

# CS 6310 Spring 2021 Group 58

## A6

### STREAMING WARS

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# Outline

- Proposed modifications
- A thorough demonstration of the app



# Apply Multiple Designs/Structures to Ensure Privacy

- Build a server
- Username + password combination
- Two layers of authorization
  - Grant different permission to users in difference functional groups (admin, studio and streaming service)
  - Within each functional group, limit user permission to only view their own data
- Encrypt transactions

# Authentication

- Use hash function
  - Define password as protected data
  - Encrypt password using hash function
- Restrictions to ensure the strength of passwords
- Token-based authentication to ensure access the system within the lifespan of the provided token (not applicable anymore as Telnet disconnect every time)





# Archivability


- Use two sets of databases:
  - Primary for storing active data
  - Secondary for data archive




# Executable Jar file

 client	
 server	
 README.txt	1 KB

 client.config	1 KB
 client.jar	9 KB

 lib	
 server.config	1 KB
 server.jar	48 KB

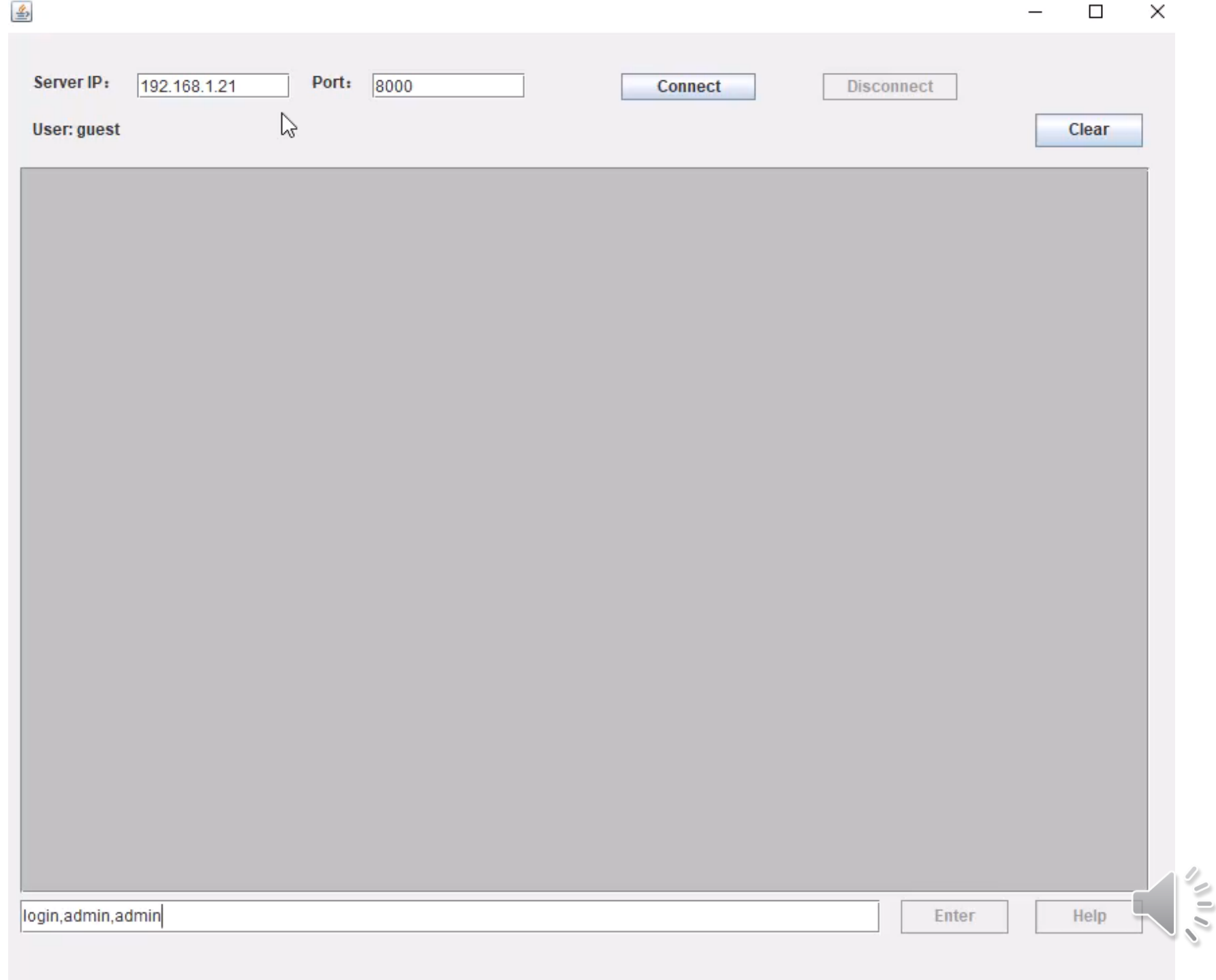
 database	
 lib	
 server.config	1 KB
 server.jar	48 KB

The server and client can be executed on the command line as follows:

```
java -jar server.jar
```

```
java -jar client.jar
```

# Login & register

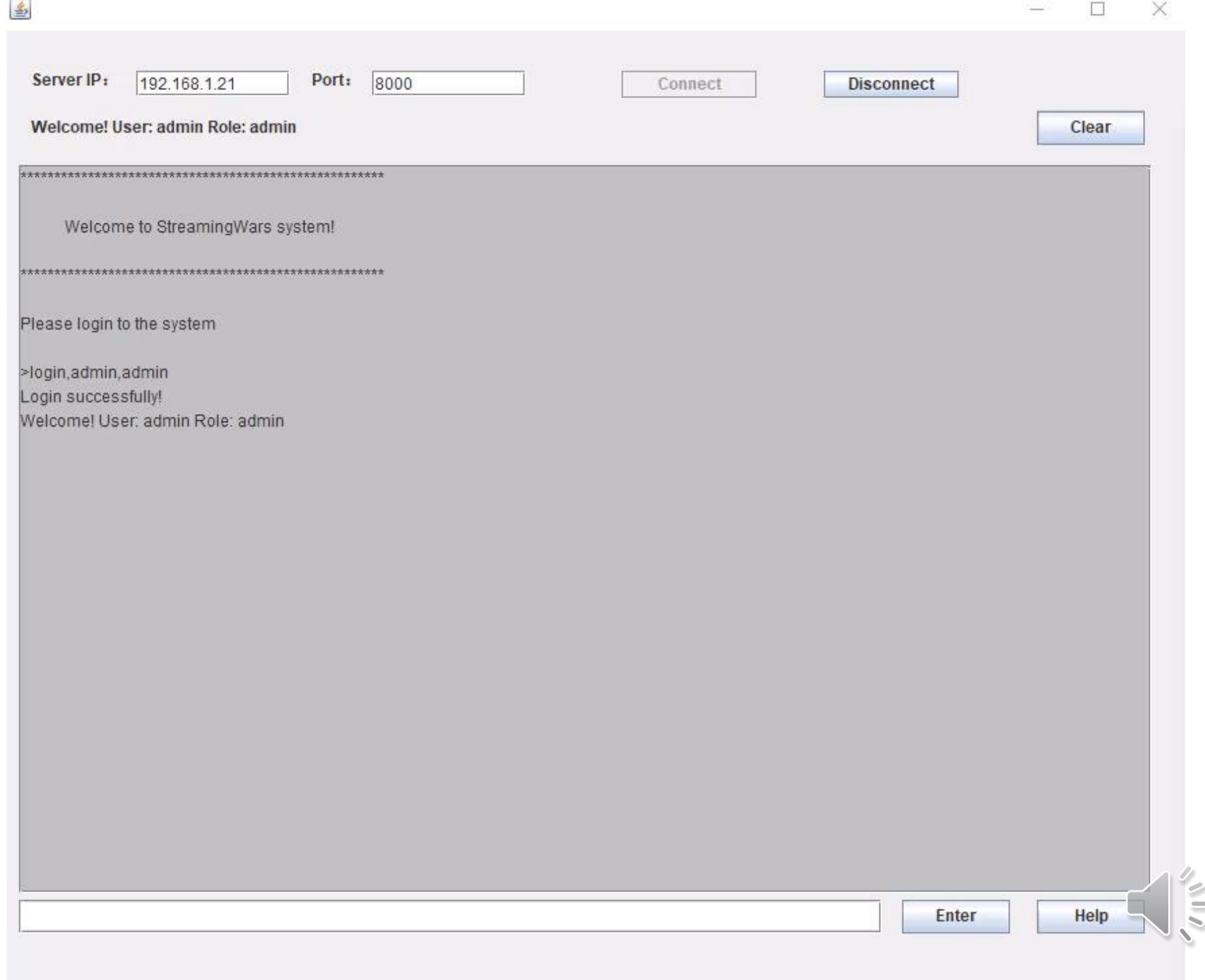


The image shows a screenshot of a network client application window. The window has a light gray title bar with standard Windows window controls (minimize, maximize, close) on the top right. The main interface is divided into several sections:

- Top Section:** Contains two input fields for "Server IP:" (with the value "192.168.1.21") and "Port:" (with the value "8000"). To the right of these fields are two buttons: "Connect" and "Disconnect".
- Second Section:** Contains a label "User: guest" and a "Clear" button on the right.
- Main Area:** A large, empty gray rectangular area occupying the center of the window.
- Bottom Section:** Contains a text input field with the text "login,admin,admin", followed by "Enter" and "Help" buttons.

A mouse cursor is visible over the "Server IP" field. A speaker icon is located in the bottom right corner of the window.

# Login & register



The screenshot shows a web application interface for the StreamingWars system. At the top, there are input fields for 'Server IP' (192.168.1.21) and 'Port' (8000), with 'Connect' and 'Disconnect' buttons. Below these is a 'Clear' button. The main content area displays a welcome message and a login prompt. The login process is shown with the command '>login,admin,admin' and the response 'Login successfully! Welcome! User: admin Role: admin'. At the bottom, there is an input field, 'Enter', and 'Help' buttons, along with a speaker icon.

Server IP:  Port:

Welcome! User: admin Role: admin


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Welcome to StreamingWars system!

\*\*\*\*\*

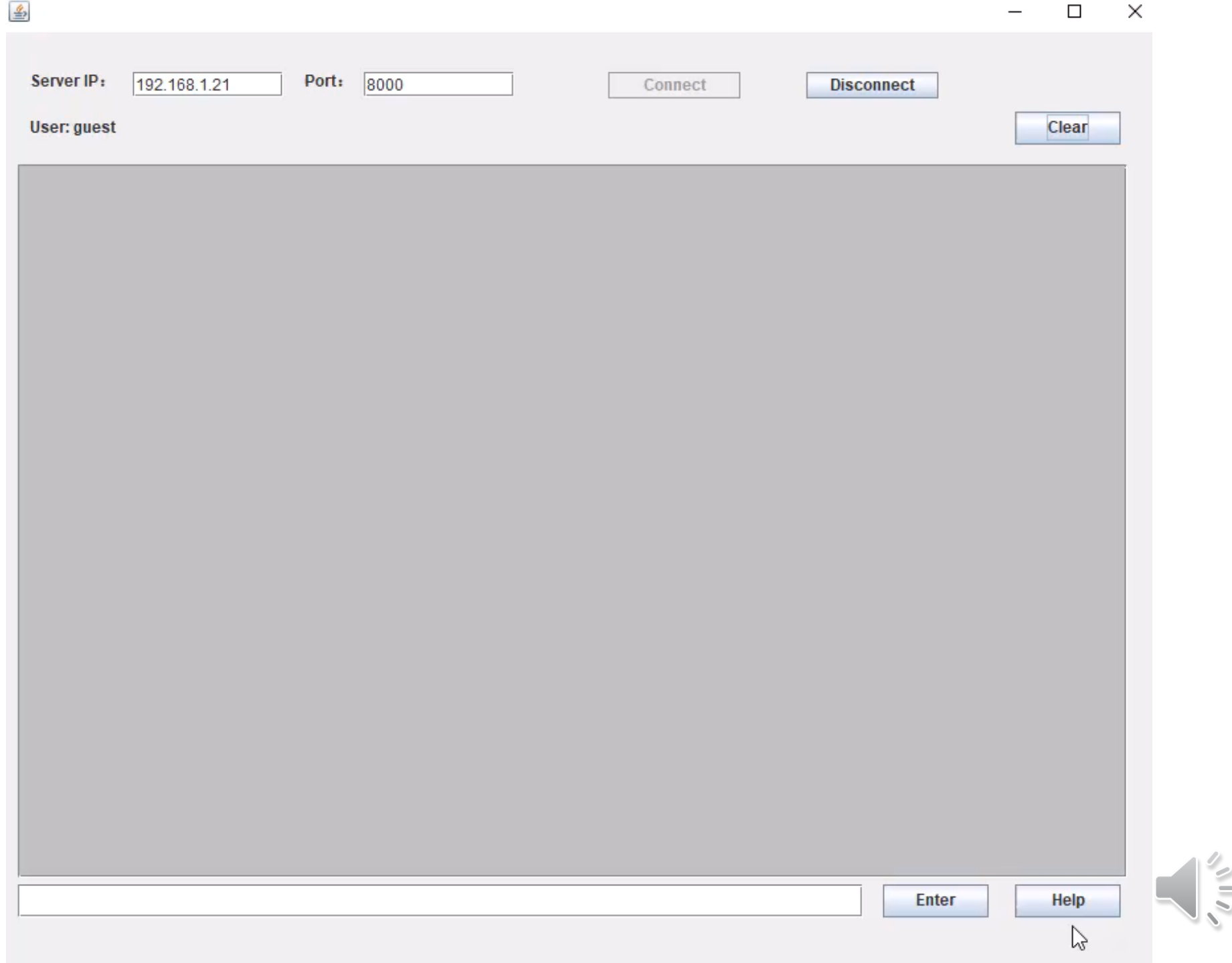
Please login to the system

>login,admin,admin  
Login successfully!  
Welcome! User: admin Role: admin





# Help



The image shows a screenshot of a network client application window. The window has a title bar with standard minimize, maximize, and close buttons. The main interface includes a header section with input fields for 'Server IP' (containing '192.168.1.21') and 'Port' (containing '8000'), and buttons for 'Connect', 'Disconnect', and 'Clear'. Below the header is a large, empty gray rectangular area, likely a display for network data or a chat log. At the bottom of the window, there is a text input field, and to its right are 'Enter' and 'Help' buttons. A mouse cursor is positioned over the 'Help' button. In the bottom right corner of the overall image, outside the application window, is a speaker icon indicating audio output.

Server IP: 192.168.1.21 Port: 8000 Connect Disconnect

User: guest Clear

Enter Help

# Initialization

The screenshot shows a web application interface for system initialization. At the top, there are input fields for 'Server IP' (192.168.1.21) and 'Port' (8000), with 'Connect' and 'Disconnect' buttons. Below these is a 'Clear' button. The main area displays a welcome message and a list of commands executed, each followed by a confirmation message. At the bottom, there is an input field, an 'Enter' button, and a 'Help' button with a hand icon.

Server IP:  Port:

Welcome! User: admin Role: admin

```
>create_demo,age_40_50,Viewers between 40 and 50,800
Demographic group named "age_40_50" with account numbers: 800 has been created!

>create_demo,age_20_30,Viewers between 20 and 30,1500
Demographic group named "age_20_30" with account numbers: 1500 has been created!

>create_studio,disney,Walt Disney Animation Studios
Studio named "disney" has been created!

>create_studio,universal,Universal Pictures
Studio named "universal" has been created!

>create_studio,paramount,Paramount Pictures
Studio named "paramount" has been created!

>create_studio,warner,Warner Bros. Pictures
Studio named "warner" has been created!

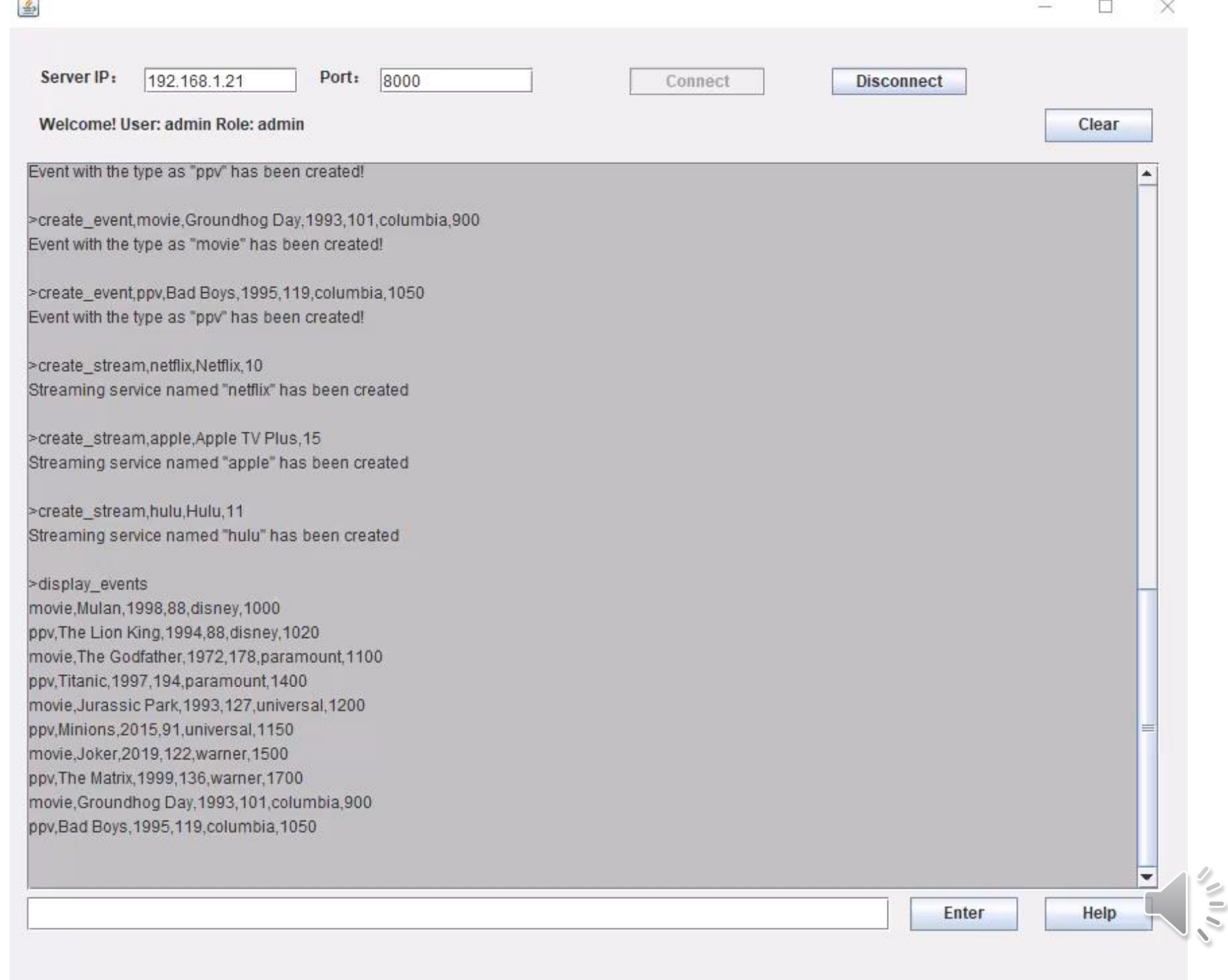
>create_studio,columbia,Columbia Pictures
Studio named "columbia" has been created!

>create_event,movie,Mulan,1998,88,disney,1000
Event with the type as "movie" has been created!

>create_event,ppv,The Lion King,1994,88,disney,1020
Event with the type as "ppv" has been created!

>create_event,movie,The Godfather,1972,178,paramount,1100
Event with the type as "movie" has been created!
```

# Update events

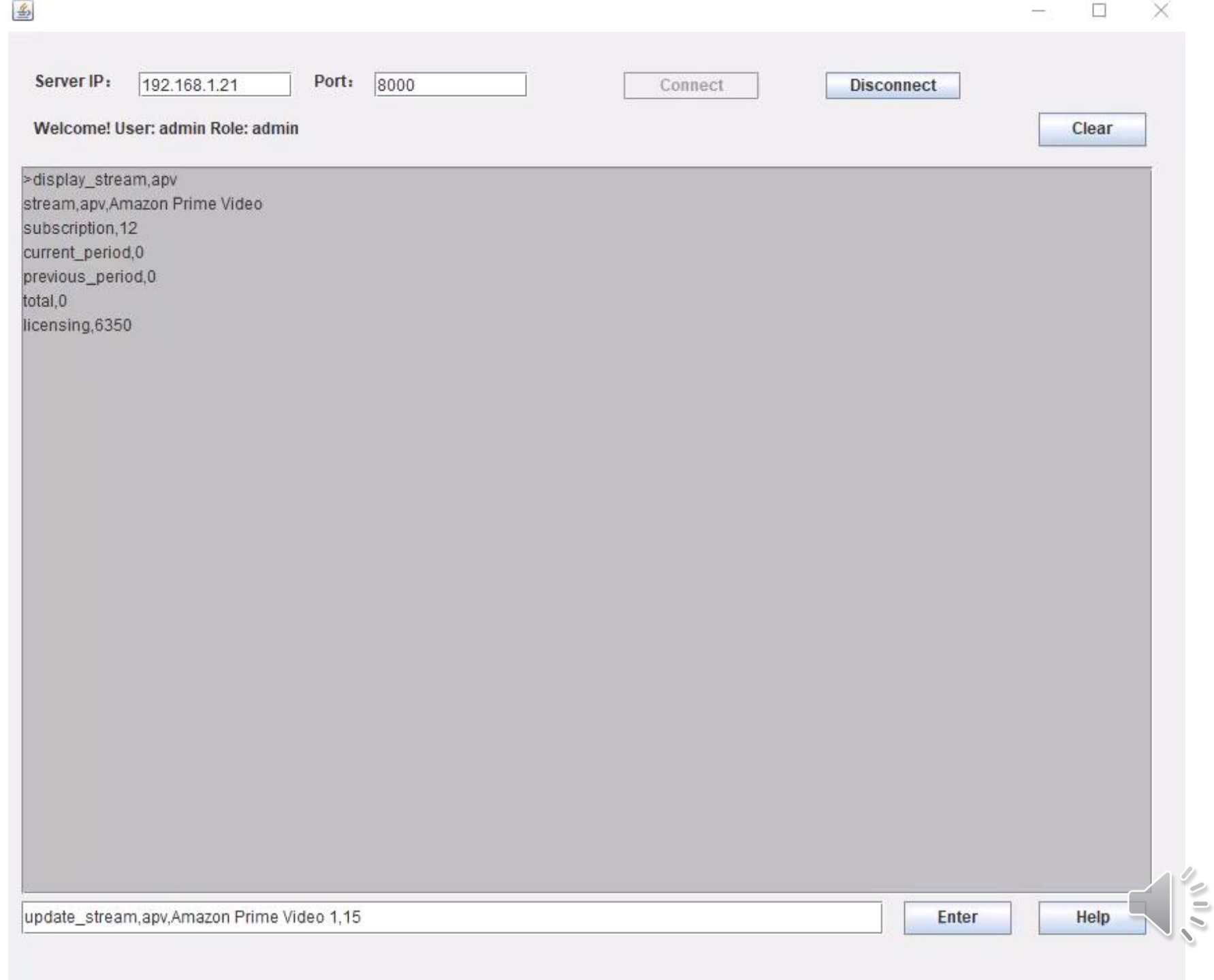


Server IP:  Port:

Welcome! User: admin Role: admin

```
Event with the type as "ppv" has been created!  
  
>create_event,movie,Groundhog Day,1993,101,columbia,900  
Event with the type as "movie" has been created!  
  
>create_event,ppv,Bad Boys,1995,119,columbia,1050  
Event with the type as "ppv" has been created!  
  
>create_stream,netflix,Netflix,10  
Streaming service named "netflix" has been created  
  
>create_stream,apple,Apple TV Plus,15  
Streaming service named "apple" has been created  
  
>create_stream,hulu,Hulu,11  
Streaming service named "hulu" has been created  
  
>display_events  
movie,Mulan,1998,88,disney,1000  
ppv,The Lion King,1994,88,disney,1020  
movie,The Godfather,1972,178,paramount,1100  
ppv,Titanic,1997,194,paramount,1400  
movie,Jurassic Park,1993,127,universal,1200  
ppv,Minions,2015,91,universal,1150  
movie,Joker,2019,122,warner,1500  
ppv,The Matrix,1999,136,warner,1700  
movie,Groundhog Day,1993,101,columbia,900  
ppv,Bad Boys,1995,119,columbia,1050
```

# Update streaming service



The screenshot shows a terminal window with a light gray background. At the top, there are input fields for 'Server IP:' (192.168.1.21) and 'Port:' (8000), followed by 'Connect' and 'Disconnect' buttons. Below these is a 'Welcome! User: admin Role: admin' message and a 'Clear' button. The main area is a large gray rectangle containing text output from a command. At the bottom, there is an input field with the text 'update\_stream,apv,Amazon Prime Video 1,15' and 'Enter' and 'Help' buttons. A speaker icon is visible in the bottom right corner.

Server IP: 192.168.1.21 Port: 8000 Connect Disconnect

Welcome! User: admin Role: admin Clear

```
>display_stream,apv
stream,apv,Amazon Prime Video
subscription,12
current_period,0
previous_period,0
total,0
licensing,6350
```

update\_stream,apv,Amazon Prime Video 1,15 Enter Help

# Retract movie

Server IP:

Port:

Connect

Disconnect

Welcome! User: admin Role: admin

Clear

>display\_offers  
apv,ppv,Titanic,1997,5  
netflix,movie,The Godfather,1972  
netflix,ppv,The Lion King,1994,6  
apple,movie,Jurassic Park,1993  
apple,ppv,The Matrix,1999,3  
hulu,movie,Groundhog Day,1993  
hulu,ppv,Minions,2015,5  
netflix,movie,Joker,2019  
apv,ppv,Bad Boys,1995,4  
apv,movie,Mulan,1998  
  
>retract\_movie,apv,Mulan,1998  
Movie "Mulan" offered by streaming service "apv" has been retracted!  
  
>display\_offers  
apv,ppv,Titanic,1997,5  
netflix,movie,The Godfather,1972  
netflix,ppv,The Lion King,1994,6  
apple,movie,Jurassic Park,1993  
apple,ppv,The Matrix,1999,3  
hulu,movie,Groundhog Day,1993  
hulu,ppv,Minions,2015,5  
netflix,movie,Joker,2019  
apv,ppv,Bad Boys,1995,4  
  
>offer\_movie,apv,Mulan,1998  
Prospective viewers are allowed to watch "movie" with the name as "Mulan"  
  
>display\_offers

Enter

Help

# Update demo

The screenshot shows a web application interface with a light gray background. At the top, there are two input fields: "Server IP:" with the value "192.168.1.21" and "Port:" with the value "8000". To the right of these fields are two buttons: "Connect" and "Disconnect". Below these fields, a status message reads "Welcome! User: admin Role: admin". In the top right corner, there is a "Clear" button. The main area of the interface is a large gray rectangle containing a command-line interface. The command-line shows a sequence of commands and their outputs: 1. Command: ">display\_demo,age\_40\_50". Output: "demo,age\_40\_50,Views between 40 and 50,800", "current\_period,0", "previous\_period,0", "total,0". 2. Command: ">update\_demo,age\_40\_50,Views between 41 and 50,900". Output: "Demographic group named 'age\_40\_50' has been updated!". 3. Command: ">display\_demo,age\_40\_50". Output: "demo,age\_40\_50,Views between 41 and 50,900", "current\_period,0", "previous\_period,0", "total,0". At the bottom of the interface, there is a long white input field. To its right are two buttons: "Enter" and "Help". A small speaker icon is located to the right of the "Help" button.

Server IP:  Port:

Welcome! User: admin Role: admin

```
>display_demo,age_40_50
demo,age_40_50,Views between 40 and 50,800
current_period,0
previous_period,0
total,0

>update_demo,age_40_50,Views between 41 and 50,900
Demographic group named "age_40_50" has been updated!

>display_demo,age_40_50
demo,age_40_50,Views between 41 and 50,900
current_period,0
previous_period,0
total,0
```

# If an event has been watched...

- retract\_movie
- update\_event
- update\_demo
- update\_stream

The screenshot shows a web application interface with a light gray background. At the top, there are input fields for 'Server IP:' (192.168.1.21) and 'Port:' (8000), followed by 'Connect' and 'Disconnect' buttons. Below these is a 'Welcome! User: admin Role: admin' message and a 'Clear' button. The main area is a large text box containing a series of commands and their outputs. The first command, '>watch\_event,age\_40\_50,30,apv,Mulan,1998', is highlighted in blue. The output for this command is 'Group named "age\_40\_50" with percentage of the accounts as "30" percent have decided to access and watch the "Mulan"'. Other commands include '>retract\_movie,apv,Mulan,1998' (output: 'The movie can not be retracted!'), '>update\_event,Mulan,1998,88,1200' (output: 'The license fee can not be changed!'), '>display\_demo,age\_40\_50' (output: 'demo,age\_40\_50,Views between 41 and 50,900 current\_period,4050 previous\_period,0 total,0'), '>update\_demo,age\_40\_50,Views between 40 and 50,900' (output: 'Demographic group named "age\_40\_50" has been updated!'), '>display\_demo,age\_40\_50' (output: 'demo,age\_40\_50,Views between 40 and 50,900 current\_period,4050 previous\_period,0 total,0'), '>update\_demo,age\_40\_50,Views between 40 and 50,1000' (output: 'The number of accounts can not be changed!'), and '>display\_stream,apv' (output: 'stream,apv,Amazon Prime Video 1 subscription,15'). At the bottom, there is an input field, an 'Enter' button, and a 'Help' button with a hand icon.

Server IP: 192.168.1.21 Port: 8000 Connect Disconnect

Welcome! User: admin Role: admin Clear

```
>watch_event,age_40_50,30,apv,Mulan,1998
Group named "age_40_50" with percentage of the accounts as "30" percent have decided to access and watch the "Mulan"

>retract_movie,apv,Mulan,1998
The movie can not be retracted!

>update_event,Mulan,1998,88,1200
The license fee can not be changed!

>display_demo,age_40_50
demo,age_40_50,Views between 41 and 50,900
current_period,4050
previous_period,0
total,0

>update_demo,age_40_50,Views between 40 and 50,900
Demographic group named "age_40_50" has been updated!

>display_demo,age_40_50
demo,age_40_50,Views between 40 and 50,900
current_period,4050
previous_period,0
total,0

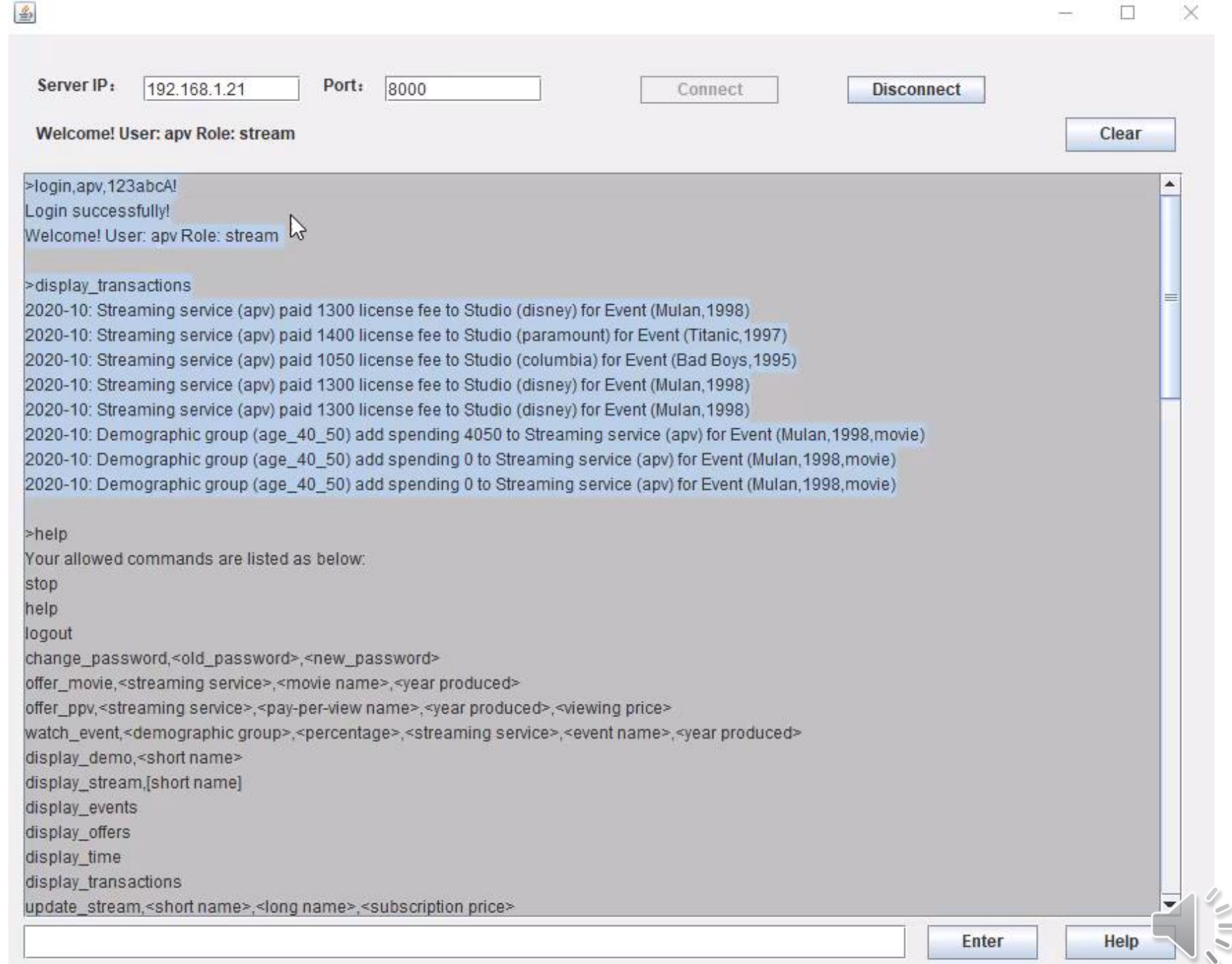
>update_demo,age_40_50,Views between 40 and 50,1000
The number of accounts can not be changed!

>display_stream,apv
stream,apv,Amazon Prime Video 1
subscription,15
```

Enter Help



# Login as a streaming service



Server IP:  Port:

Welcome! User: apv Role: stream

```
>login,apv,123abcA!
Login successfully!
Welcome! User: apv Role: stream

>display_transactions
2020-10: Streaming service (apv) paid 1300 license fee to Studio (disney) for Event (Mulan,1998)
2020-10: Streaming service (apv) paid 1400 license fee to Studio (paramount) for Event (Titanic,1997)
2020-10: Streaming service (apv) paid 1050 license fee to Studio (columbia) for Event (Bad Boys,1995)
2020-10: Streaming service (apv) paid 1300 license fee to Studio (disney) for Event (Mulan,1998)
2020-10: Streaming service (apv) paid 1300 license fee to Studio (disney) for Event (Mulan,1998)
2020-10: Demographic group (age_40_50) add spending 4050 to Streaming service (apv) for Event (Mulan,1998,movie)
2020-10: Demographic group (age_40_50) add spending 0 to Streaming service (apv) for Event (Mulan,1998,movie)
2020-10: Demographic group (age_40_50) add spending 0 to Streaming service (apv) for Event (Mulan,1998,movie)

>help
Your allowed commands are listed as below:
stop
help
logout
change_password,<old_password>,<new_password>
offer_movie,<streaming service>,<movie name>,<year produced>
offer_ppv,<streaming service>,<pay-per-view name>,<year produced>,<viewing price>
watch_event,<demographic group>,<percentage>,<streaming service>,<event name>,<year produced>
display_demo,<short name>
display_stream,[short name]
display_events
display_offers
display_time
display_transactions
update_stream,<short name>,<long name>,<subscription price>
```



# Login as a studio

The screenshot shows a web application interface for a studio login system. At the top, there are input fields for 'Server IP' (192.168.1.21) and 'Port' (8000), with 'Connect' and 'Disconnect' buttons. Below these is a 'Welcome! User: disney Role: stud...' message and a 'Clear' button. The main area is a large text box containing a command-line interface. It starts with 'Please login to the system' and shows a successful login for 'disney' with role 'studio'. A list of allowed commands is displayed, including 'stop', 'help', 'logout', 'change\_password', 'create\_event', 'display\_studio', 'display\_events', 'display\_offers', 'display\_time', 'display\_transactions', 'update\_event', 'retract\_movie', 'archive\_transaction', and 'unarchive\_transaction'. The user has entered '>change\_password,123abcA!,456abcA!' and received the response 'Password changed!'. The user has also entered '>logout'. At the bottom, there is an input field, an 'Enter' button, and a 'Help' button.

Server IP: 192.168.1.21 Port: 8000 Connect Disconnect

Welcome! User: disney Role: stud... Clear

\*\*\*\*\*

Please login to the system

>login,disney,123abcA!  
Login successfully!  
Welcome! User: disney Role: studio

>help  
Your allowed commands are listed as below:  
stop  
help  
logout  
change\_password,<old\_password>,<new\_password>  
create\_event,<type>,<name>,<year produced>,<duration>,<studio>,<license fee>  
display\_studio,[short name]  
display\_events  
display\_offers  
display\_time  
display\_transactions  
update\_event,<name>,<year produced>,<duration>,<license fee>  
retract\_movie,<streaming service>,<movie name>,<movie year>  
archive\_transaction,<year>,<month>  
unarchive\_transaction,<year>,<month>

>change\_password,123abcA!,456abcA!  
Password changed!

>logout

Enter Help

# Hide transactions

SQLiteSpy - D:\SynologyDrive\gatech\CS6310\Assignment6\StreamingWars\database\streamingwars.db

File Edit View Execute Options Help

Name Type NN PK D:\SynologyDrive\g

main

Tables (9)

- demo
- event
- offer
- stream
- studio
- system
- transactions
- user
- watchGroupStreams

Collations (7)

transactions

Encrypted

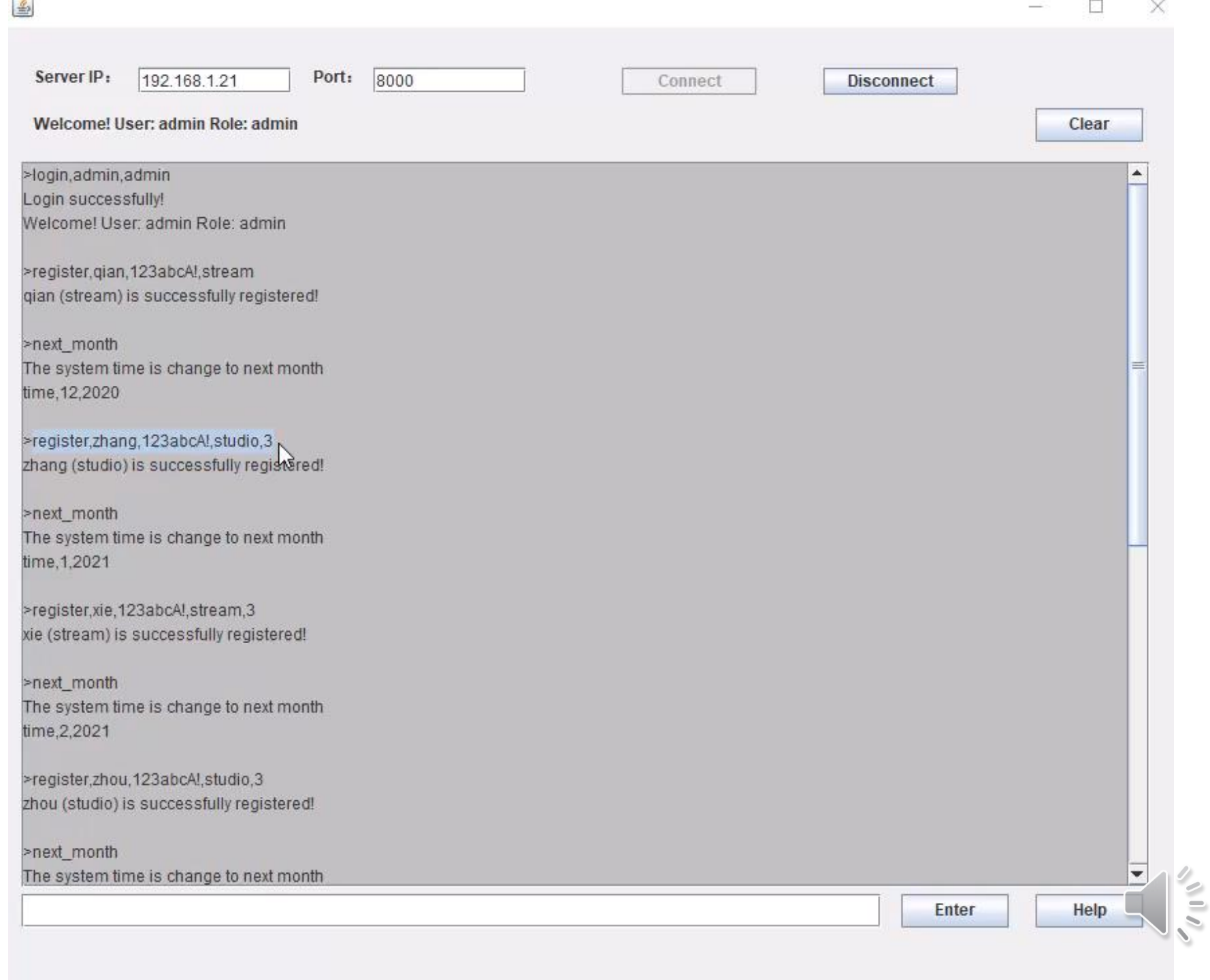
userName	description	timestamp
disney	7UznUojVaDyqt8ZujHsua/6CvGMthtYy43HaQhloZm07...	24250
paramount	7UznUojVaDyqt8ZujHsua/6CvGMthtYy178KDv+0HbU7...	24250
paramount	7UznUojVaDyqt8ZujHsua7/yvneZqQYc3BLsON2pagYN...	24250
netflix	7UznUojVaDyqt8ZujHsua7/yvneZqQYc3BLsON2pagYN...	24250
disney	7UznUojVaDyqt8ZujHsua7/yvneZqQYc3BLsON2pagZm...	24250
netflix	7UznUojVaDyqt8ZujHsua7/yvneZqQYc3BLsON2pagZm...	24250
universal	7UznUojVaDyqt8ZujHsua4WTtKDVILXjvtbH7IKIUtiCWR...	24250
apple	7UznUojVaDyqt8ZujHsua4WTtKDVILXjvtbH7IKIUtiCWR...	24250
warner	7UznUojVaDyqt8ZujHsua4WTtKDVILXjvtbH7IKUtig3lzW...	24250
apple	7UznUojVaDyqt8ZujHsua4WTtKDVILXjvtbH7IKUtig3lzW...	24250
columbia	7UznUojVaDyqt8ZujHsuawqeqJBH6gLMO488s9y/Rz07...	24250
hulu	7UznUojVaDyqt8ZujHsuawqeqJBH6gLMO488s9y/Rz07...	24250
universal	7UznUojVaDyqt8ZujHsuawqeqJBH6gLmVkdLY7gtxl0dN...	24250
hulu	7UznUojVaDyqt8ZujHsuawqeqJBH6gLmVkdLY7gtxl0dN...	24250
warner	7UznUojVaDyqt8ZujHsua7/yvneZqQYc3BLsON2pagb3...	24250
netflix	7UznUojVaDyqt8ZujHsua7/yvneZqQYc3BLsON2pagb3...	24250

disney

Time: 1.60 ms 31 returned SQLite 3.7.8



# Check archivability




# Check archivability

Primary  
database

S6310\Assignment6\jarfile\server\database\streamingwars.db

user

Encrypted



username	password	role	timestamp	expiration
admin	\$2a\$12\$mOQa...	admin	24250	0
disney	\$2a\$12\$oU/Lb/...	studio	24250	0
apv	\$2a\$12\$kcgks...	stream	24250	0
qian	\$2a\$12\$kWAXt...	stream	24251	0
zhou	\$2a\$12\$I57BY...	studio	24254	3
du	\$2a\$12\$eop8U...	stream	24255	3

Secondary  
database

user

username	password	role	timestamp	expiration
zhang	\$2a\$12\$vIB72...	studio	24251	3
xie	\$2a\$12\$vWz...	stream	24252	3



# Thanks for listening!

- Thanks for course instructor Prof Moss, TAs and our peer students!
- All team members from group 58 wish you a happy summer!
- Stay safe and healthy!

