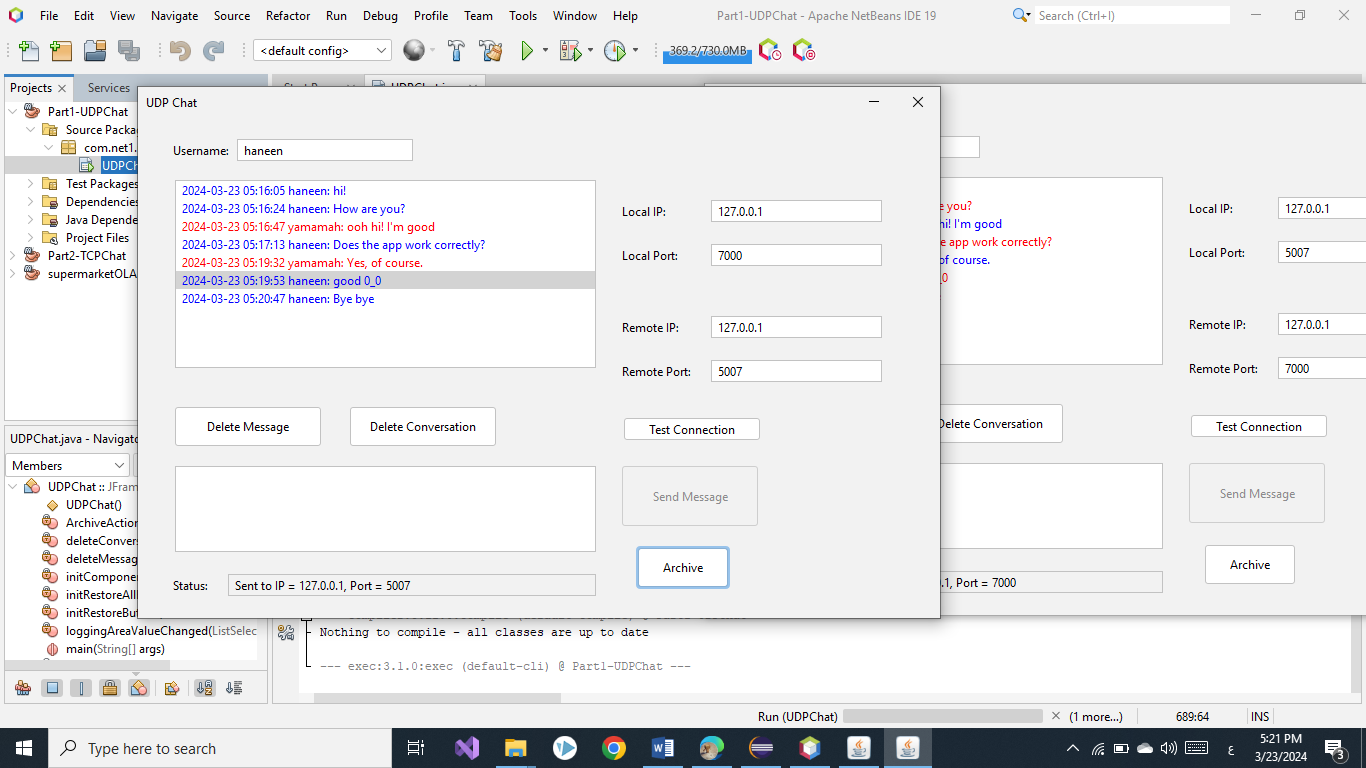
* To develop a P2P Chatting Application using UDP Sockets.
* To enhance the application with TCP Socket Programming for improved reliability.
* To implement additional features such as message archiving, message deletion, and user authentication.
* To create a user-friendly GUI for seamless interaction with the application.
* **Methodology:**

The project was implemented using Java programming language in Eclipse IDE. The methodology involved the following steps:

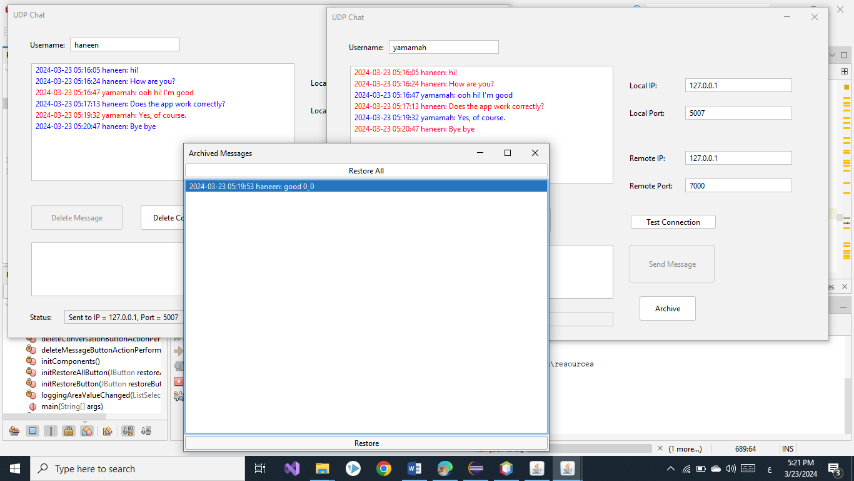
* Designing the GUI interface using Swing components for user interaction.
* Implementing socket programming concepts to establish communication channels between clients.
* Adding functionalities for sending and receiving messages, including timestamping and message coloring.
* Implementing message archiving and deletion functionalities as per the project requirements.
* Incorporating user authentication using a TCP server and maintaining an active client list.
* **Tools:**
* Netbeans (java language )
* Swing Framework: for creating the graphical user interface.
* Java Socket Programming: for establishing communication between clients.
* TCP and UDP Protocols: for network communication.
* **GUI:**

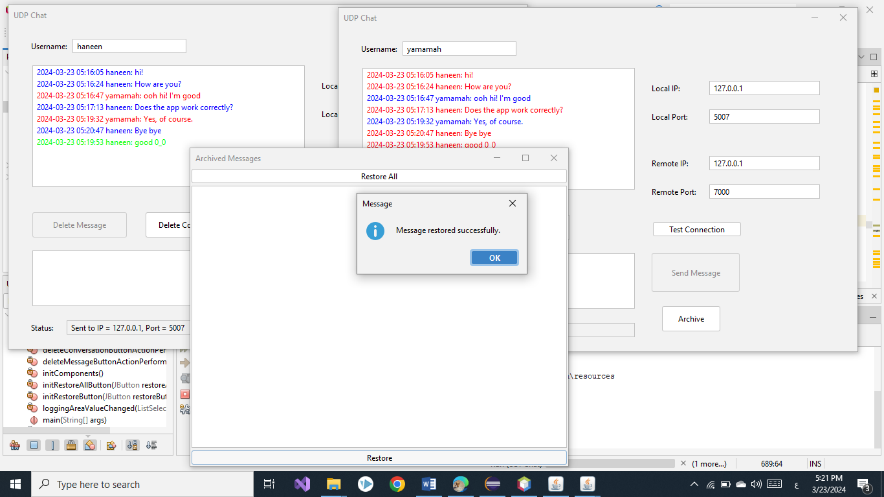
***Part1:***

sending and receiving messages :

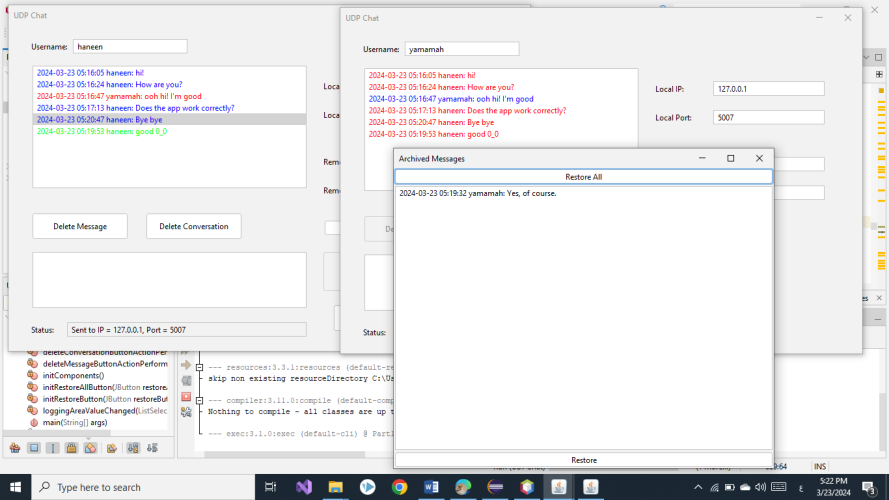
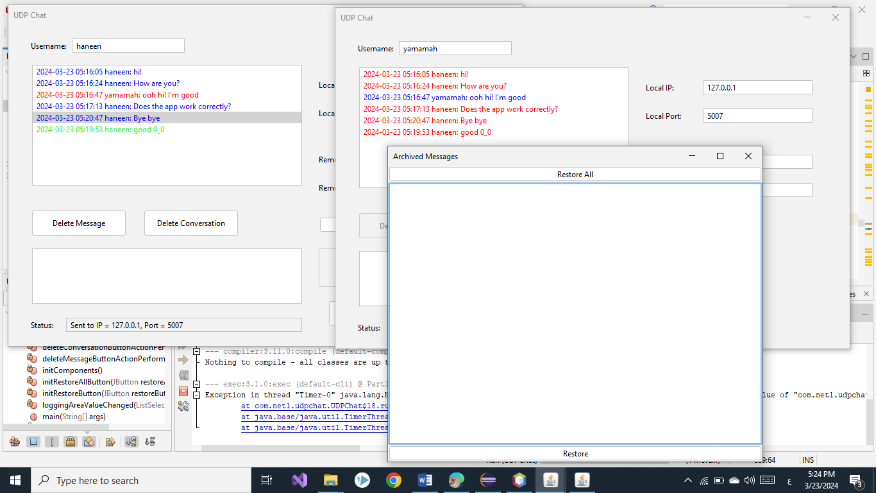
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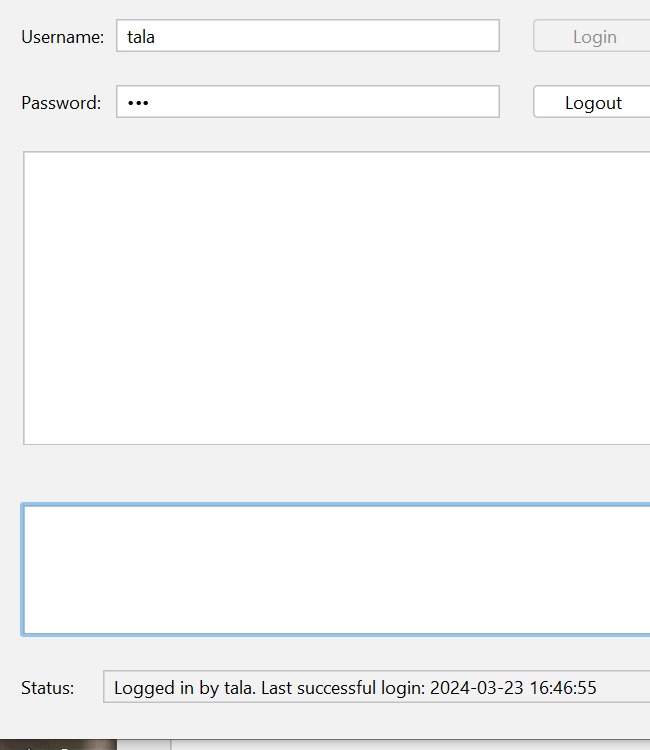
Delete and restore message:

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The message is deleted automatically after 2 minutes:

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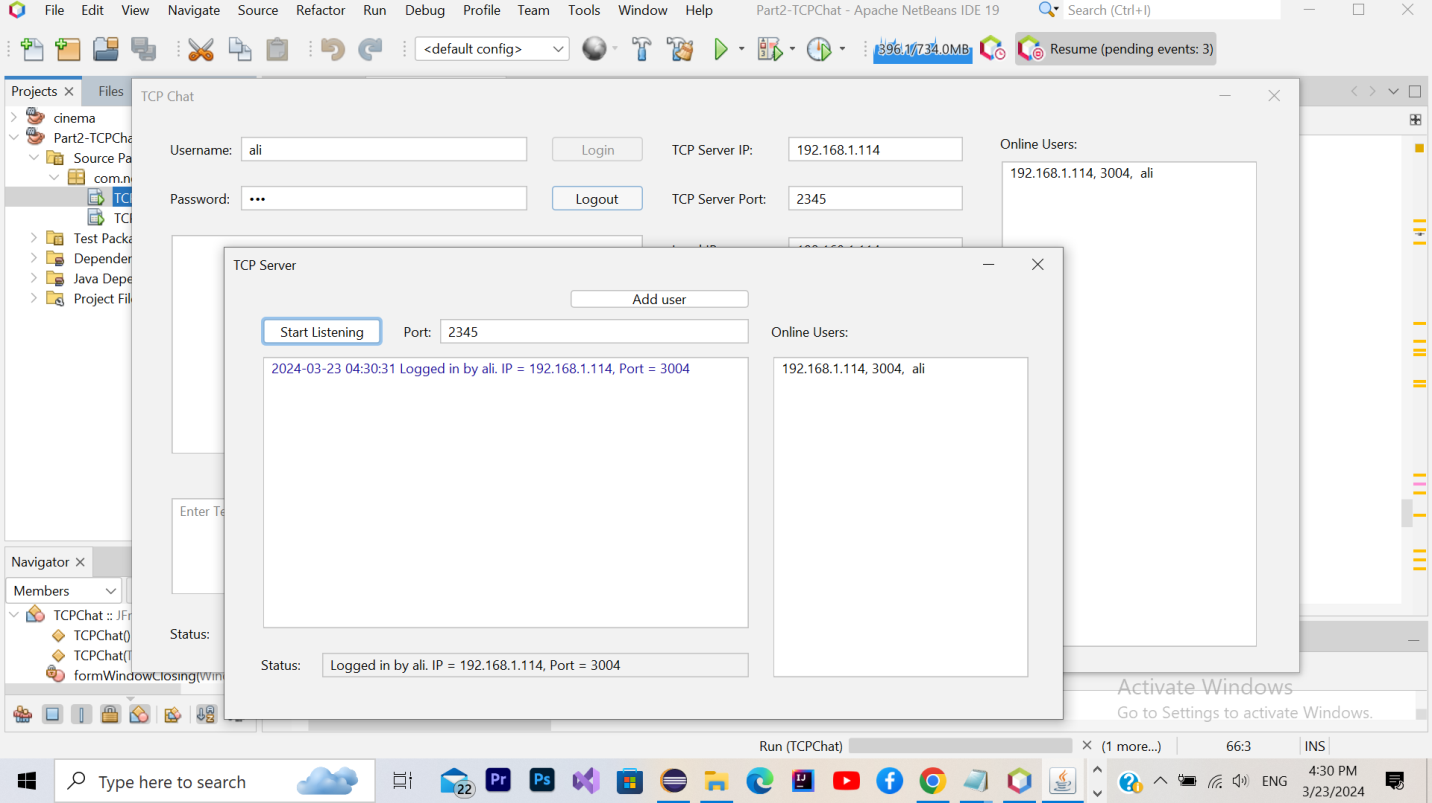
***Part2:***

After login in , the application display on the GUI

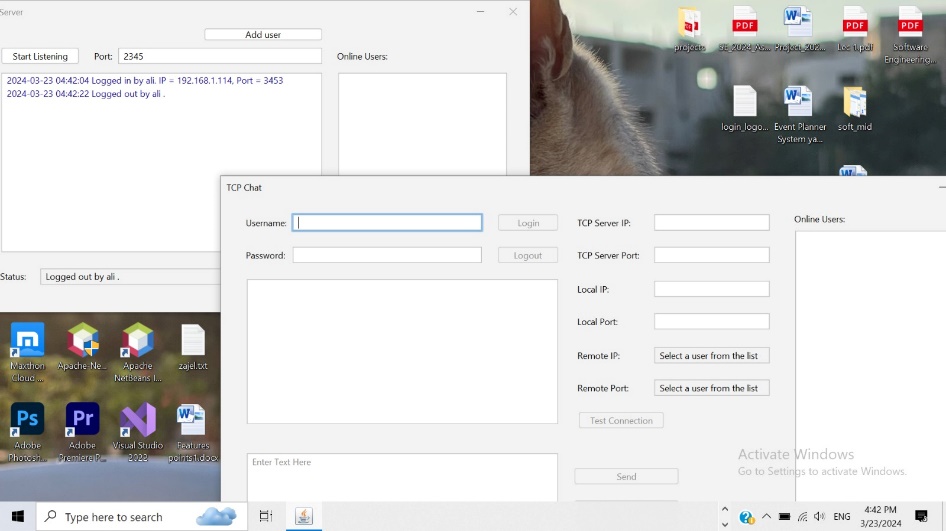
last time you have successfully logged on..

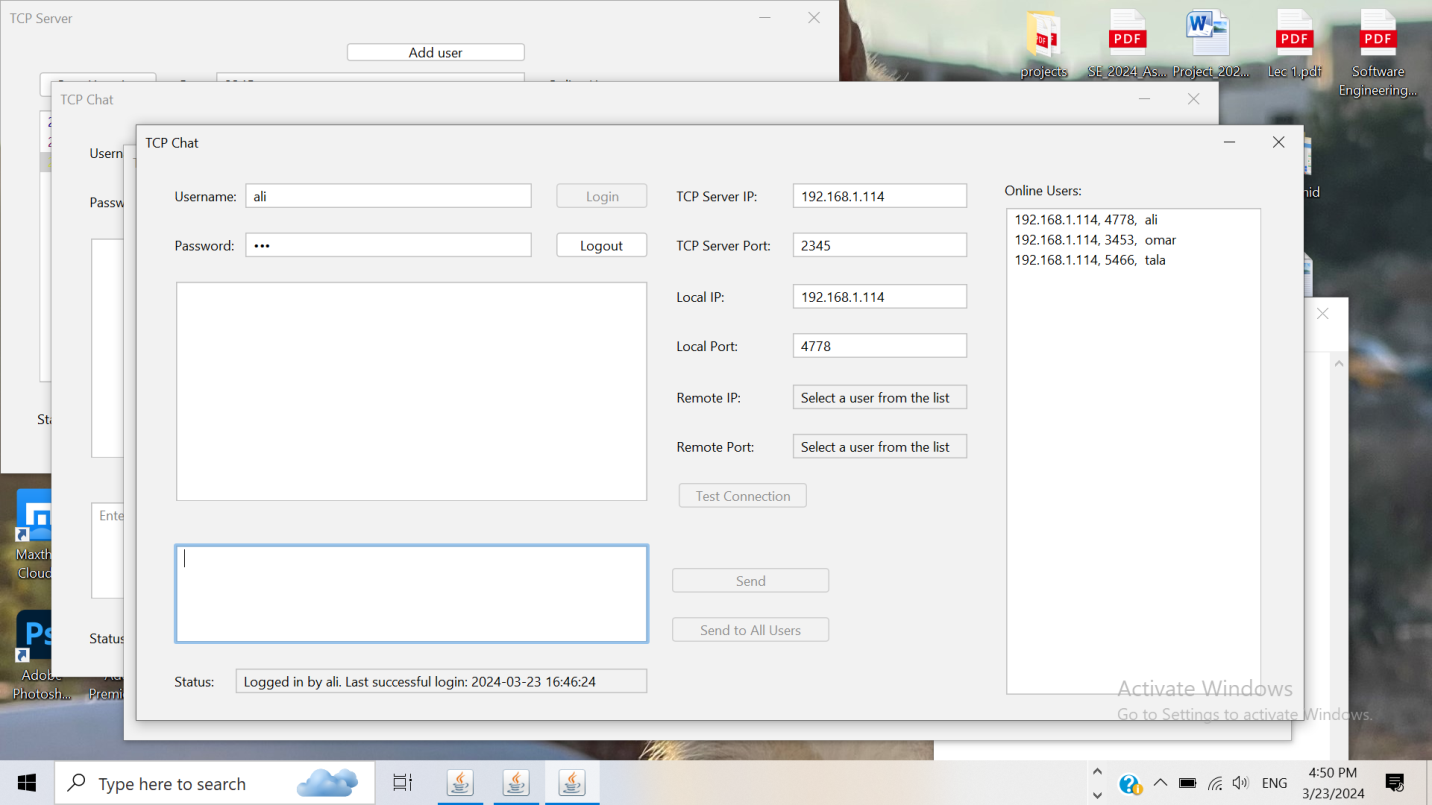
option on the server side to add new users,

and their corresponding passwords

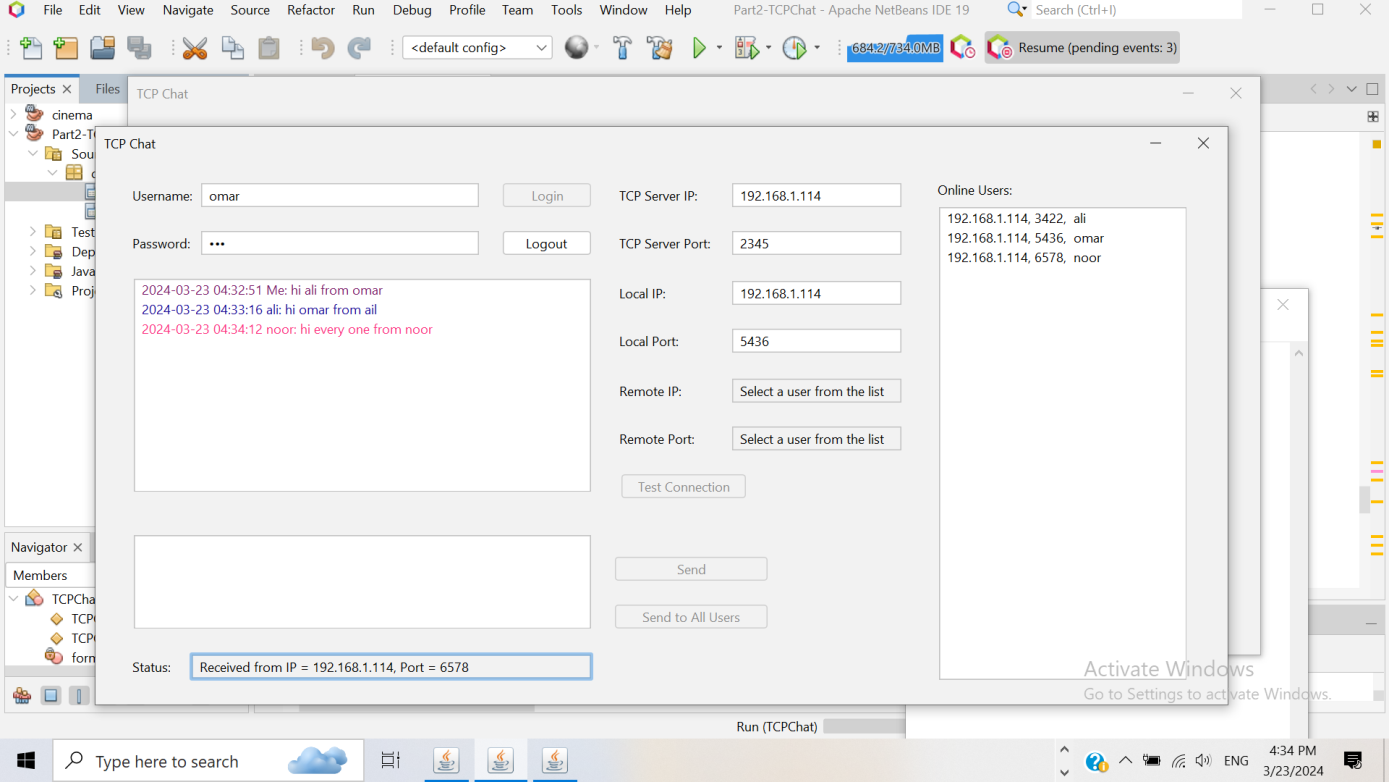


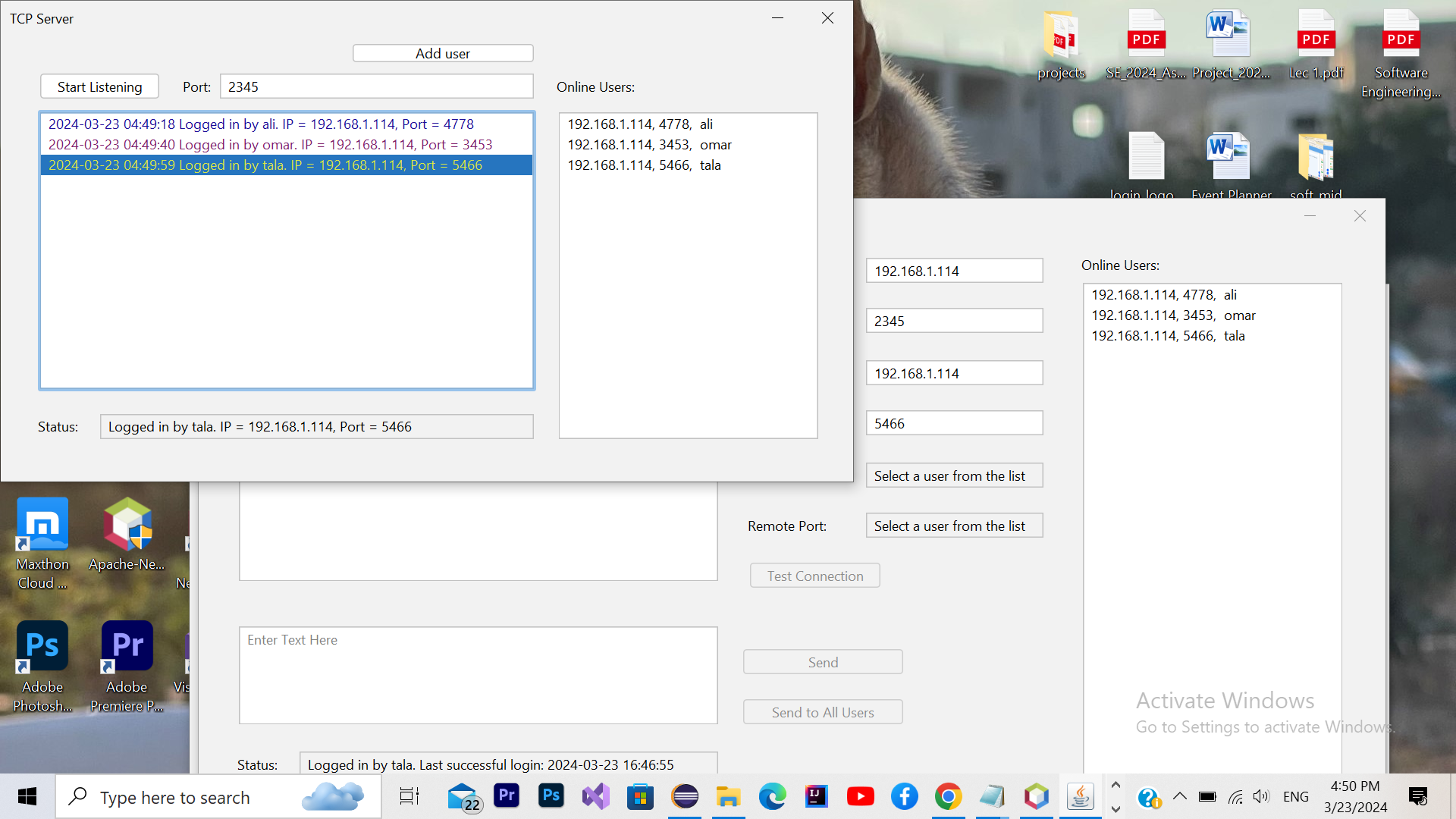
logout button.

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different test color for each user.

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* **Conclusion:**

The project successfully achieved its objectives by implementing a robust P2P Chatting Application using Java Socket Programming. The application provides users with a seamless chatting experience with features such as message archiving, deletion, and user authentication. The graphical user interface ensures ease of use and enhances user experience.

* **References:**

1. Computer Networks slides by Dr.saed Tarapiah
2. Stack Overflow.
3. YouTube tutorials.
4. Online resources on Socket Programming