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Systems & Networks II
Project 2
README file

Setup and Compilation

1. Download and unzip the submission from eLearning on a Linux box in the multi-platform lab.

2. The submission includes:

- Server (folder)
 - Server.hpp
 - Server.cpp
 - main.cpp
 - User.hpp
 - User.cpp
- Client (folder)
 - Client.hpp
 - main.cpp
- Makefile
- README.pdf

3. Environment: This program has been tested in the multi-platform lab and will run there.

4. Compiling. This program includes a **Makefile**. At the command line in Linux, type **make**. The program produces two executables, one called **client** and the other called **server**

Running the program. First, run the server issuing the command `./server` . In another terminal, inside the same directory, issue the command `./client` to run the client

User input: When running the client, please input **localhost** in the first interaction with the program, and then entered the input as pleased following the output of the program.

Output: These are examples of output:

On the top left, the server is running, the other 2 terminals are the clients

The screenshot shows three terminal windows in a VMware Workstation 16 Player. The top-left window is the server terminal, the top-right is the first client, and the bottom is the second client. All three are running a C++ program named 'Project25SysNetII'.

```
ab236@ubuntu: ~/CLionProjects/Project25/Project25SysNetII
g++ -g -std=c++11 -Wall -pthread -Werror -Werror=return-type -Werror=uninitialized -o server Server/main.cpp Server/User.cpp Server/Server.cpp Server/Server.hpp
g++ -g -std=c++11 -Wall -pthread -Werror -Werror=return-type -Werror=uninitialized -o client Client/main.cpp Client/Client.hpp
ab236@ubuntu: ~/CLionProjects/Project25/Project25SysNetII$ ./server
bind done
Waiting for incoming connection...
Waiting for incoming connection...
Connection accepted
Handler assigned
Waiting for incoming connection...
Connection accepted
Handler assigned
u: alan p: 1234
u: ab236 p: asdf

ab236@ubuntu: ~/CLionProjects/Project25/Project25SysNetII$ ./client
Enter hostname: localhost
Socket created
localhost resolved to 127.0.0.1
Connected
Welcome!
Press 1 to Login
Press 2 to Register
Type 'exit' to Quit
2
Username:
alan
Password:
1234
Successfully Registered
Welcome!
Press 1 to Login
Press 2 to Register
Type 'exit' to Quit
1
```

Testing logging in

This screenshot shows the same three terminal windows as before, but now the clients are testing the login functionality. The server terminal shows the login process for user 'alan' with password '1234'. The first client terminal shows the login attempt, and the second client terminal shows the login attempt and the subsequent menu options.

```
ab236@ubuntu: ~/CLionProjects/Project25/Project25SysNetII$ ./server
bind done
Waiting for incoming connection...
Waiting for incoming connection...
Connection accepted
Handler assigned
Waiting for incoming connection...
Connection accepted
Handler assigned
u: alan p: 1234
u: ab236 p: asdf
u: alan p: 1234

ab236@ubuntu: ~/CLionProjects/Project25/Project25SysNetII$ ./client
Enter hostname: localhost
Socket created
localhost resolved to 127.0.0.1
Connected
Welcome!
Press 1 to Login
Press 2 to Register
Type 'exit' to Quit
1
Username:
alan
Password:
1234
Successfully Logged In
1. Subscribe to a location
2. Unsubscribe to a location
3. See the online users
4. Send a message to a user
5. Send a group message to a location
6. See all the locations that the client has subscribed to
7. See the last 10 message received
8. Change password
9. Quit

ab236@ubuntu: ~/CLionProjects/Project25/Project25SysNetII$ ./client
Enter hostname: somethingwrong
Can't find the hostname, try again
Enter hostname: localhost
Socket created
localhost resolved to 127.0.0.1
Connected
Welcome!
Press 1 to Login
Press 2 to Register
Type 'exit' to Quit
2
Username:
alan
Password:
1234
Successfully Registered
Welcome!
Press 1 to Login
Press 2 to Register
Type 'exit' to Quit
1
Username:
alan
Password:
1234
Successfully Logged In
1. Subscribe to a location
2. Unsubscribe to a location
3. See the online users
4. Send a message to a user
5. Send a group message to a location
6. See all the locations that the client has subscribed to
7. See the last 10 message received
8. Change password
9. Quit
```

Testing subscribing to a location; Both terminals are the different clients

```
ab236@ubuntu: ~/CLionProjects/Project25/Project25SysNetII
1
Username:
ab236
Password:
asdf
Successfully Logged In
1. Subscribe to a location
2. Unsubscribe to a location
3. See the online users
4. Send a message to a user
5. Send a group message to a location
6. See all the locations that the client has subscribed to
7. See the last 10 message received
8. Change password
9. Quit

1
Please enter a location to subscribe
tampa
Subscribed successfully
1. Subscribe to a location
2. Unsubscribe to a location
3. See the online users
4. Send a message to a user
5. Send a group message to a location
6. See all the locations that the client has subscribed to
7. See the last 10 message received
8. Change password
9. Quit

6
0: tampa
1. Subscribe to a location
2. Unsubscribe to a location
3. See the online users
4. Send a message to a user
5. Send a group message to a location
6. See all the locations that the client has subscribed to
7. See the last 10 message received
8. Change password
9. Quit

alan@ubuntu: ~/CLionProjects/Project25/Project25SysNetII
1
Username:
alan
Password:
1234
Successfully Logged In
1. Subscribe to a location
2. Unsubscribe to a location
3. See the online users
4. Send a message to a user
5. Send a group message to a location
6. See all the locations that the client has subscribed to
7. See the last 10 message received
8. Change password
9. Quit

1
Please enter a location to subscribe
miami
Subscribed successfully
1. Subscribe to a location
2. Unsubscribe to a location
3. See the online users
4. Send a message to a user
5. Send a group message to a location
6. See all the locations that the client has subscribed to
7. See the last 10 message received
8. Change password
9. Quit

6
0: miami
1. Subscribe to a location
2. Unsubscribe to a location
3. See the online users
4. Send a message to a user
5. Send a group message to a location
6. See all the locations that the client has subscribed to
7. See the last 10 message received
8. Change password
9. Quit
```

Testing unsubscribing from a location and show all the locations

```
ab236@ubuntu: ~/CLionProjects/Project25/Project25SysNetII
6. See all the locations that the client has subscribed to
7. See the last 10 message received
8. Change password
9. Quit

1
Please enter a location to subscribe
tampa
Subscribed successfully
1. Subscribe to a location
2. Unsubscribe to a location
3. See the online users
4. Send a message to a user
5. Send a group message to a location
6. See all the locations that the client has subscribed to
7. See the last 10 message received
8. Change password
9. Quit

6
0: tampa
1. Subscribe to a location
2. Unsubscribe to a location
3. See the online users
4. Send a message to a user
5. Send a group message to a location
6. See all the locations that the client has subscribed to
7. See the last 10 message received
8. Change password
9. Quit

2
0: tampa
Please enter a location to unsubscribe
tampa
Unsubscribed successfully
1. Subscribe to a location
2. Unsubscribe to a location
3. See the online users
4. Send a message to a user
5. Send a group message to a location
6. See all the locations that the client has subscribed to
7. See the last 10 message received
8. Change password
9. Quit

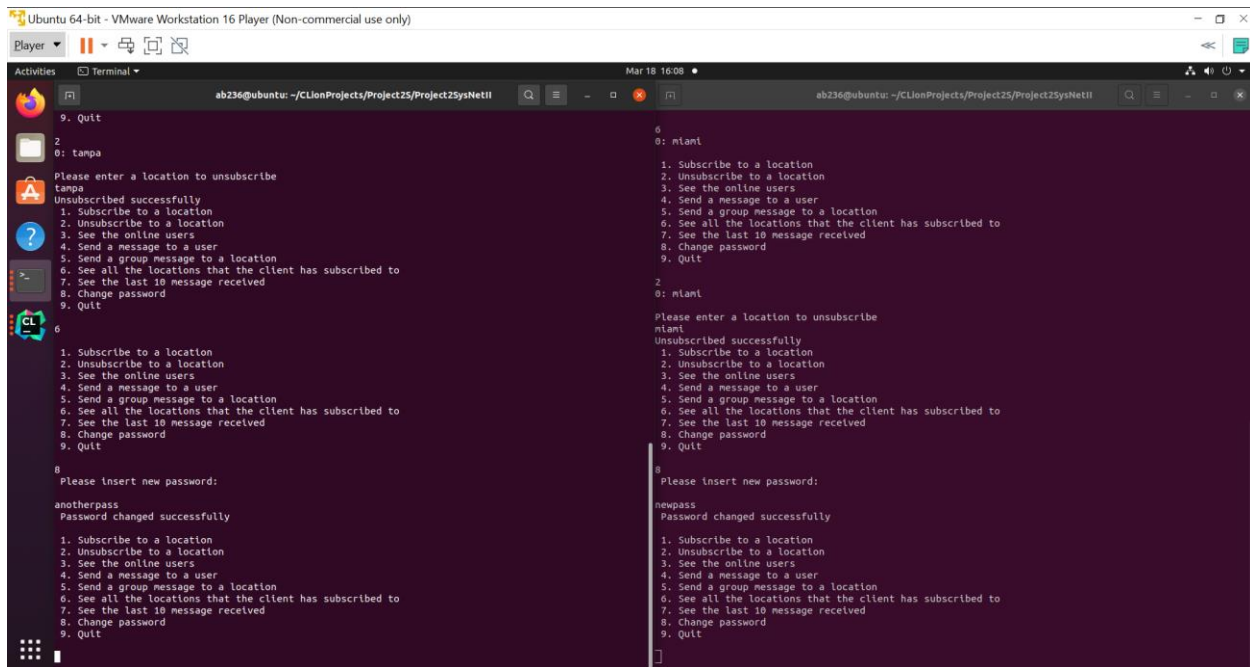
alan@ubuntu: ~/CLionProjects/Project25/Project25SysNetII
8. Change password
9. Quit

1
Please enter a location to subscribe
miami
Subscribed successfully
1. Subscribe to a location
2. Unsubscribe to a location
3. See the online users
4. Send a message to a user
5. Send a group message to a location
6. See all the locations that the client has subscribed to
7. See the last 10 message received
8. Change password
9. Quit

6
0: miami
1. Subscribe to a location
2. Unsubscribe to a location
3. See the online users
4. Send a message to a user
5. Send a group message to a location
6. See all the locations that the client has subscribed to
7. See the last 10 message received
8. Change password
9. Quit

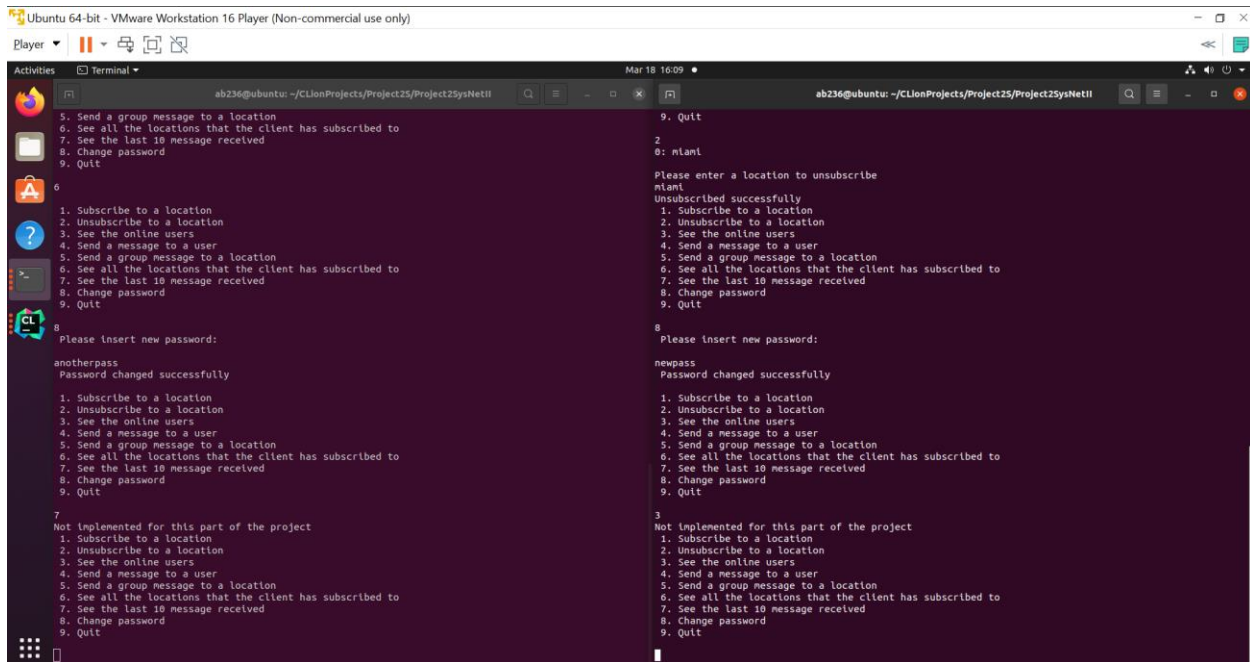
2
0: miami
Please enter a location to unsubscribe
miami
Unsubscribed successfully
1. Subscribe to a location
2. Unsubscribe to a location
3. See the online users
4. Send a message to a user
5. Send a group message to a location
6. See all the locations that the client has subscribed to
7. See the last 10 message received
8. Change password
9. Quit
```

Testing changing the password



```
ab236@ubuntu: ~/CLionProjects/Project25/Project25SysNetII
9. Quit
2
0: tanpa
Please enter a location to unsubscribe
tanpa
Unsubscribed successfully
1. Subscribe to a location
2. Unsubscribe to a location
3. See the online users
4. Send a message to a user
5. Send a group message to a location
6. See all the locations that the client has subscribed to
7. See the last 10 message received
8. Change password
9. Quit
6
1. Subscribe to a location
2. Unsubscribe to a location
3. See the online users
4. Send a message to a user
5. Send a group message to a location
6. See all the locations that the client has subscribed to
7. See the last 10 message received
8. Change password
9. Quit
8
Please Insert new password:
anotherpass
Password changed successfully
1. Subscribe to a location
2. Unsubscribe to a location
3. See the online users
4. Send a message to a user
5. Send a group message to a location
6. See all the locations that the client has subscribed to
7. See the last 10 message received
8. Change password
9. Quit
```

All the options but option 1, 2, 6, 8 and 9 will display this message



```
ab236@ubuntu: ~/CLionProjects/Project25/Project25SysNetII
5. Send a group message to a location
6. See all the locations that the client has subscribed to
7. See the last 10 message received
8. Change password
9. Quit
6
1. Subscribe to a location
2. Unsubscribe to a location
3. See the online users
4. Send a message to a user
5. Send a group message to a location
6. See all the locations that the client has subscribed to
7. See the last 10 message received
8. Change password
9. Quit
7
Not Implemented for this part of the project
1. Subscribe to a location
2. Unsubscribe to a location
3. See the online users
4. Send a message to a user
5. Send a group message to a location
6. See all the locations that the client has subscribed to
7. See the last 10 message received
8. Change password
9. Quit
```