

Chat Server Programming Assignment

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Problem Statement

Chat Server Programming Assignment

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Introduction

You have to write a program based on provided requirements. You are free to use a programming language of your choice, preferably Java. Please state all assumptions when implementing a solution. It is important to deliver elegant object-oriented code, apply design patterns and consider performance of the implementation. In addition, please provide JUnit test cases and comments for the implemented classes. Your delivered program should compile (provide all required jars) and run.

Chat Server

Develop a TCP/IP based multi-party chat server and client. Application should include appropriate unit test, error logging, and design documentation.

Server Requirements:

- Server should accept 1 to 10 simultaneous client connections
- A message received from any client should be echoed to all clients by default
- The server should log all client connect and disconnect events
- The listening IP and port address should be configurable

Client Requirements:

- The server IP and port address should be configurable
- The client should attempt to connect to the server and gracefully handle connection failures and disconnect events
- At start-up, the client should ask the user to provide a unique username
- The client should allow the user to enter an alpha-numeric text message
- Entered text messages should be transmitted to the server
- The client should display received text messages
- The client should be able to filter messages by user
- (Optional) The client should be able to send a message to a selected user

Solution

The solution for given assignment is in two phases.

1. Screenshots of all over application.
2. Source code for given application.
3. Junit testing.
4. Logging file.
5. Two applications data.

Source code

Logging File and Logger Information:

log4j.properties

```
# Root logger option
log4j.rootLogger=DEBUG, stdout, file

# Redirect log messages to console
log4j.appender.stdout=org.apache.log4j.ConsoleAppender
log4j.appender.stdout.Target=System.out
log4j.appender.stdout.layout=org.apache.log4j.PatternLayout
log4j.appender.stdout.layout.ConversionPattern=%d{yyyy-MM-dd HH:mm:ss}
%-5p %c{1}:%L - %m%n

# Redirect log messages to a log file, support file rolling.
log4j.appender.file=org.apache.log4j.RollingFileAppender
log4j.appender.file.File=log4j-application.log
log4j.appender.file.MaxFileSize=5MB
log4j.appender.file.MaxBackupIndex=10
log4j.appender.file.layout=org.apache.log4j.PatternLayout
log4j.appender.file.layout.ConversionPattern=%d{yyyy-MM-dd HH:mm:ss}
%-5p %c{1}:%L - %m%n
```

log4j-application.log

Sample log for reference.

Chat Application

```
2018-03-26 22:34:24 INFO  ServerCode:326 - INFO : num clients: 1
2018-03-26 22:34:24 INFO  ClientCode:48 - CLIENT INFO : Called
ThreadListening Method
2018-03-26 22:34:24 INFO  ClientCode:51 - CLIENT INFO : Startig Thread
2018-03-26 22:34:24 INFO  ClientCode:162 - CLIENT INFO : calling run()
method from ThreadReader.
2018-03-26 22:34:24 ERROR ServerCode:77 - This is error for : user1
2018-03-26 22:34:24 INFO  ServerCode:400 - INFO : Sending messages
:user1:has connected.:Chat
2018-03-26 22:34:24 INFO  ServerCode:400 - INFO : Sending messages
:user1: :Connect
2018-03-26 22:34:24 INFO  ServerCode:400 - INFO : Sending messages
:Server: :Done
2018-03-26 22:34:24 INFO  ServerCode:87 - INFO : On Connect: Num
clients after connect: 1
2018-03-26 22:34:24 INFO  ClientCode:179 - CLIENT INFO : stream data
matched with chat option
2018-03-26 22:34:24 INFO  ClientCode:186 - CLIENT INFO : stream data
matched with connect option
2018-03-26 22:34:24 INFO  ClientCode:65 - CLIENT INFO : Adding User
information
2018-03-26 22:34:24 INFO  ClientCode:422 - CLIENT INFO : calling combo
box action for filtering data as per user.
2018-03-26 22:34:24 INFO  ClientCode:212 - CLIENT INFO : Done with
this information so clearing data from user list before it calling
userInformationWrite method.
2018-03-26 22:34:24 INFO  ClientCode:90 - CLIENT INFO :
userInformation Write User information
2018-03-26 22:34:27 INFO  ClientCode:422 - CLIENT INFO : calling combo
box action for filtering data as per user.
2018-03-26 22:34:37 INFO  ClientCode:621 - CLIENT INFO : Sending
Message.
2018-03-26 22:34:37 ERROR ServerCode:77 - This is error for : user1
2018-03-26 22:34:37 INFO  ServerCode:400 - INFO : Sending messages
:user1:hi this ibatis:Chat
2018-03-26 22:34:37 INFO  ServerCode:102 - INFO : On Chat Information:
Num clients after disconnect: 1
2018-03-26 22:34:37 INFO  ClientCode:179 - CLIENT INFO : stream data
matched with chat option
2018-03-26 22:34:44 INFO  ServerCode:280 - INFO : Getting online users
or clients information
2018-03-26 22:34:45 INFO  ServerCode:269 - INFO : Here Thread Start
Begin.
```

Chat Application

```
2018-03-26 22:34:45 INFO  ServerCode:312 - INFO : Information about
User and port number : 2222
2018-03-26 22:34:45 WARN  ServerCode:339 - WARN : Please do close all
the cooresponding connections
2018-03-26 22:34:53 INFO  ServerCode:254 - INFO : Here Thread is
sleeping for five seconds.
2018-03-26 22:34:53 ERROR ServerCode:259 - ERROR : Server:is stopping
and all users will be disconnected.\n:Chat and Server stopping
2018-03-26 22:34:53 INFO  ServerCode:296 - INFO : Action happened on
Clear Button
```

This is Logger code for client and server, uploaded at GitHub account @vinodthorat121
Under ChatServerApplication.

Thank you,
Vinod Thorat