Assignment 2 Report
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Introduction

In this project, I design and implement a shared whiteboard system that can edited simultaneously, using RMI to make server and client side can use both methods. The system separate into four part, “CreateWhiteBoard” as manager, “JoinWhiteBoard” as normal User, RMI for Client and whiteboard remote, “Server” as server side manager. In the whiteboard, it supports a range of features such as drawing different shapes such as line, circle, rectangles with different colours and thickness. For the manager, we implement a “File” menu, which can new or save the whiteboard with png or jpg format. In addition, manager can kick user in any time. Furthermore, user can use chat box to chat with each others.

System architecture

the whole system architecture is in figure 1

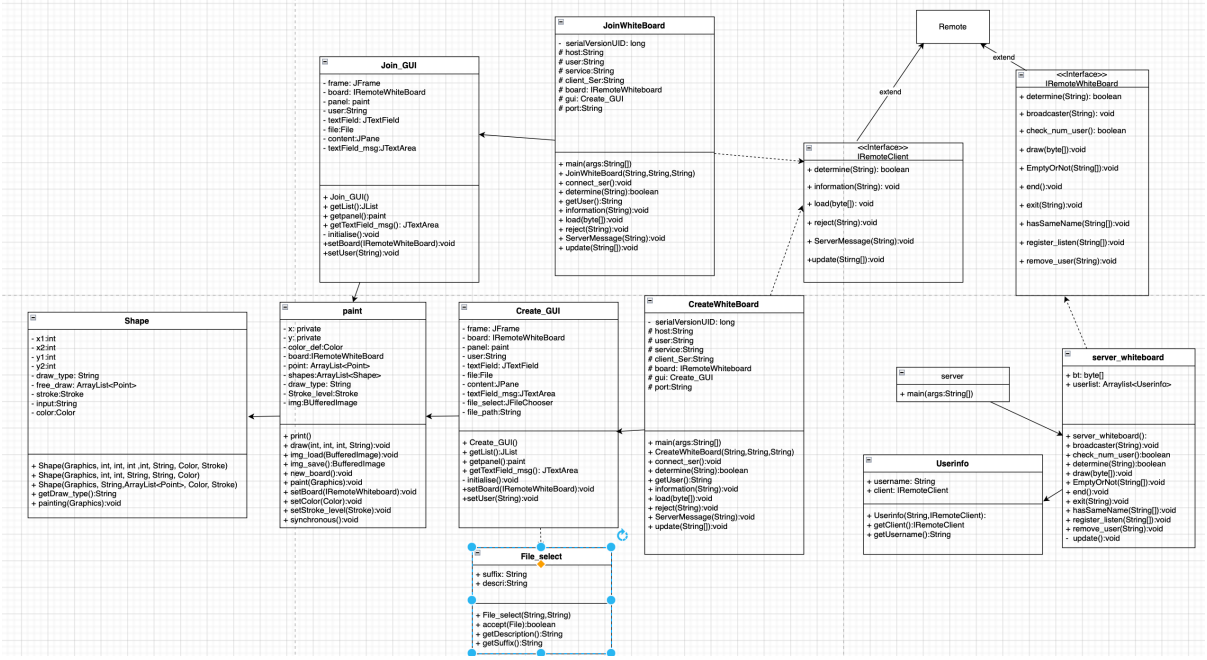

Figure 1. System architecture

It separate as 4 part, “CreateWhiteboard”, “JoinWhiteBoard”, “Server” and Remote.

In the Remote part, it use RMI method which has “IRemoteClient” methods which makes the server-side callable to the client-side method. And “IRemoteWhiteboard” methods which enables the client side to call the server. And figure 2 shows the relationship about it.

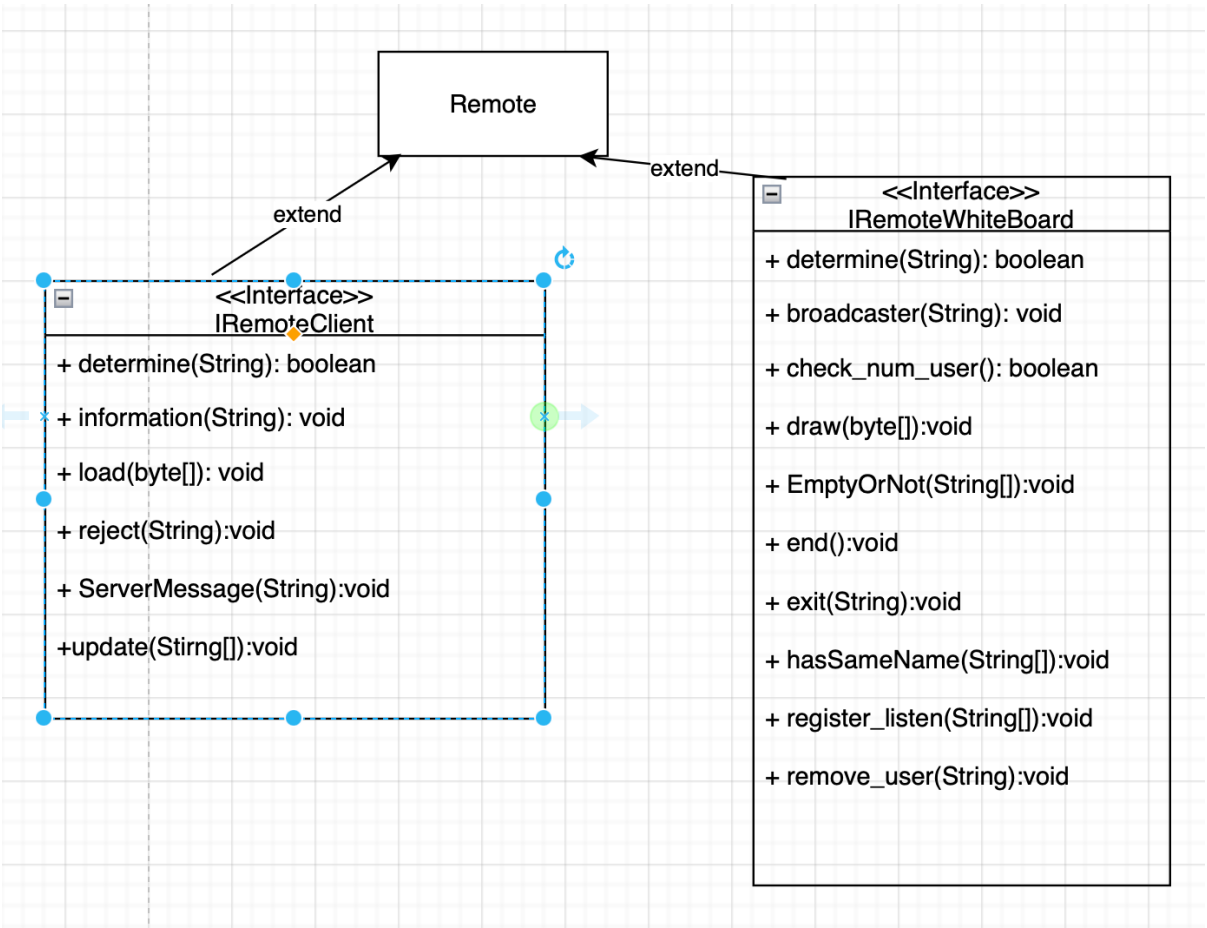

Figure 2. Remote

For Server part which shows in figure 3, in the “server” method, used to start the server, generate a remote object, and select the port. “Userinfo” method is to save client information as String format. in “server_whiteboard” method, which is implement the function which set In the “IRemoteWhiteBoard” ,so that the share whiteboard can call those function.

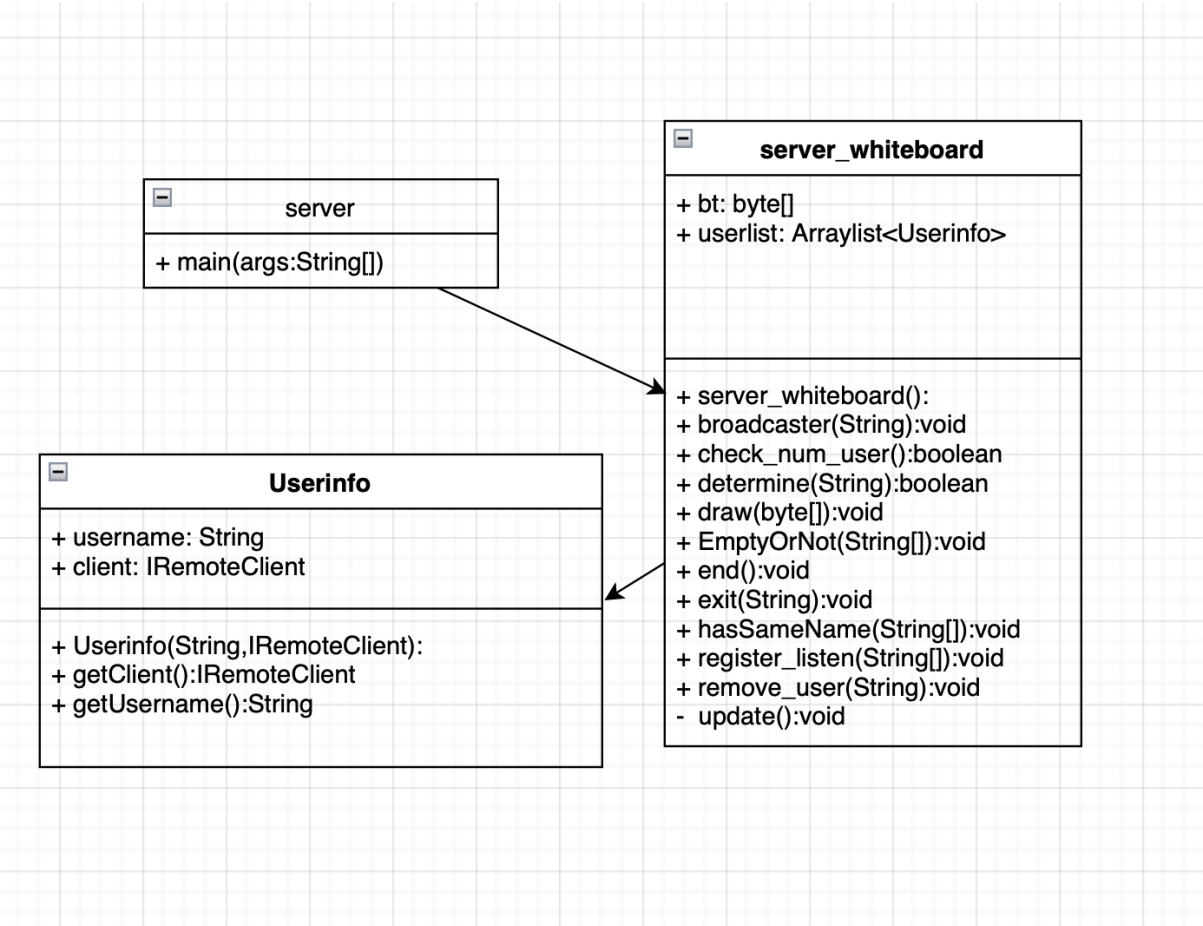

Figure 3. server

For “CreateWhiteBoard” part, which shows in figure 4, In the module, it can do user management, drawing, and messaging functions. For the connection, First bind yourself through Naming.rebind to prepare for the subsequent information return, and then connect with the server module through lookup. After “CreateWhiteBoard” is connected, it is necessary to determine whether the room is empty. If it is empty, it will be on the server side. Register, and then assign the remote object to the GUI module. For File_select method, It is used for file type filtering. Compared with the parent class, the getSuffix function is added to judge the suffix name, so that the file type can be selected when saving the file. In paint method, mainly realize the image painting function, here mainly use the built-in mouse function to achieve. In draw function, mainly uses the graphics2D class for assistance. For the Synchronize, Synchronize images to all users by sending pictures which using the synchronous function and img_load function. For chatting function, it get the text from the GUI and using boardcaster function to send the message to all the user in the room. In addition, other user will get the message from ServerMessage function to get the message in the room

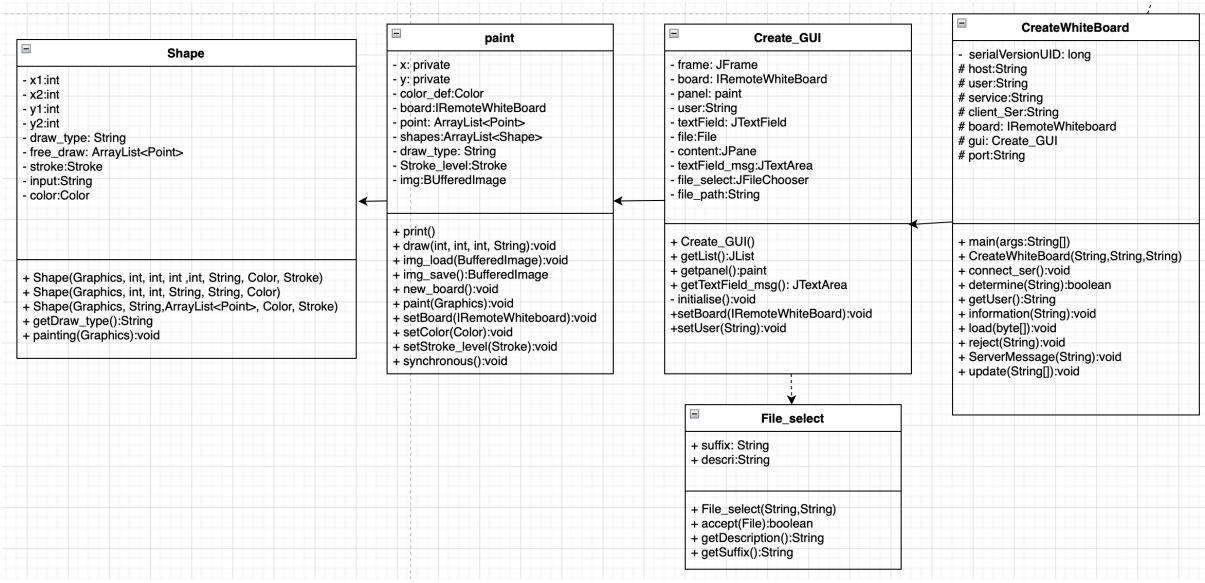

Figure 4. CreateWhiteBoard

For “JoinWhiteBoard” module, which shows in figure 5. It is the same as “CreateWhiteBoard” module, but it did not have file saving function and member management function.

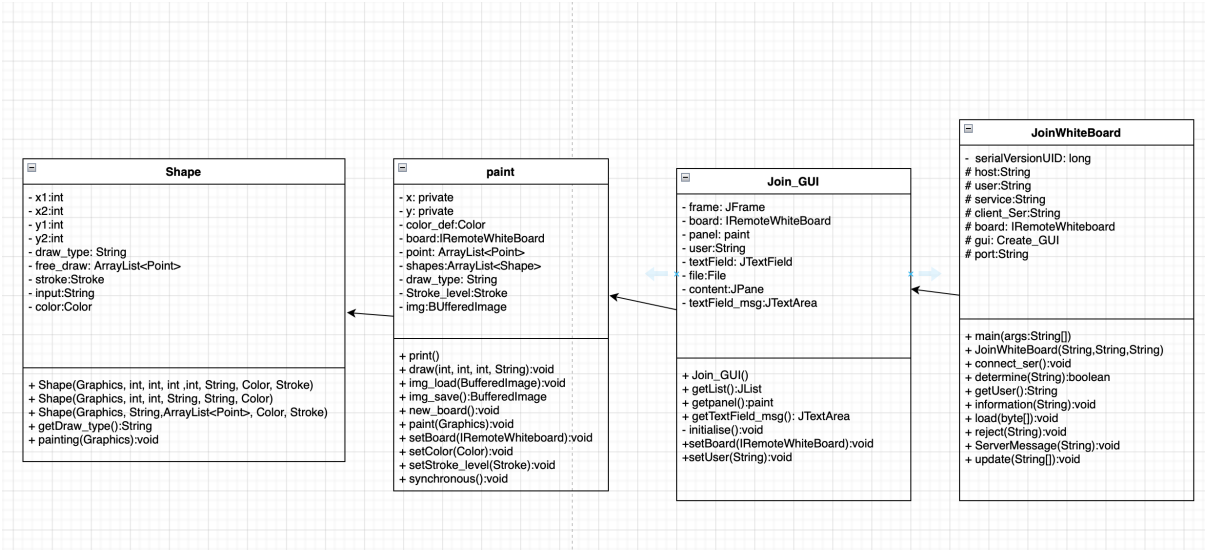

Figure 5. JoinWhiteBoard

Windows for manager and normal user

The figure 6 shows the windows for Manager, user can choose different features at top, the current shows that colour for user use, and the "light" combo box can choose thickness for the pan, the user can choose "light", "medium", and "dark". For the right side of the window, it shows the user which in the room, and the chat box for user to send the message to other user. For the manager, it can "save", "open", "new", "save as" and "close" function in the File button so that manager can save the drawing and create a new board. In addition, in the Manage button, manager can kick out the user in user list in any time. Furthermore, when a new user want to enter the share whiteboard it will pop up a windows that ask manager to choose the new user can join or not, which shows in figure 7.

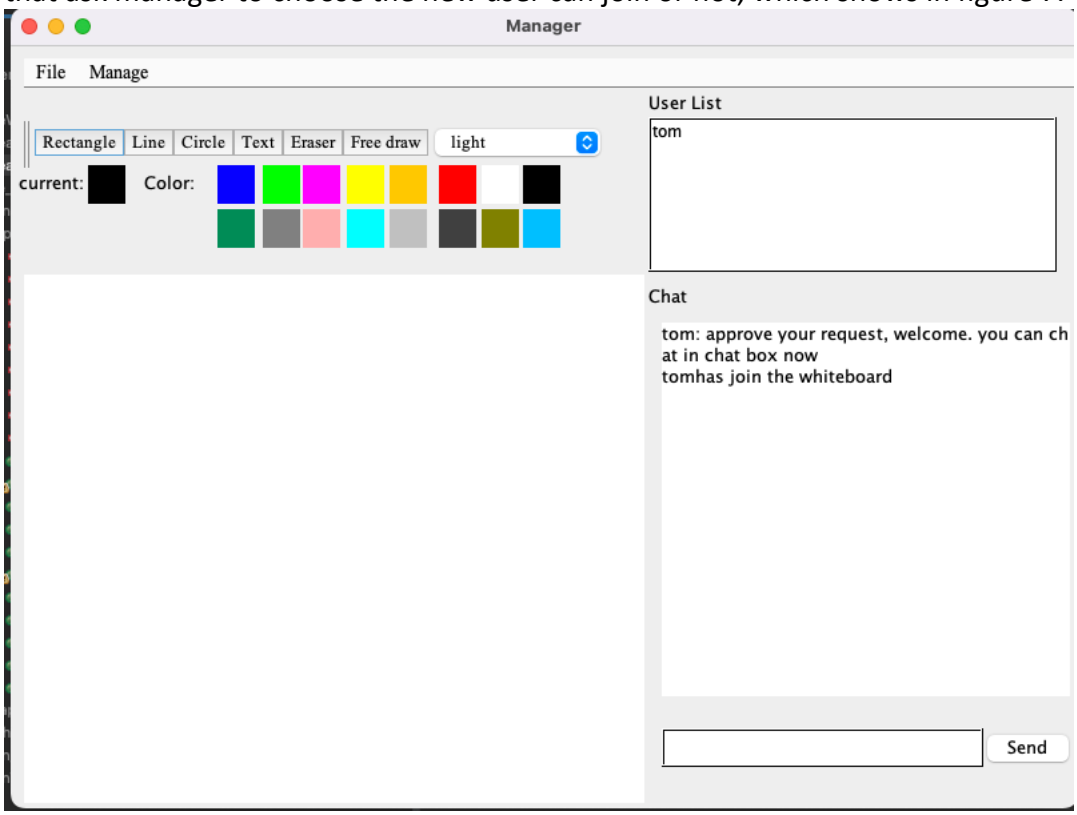

Figure 6. Manager window

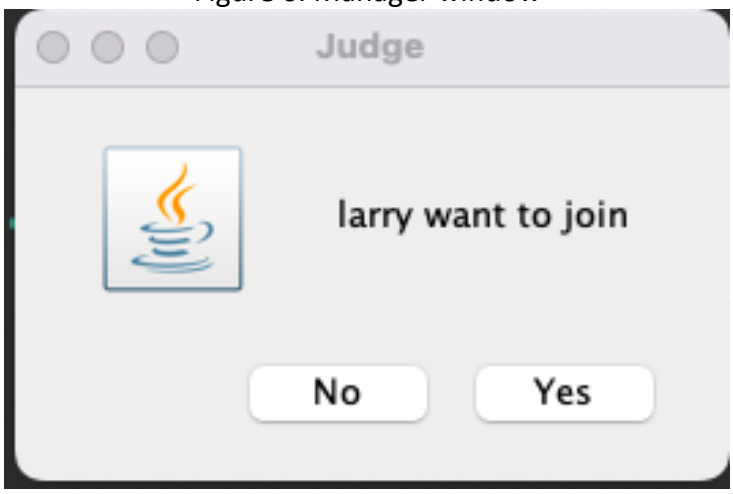

Figure 7. ask to come in Window

Figure 8 shows the windows for user, it is the same as manager window, except the menu bar which is not exist in the user window.

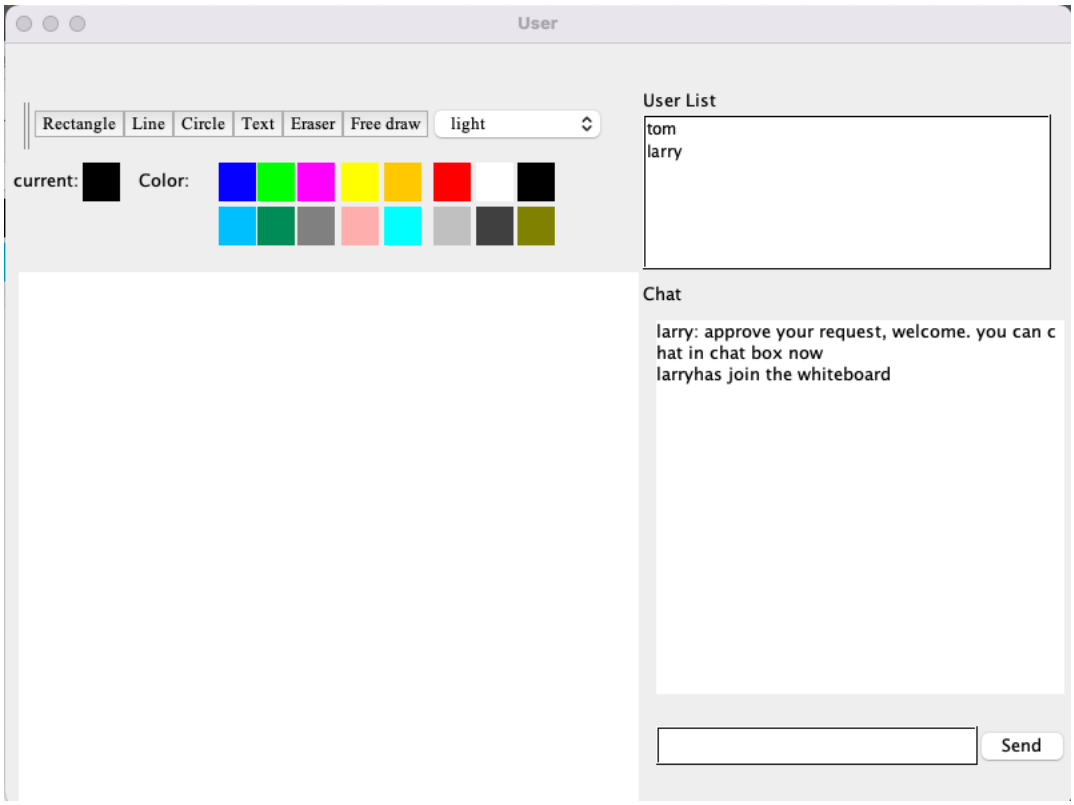

Figure 8. user window

Creativity

- The manager can choose either .png or jpg to save the whiteboard.
- User can choose different thickness for the drawing pan.
- User can freehand draw and user Eraser to remove the drawing.