



How to Run

To run this Java-based client-server chat application, please follow these steps. Note that these instructions assume you have the basic setup already in place, such as Java Development Kit (JDK) installed, and you're working with a project managed by Maven for dependency management.

Step 1: Install Prerequisites

- Install Java: Ensure Java Development Kit (JDK) is installed on your system.
- Install Visual Studio Code: If not already installed, download and install Visual Studio Code from its official website.
- Install Java Extensions for VSCode: Open VSCode, go to the Extensions view by clicking on the square icon on the sidebar or pressing Ctrl+Shift+X, and install the "Extension Pack for Java" which includes Java Test Runner, Maven for Java, and Java Dependency Viewer.

Step 2: Set Up the Project

- Download and Extract the Project: Obtain the project files, unzip them to a convenient location on your system.
- Open the Project in VSCode:
- Open VSCode.
- Select File > Open Folder... and navigate to the project directory.

Step 3: Explore the Project Structure

- Identify the Paths:
 - Server file path: Navigate to /Proj2/server/src/main/java/com/server/Server.java
 - Client file path: Navigate to /Proj2/client/src/main/java/com/client/MainLauncher.java

Step 4: Configure and Build the Project

- Maven Build: Open the terminal in VSCode with Ctrl+` (backtick), or select Terminal > New Terminal from the top menu. In the terminal, navigate to both the server and client directories and run mvn clean install to build the projects.

Step 5: Run the Server

- Start the Server: In VSCode, navigate to the Server.java file using the path provided. Right-click on the file in the editor and select Run Java.

Step 6: Run the Client(s)

- Start the Client: Open a new VSCode window or a new terminal within the same window to handle multiple sessions. Navigate to the MainLauncher.java file using the path provided. Right-click on the file and choose Run Java to start the client instance. Depending on the number of client users required, run the MainLauncher.java file accordingly.



Step 7: Use the Application

- **Interact Through Clients:** As each client window (instance of `MainLauncher.java`) represents a different user, you can now begin chatting by typing messages and observing interactions across clients.

Step 8: Monitor and Debug

- **VSCode Debugging Tools:** Utilize the debugging tools available in VSCode to set breakpoints, step through the code, and inspect variables to understand the flow of the application and troubleshoot any issues.