



syl - see you later

syl is a chat application made in python with in client-server approach.

The objective is a fully functional chat application like IRC protocol. The motivation to program all this is a class work for Network discipline in my graduation.

Run syl

To run this application you must use python 2.7 in a linux or OS X system (curses library is used on this project and don't have support to Windows). I developed in a ubuntu.

First you must start a server, to do this run this command:

```
python server 12000
```

- 12000 is the server port, you can used another if you want.

After start a server you can connect the clientes following this line:

```
python client 127.0.0.1 12000
```

- Again, 12000 is the server port, if you change this port on server start you must change this here too.
- 127.0.0.1 is you local IP, if server is remote you need to know de remote IP.

NOW YOU ARE READY TO CHAT!

Follow the screen instructions to create your group and start talk.

Internet Relay Chat (IRC)

The IRC protocol was an inspiration to this project. IRC is a application layr protocol that facilitates communucation in the form of text. The chat process works on a client/server network model (like syl). Like IRC, syl provides private messages, chat and data transfer, including file sharing.

Some IRCstory

IRC was created by Jarkko Oikarinen in August 1988. Jarkko intended to extend the BBS software he administered, to allow news in the Usenet style, real time discussions and similar BBS features. The first part he implemented was the chat part, which he did with borrowed parts written by his friends Jyrki Kuoppala and Jukka Pihl. The first IRC network was running on a single server named tolsun.oulu.fi. Oikarinen found inspiration in a chat system known as Bitnet Relay, which operated on the BITNET.

After some issues trthrough the time only in May 1993, RFC 1459 was published and details a simple protocol for client/server operation, channels, one-to-one and one-to-many conversations. It is notable that the a significant number of extensions like CTCP, colors and formats are not included in the protocol specifications, nor is character encoding, which led various implementations of servers and clients to diverge. In fact, software implementation varied

significantly from one network to the other, each network implementing their own policies and standards in their own code bases.

Transmission Control Protocol (TCP)

Syl uses a TCP sockets to communication between server and client.

When the server is started a socket start to listen on server port and for each client who connects in the server a thread is started to bound the communication.

TCP is one of the main protocols of the Internet protocol suite. It originated in the initial network implementation in which it complemented the Internet Protocol (IP). Therefore, the entire suite is commonly referred to as TCP/IP.

TCP provides reliable, ordered, and error-checked delivery of a stream of octets between applications running on hosts communicating by an IP network. Major Internet applications such as the World Wide Web, email, remote administration, and file transfer rely on TCP.

syl structure

To implement syl was used some modules listed bellow:

app.py

Application main interface module, can call app in client or server mode. From command line.

lib/client.py

This is syl client, this module controls conection request to server and the user interface with curses, after client is connected to the server two threads are started, one to receive server messagens and another to send message to server.

lib/server.py

Server is the heart of syl. All functions are implemented in this module. Here all server flow is implemented.

lib/msg.py

This module manage the messages in syl. All message transfers in converted in a JSON by this module, even files.

lib/files_db.py

Manages a SQLite database created in server start (if already exist the database are overwrite). This data base store the files send by users.

lib/window.py

This is only curses library control for client, all client window is draw by this module.

lib/user.py

Only an objetc structure to server manage user attributes.

syl application in use

Message of the day:

```
File Edit View Search Terminal Help
Connected on host: 127.0.0.1:12000 U're not in a group
*** syl - version 1.0
Today is a very good day to start a project
*** List of commands:
/away : set your status to afk and not receive private messages.
/ban <nick> : Banish user from group. Only for group admin.
/clear : clear message screen
/create <group name> : create a chat group
/delete <group name> : Delete a group. Only for group admin.
/file <path to file> : Send a file to group
/get file <file name> : get a file of group
/help : Show a list with commands
/join <group name> : join a chat group
/kick <nick> : Kick user from group. Only for group admin.
/leave <group name> : leave a chat group or quit chat when not in a group
/list : When in a group show a list of users, when not show a list of groups.
/list_files : List files in the group
/msg <nick> <message> : Send a private message to an user in same group
/nick <new nick> : Change user nickname
```

Commands:

- /away

```
File Edit View Search Terminal Help
Connected on host: 127.0.0.1:12000 Group: syl-group
/list_files : List files in the group
/msg <nick> <message> : Send a private message to an user in same group
/nick <new nick> : Change user nickname

*** Nickname changed, from new_user1 to syl
*** User new_user1 is now syl
*** Group syl-group was created
*** Your are now on group: syl-group
*** List of users in: syl-group
syl

*** You leave syl-group group
*** List of groups in this server:
syl-group

*** User new_user2 is now syl2
*** Your are now on group: syl-group
*** syl has kicked syl2 from group syl-group
(syl) > syl2 hi!
*** syl has banished syl2 from group syl-group
*** User syl is now away from keyboard.
```

- /ban <nick>

```
File Edit View Search Terminal Help
Connected on host: 127.0.0.1:12000 Group: syl-group
/list : When in a group show a list of users, when not show a list of groups.
/list_files : List files in the group
/msg <nick> <message> : Send a private message to an user in same group
/nick <new nick> : Change user nickname

*** Nickname changed, from new_user1 to syl
*** User new_user1 is now syl
*** Group syl-group was created
*** Your are now on group: syl-group
*** List of users in: syl-group
syl

*** You leave syl-group group
*** List of groups in this server:
syl-group

*** User new_user2 is now syl2
*** Your are now on group: syl-group
*** syl has kicked syl2 from group syl-group
(syl) > syl2 hi!
*** syl has banished syl2 from group syl-group
```

- /create <new group>

```
File Edit View Search Terminal Help
Connected on host: 127.0.0.1:12000 U're not in a group
Today is a very good day to jump on trampoline
*** List of commands:
/away : set your status to afk and not receive private messages.
/ban <nick> : Banish user from group. Only for group admin.
/clear : clear message screen
/create <group name> : create a chat group
/delete <group name> : Delete a group. Only for group admin.
/file <path to file> : Send a file to group
/get file <file name> : get a file of group
/help : Show a list with commands
/join <group name> : join a chat group
/kick <nick> : Kick user from group. Only for group admin.
/leave <group name> : leave a chat group or quit chat when not in a group
/list : When in a group show a list of users, when not show a list of groups.
/list_files : List files in the group
/msg <nick> <message> : Send a private message to an user in same group
/nick <new nick> : Change user nickname

*** Nickname changed, from new_user1 to syl
*** User new_user1 is now syl
*** Group syl-group was created
```

- /delete <group>

```
File Edit View Search Terminal Help
Connected on host: 127.0.0.1:12000 U're not in a group
*** List of users in: syl-group
syl

*** You leave syl-group group
*** List of groups in this server:
syl-group

*** User new_user2 is now syl2
*** Your are now on group: syl-group
*** syl has kicked syl2 from group syl-group
(syl) > syl2 hi!
*** syl has banished syl2 from group syl-group
*** User syl is now away from keyboard.
*** syl has send a file! File name is: doc.txt
*** List of files in syl-group:
doc.txt

*** file saved on: /media/sf_dropbox/UnB/Redes/Trabalho/chat/20161115152417doc.
txt
*** You leave syl-group group
*** syl-group was deleted
```

- /file <path to file>

```
File Edit View Search Terminal Help
Connected on host: 127.0.0.1:12000 Group: syl-group
/msg <nick> <message> : Send a private message to an user in same group
/nick <new nick> : Change user nickname

*** Nickname changed, from new_user1 to syl
*** User new_user1 is now syl
*** Group syl-group was created
*** Your are now on group: syl-group
*** List of users in: syl-group
syl

*** You leave syl-group group
*** List of groups in this server:
syl-group

*** User new_user2 is now syl2
*** Your are now on group: syl-group
*** syl has kicked syl2 from group syl-group
(syl) > syl2 hi!
*** syl has banished syl2 from group syl-group
*** User syl is now away from keyboard.
*** syl has send a file! File name is: doc.txt
```

- /get_file <file>

```
File Edit View Search Terminal Help
Connected on host: 127.0.0.1:12000 Group: syl-group
*** Group syl-group was created
*** Your are now on group: syl-group
*** List of users in: syl-group
syl

*** You leave syl-group group
*** List of groups in this server:
syl-group

*** User new_user2 is now syl2
*** Your are now on group: syl-group
*** syl has kicked syl2 from group syl-group
(syl) > syl2 hi!
*** syl has banished syl2 from group syl-group
*** User syl is now away from keyboard.
*** syl has send a file! File name is: doc.txt
*** List of files in syl-group:
doc.txt

*** file saved on: /media/sf_dropbox/UnB/Redes/Trabalho/chat/20161115152417doc.
txt
```

- /join <group>

```
File Edit View Search Terminal Help
Connected on host: 127.0.0.1:12000 Group: syl-group
*** List of commands:
/away : set your status to afk and not receive private messages.
/ban <nick> : Banish user from group. Only for group admin.
/clear : clear message screen
/create <group name> : create a chat group
/delete <group name> : Delete a group. Only for group admin.
/file <path to file> : Send a file to group
/get file <file name> : get a file of group
/help : Show a list with commands
/join <group name> : join a chat group
/kick <nick> : Kick user from group. Only for group admin.
/leave <group name> : leave a chat group or quit chat when not in a group
/list : When in a group show a list of users, when not show a list of groups.
/list_files : List files in the group
/msg <nick> <message> : Send a private message to an user in same group
/nick <new nick> : Change user nickname

*** Nickname changed, from new_user1 to syl
*** User new_user1 is now syl
*** Group syl-group was created
*** Your are now on group: syl-group
```

- /kick <nick>

```
File Edit View Search Terminal Help
Connected on host: 127.0.0.1:12000 Group: syl-group
/kick <nick> : Kick user from group. Only for group admin.
/leave <group name> : leave a chat group or quit chat when not in a group
/list : When in a group show a list of users, when not show a list of groups.
/list_files : List files in the group
/msg <nick> <message> : Send a private message to an user in same group
/nick <new nick> : Change user nickname

*** Nickname changed, from new_user1 to syl
*** User new_user1 is now syl
*** Group syl-group was created
*** Your are now on group: syl-group
*** List of users in: syl-group
syl

*** You leave syl-group group
*** List of groups in this server:
syl-group

*** User new_user2 is now syl2
*** Your are now on group: syl-group
*** syl has kicked syl2 from group syl-group
```

- /leave

```
File Edit View Search Terminal Help
Connected on host: 127.0.0.1:12000 U're not in a group
/create <group name> : create a chat group
/delete <group name> : Delete a group. Only for group admin.
/file <path to file> : Send a file to group
/get file <file name> : get a file of group
/help : Show a list with commands
/join <group name> : join a chat group
/kick <nick> : Kick user from group. Only for group admin.
/leave <group name> : leave a chat group or quit chat when not in a group
/list : When in a group show a list of users, when not show a list of groups.
/list files : List files in the group
/msg <nick> <message> : Send a private message to an user in same group
/nick <new nick> : Change user nickname

*** Nickname changed, from new_user1 to syl
*** User new_user1 is now syl
*** Group syl-group was created
*** Your are now on group: syl-group
*** List of users in: syl-group
syl

*** You leave syl-group group
```

- /list_files

```
File Edit View Search Terminal Help
Connected on host: 127.0.0.1:12000 Group: syl-group
*** Nickname changed, from new_user1 to syl
*** User new_user1 is now syl
*** Group syl-group was created
*** Your are now on group: syl-group
*** List of users in: syl-group
syl

*** You leave syl-group group
*** List of groups in this server:
syl-group

*** User new_user2 is now syl2
*** Your are now on group: syl-group
*** syl has kicked syl2 from group syl-group
(syl) > syl2 hi!
*** syl has banished syl2 from group syl-group
*** User syl is now away from keyboard.
*** syl has send a file! File name is: doc.txt
*** List of files in syl-group:
doc.txt
```

- /list

```
File Edit View Search Terminal Help
Connected on host: 127.0.0.1:12000 U're not in a group
/get file <file name> : get a file of group
/help : Show a list with commands
/join <group name> : join a chat group
/kick <nick> : Kick user from group. Only for group admin.
/leave <group name> : leave a chat group or quit chat when not in a group
/list : When in a group show a list of users, when not show a list of groups.
/list files : List files in the group
/msg <nick> <message> : Send a private message to an user in same group
/nick <new nick> : Change user nickname

*** Nickname changed, from new_user1 to syl
*** User new_user1 is now syl
*** Group syl-group was created
*** Your are now on group: syl-group
*** List of users in: syl-group
syl

*** You leave syl-group group
*** List of groups in this server:
syl-group
```

```
File Edit View Search Terminal Help
Connected on host: 127.0.0.1:12000 Group: syl-group
/clear : clear message screen
/create <group name> : create a chat group
/delete <group name> : Delete a group. Only for group admin.
/file <path to file> : Send a file to group
/get file <file name> : get a file of group
/help : Show a list with commands
/join <group name> : join a chat group
/kick <nick> : Kick user from group. Only for group admin.
/leave <group name> : leave a chat group or quit chat when not in a group
/list : When in a group show a list of users, when not show a list of groups.
/list_files : List files in the group
/msg <nick> <message> : Send a private message to an user in same group
/nick <new nick> : Change user nickname

*** Nickname changed, from new_user1 to syl
*** User new_user1 is now syl
*** Group syl-group was created
*** Your are now on group: syl-group
*** List of users in: syl-group
syl
```

- /msg <nick> <text>

```
File Edit View Search Terminal Help
Connected on host: 127.0.0.1:12000 Group: syl-group
/leave <group name> : leave a chat group or quit chat when not in a group
/list : When in a group show a list of users, when not show a list of groups.
/list_files : List files in the group
/msg <nick> <message> : Send a private message to an user in same group
/nick <new nick> : Change user nickname

*** Nickname changed, from new_user1 to syl
*** User new_user1 is now syl
*** Group syl-group was created
*** Your are now on group: syl-group
*** List of users in: syl-group
syl

*** You leave syl-group group
*** List of groups in this server:
syl-group

*** User new_user2 is now syl2
*** Your are now on group: syl-group
*** syl has kicked syl2 from group syl-group
(syl) > syl2 hi!
```

- /nick <new nick>

```
File Edit View Search Terminal Help
Connected on host: 127.0.0.1:12000 U're not in a group
*** syl - version 1.0
Today is a very good day to jump on trampoline
*** List of commands:
/away : set your status to afk and not receive private messages.
/ban <nick> : Banish user from group. Only for group admin.
/clear : clear message screen
/create <group name> : create a chat group
/delete <group name> : Delete a group. Only for group admin.
/file <path to file> : Send a file to group
/get file <file name> : get a file of group
/help : Show a list with commands
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*** Nickname changed, from new_user1 to syl
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