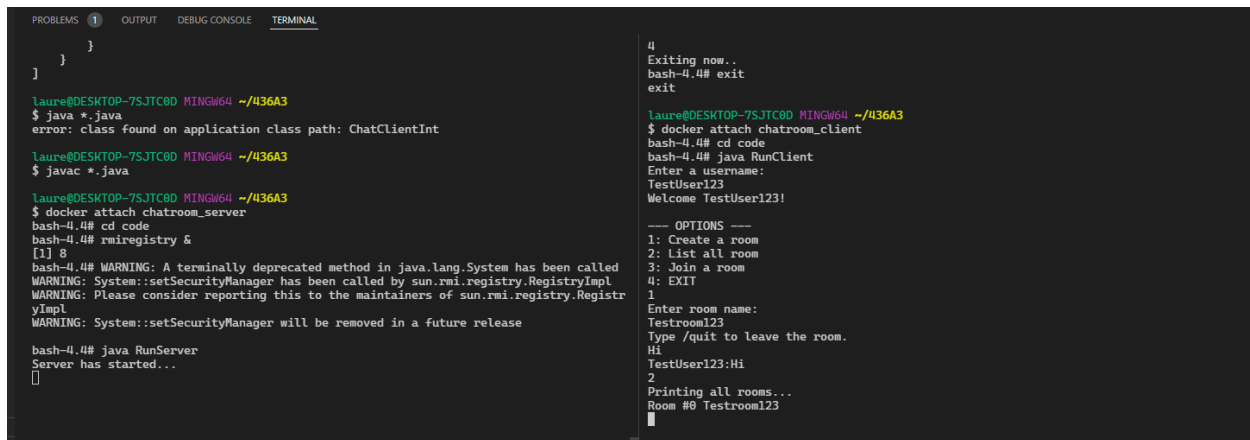


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Assignment3

How to compile and run the program in DOCKER:

- Navigate to the source files and open two terminals.
- On first terminal run the command “docker-compose up -d”
- Still on the first terminal, run the command “docker attach chatroom\_server”
- After getting inside the docker container, run the commands:
  - o cd code
  - o javac \*.java
  - o rmiregistry &
  - o java RunServer
- And the server should start running (see screenshot below)
- Now go to the second terminal and run the commands:
  - o docker attach chatroom\_client
  - o cd code
  - o java \*.java
  - o java RunClient (see note)
- And the client should start running.



The screenshot shows two terminal windows. The left window is the host terminal, and the right window is the Docker container terminal. In the host terminal, the user runs 'java \*.java' which fails with a 'ClassNotFoundException' for 'ChatClientInt'. Then, they run 'javac \*.java' successfully. Next, they run 'docker attach chatroom\_server' and enter the container. Inside the container, they run 'cd code', 'rmiregistry &', and 'java RunServer'. The server starts and prints 'Server has started...'. The right window shows the user running 'docker attach chatroom\_client' and entering the container. Inside, they run 'cd code' and 'java RunClient'. The client prompts for a username ('TestUser123') and a room name ('Testroom123'), then prints 'Hi' and 'Printing all rooms... Room #0 Testroom123'.

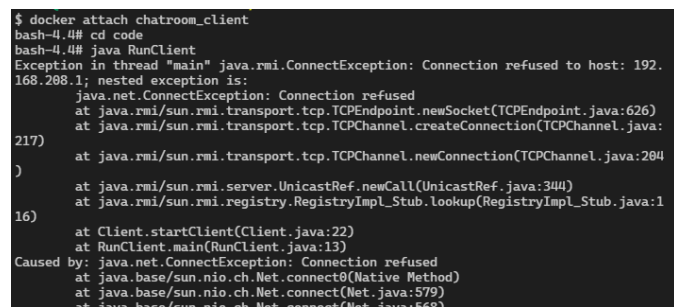
#### NOTE:

If the client won't run because of this error:

Simply run the command:

“docker inspect chatroom\_server”

And it should show a info about the current ipaddress of that container. Copy that ip address and paste it on the screenshot below.



The screenshot shows a terminal window with a Java exception stack trace. The exception is 'java.net.ConnectException: Connection refused to host: 192.168.288.1; nested exception is: java.net.ConnectException: Connection refused'. The stack trace includes frames from 'RunClient.main', 'Client.startClient', and 'UnicastRef.newCall'. The error is caused by a connection refusal to the host 192.168.288.1.

```

public class Client implements ChatClientInt {

    private ChatServerInt server;
    private String name;

    public Client() throws RemoteException {
        UnicastRemoteObject.exportObject(this, 0);
    }

    public void startClient() throws RemoteException, NotBoundException {
        Registry registry = LocateRegistry.getRegistry("192.168.208.2");
        server = (ChatServerInt)registry.lookup("Server");
    }

    public void createRoom(String name) throws RemoteException {
        server.addRoom(name, this);
    }

    public void setName(String newName){
        name = newName;
    }
}

```

Paste the copied IPAddress on the code marked on the screenshot. Which can be located in Client.java file.

How to run and compile locally:

- Navigate to the source files and open two or more terminals.
- Run the following command:
  - o javac \*.java
  - o start rmiregistry (for windows, rmiregistry for unix system)
  - o java RunServer
  - o On the other terminals run the command “java RunClient” to start a client

```

C:\Windows\System32\cmd.exe - java RunServer
Microsoft Windows [Version 10.0.18363.1082]
(c) 2019 Microsoft Corporation. All rights reserved.

C:\Users\laure\CMPT436\test>javac *.java

C:\Users\laure\CMPT436\test>start rmiregistry

C:\Users\laure\CMPT436\test>java RunServer
Server has started...

```

```

C:\Windows\System32\cmd.exe - java RunClient
Microsoft Windows [Version 10.0.18363.1082]
(c) 2019 Microsoft Corporation. All rights reserved.

C:\Users\laure\CMPT436\test>java RunClient

```

Example runs of the program:

```

C:\Windows\System32\cmd.exe - java RunClient
C:\Users\laure\CMPT436\test>java RunClient
Enter a username:
Client2
Welcome Client2!

--- OPTIONS ---
1: Create a room
2: List all room
3: Join a room
4: EXIT
0
Enter room #
0
Previous message[Hello]
Hello
Client2:Hello
Client1:Hi
Client3:Hello
Client1:This is client1
Client3:This is client3
This is client2
Client2:This is client2
/quit
User has quit
--- OPTIONS ---
1: Create a room
2: List all room
3: Join a room
4: EXIT
0

```

```

C:\Windows\System32\cmd.exe
--- OPTIONS ---
1: Create a room
2: List all room
3: Join a room
4: EXIT
0
Printing all rooms...
Room #0 Room1
3
Enter room #
0
Previous message[Hello, Hello, Hello, Hi, Hi]
Hello
Client3:Hello
Client1:This is client1
This is client3
Client3:This is client3
Client2:This is client2
/quit
User has quit
--- OPTIONS ---
1: Create a room
2: List all room
3: Join a room
4: EXIT
0
Exiting now..

```

```
C:\Windows\System32\cmd.exe - java RunClient
Microsoft Windows [Version 10.0.18363.1082]
(c) 2019 Microsoft Corporation. All rights reserved.

C:\Users\laure\OneDrive\test>java RunClient
Enter a username:
Client1
Welcome Client1!

--- OPTIONS ---
1: Create a room
2: List all room
3: Join a room
4: EXIT
1
Enter room name:
Room1
Type /quit to leave the room.
Hello
Client1:Hello
Client2:Hello
Hi
Client1:Hi
Client3:Hello
This is client1
Client1:This is client1
Client3:This is client3
Client2:This is client2

C:\Windows\System32\cmd.exe - java RunClient
Microsoft Windows [Version 10.0.18363.1082]
(c) 2019 Microsoft Corporation. All rights reserved.

C:\Users\laure\OneDrive\test>java RunClient
Enter a username:
Client3
Welcome Client3!

--- OPTIONS ---
1: Create a room
2: List all room
3: Join a room
4: EXIT
2
Printing all rooms...
Room #0 Room1
Enter room #
0
Previous message[Hello, Hello, Hello, Hi, Hi]
Hello
Client3:Hello
Client1:This is client1
This is client3
Client3:This is client3
Client2:This is client2

C:\Windows\System32\cmd.exe - java RunClient
Microsoft Windows [Version 10.0.18363.1082]
(c) 2019 Microsoft Corporation. All rights reserved.

C:\Users\laure\OneDrive\test>java RunClient
Enter a username:
Client2
Welcome Client2!

--- OPTIONS ---
1: Create a room
2: List all room
3: Join a room
4: EXIT
3
Enter room #
0
Previous message[Hello]
Hello
Client2:Hello
Client1:Hi
Client3:Hello
Client1:This is client1
Client3:This is client3
This is client2
Client2:This is client2
```

## NOTE:

The program is not thoroughly tested, so expect to encounter some bugs as I did not fully test the whole program. But the program should not have any issues.