1 Program Structure

To execute my program, type "python3 run.py".

1.1 Environment

- OS: Arch Linux (4.18.7)
- IRC server: Irssi (1.1.1)
- Programming language: Python (3.7)
- Non-standard Python packages: BeautifulSoup4 (4.6.3)

1.2 File Description

The whole program is in "run.py". Thus, the followings describes the content of "run.py".

1.2.1 Configuration

- user_name = 'Bot'
- host_name = 'NTU'
- server_name = 'ntu.edu.tw'
- real_name = 'Fan-Keng Sun'
- nick_name = 'bot_b03901056'
- channel = '#CN_DEMO'
- lower_bound, upper_bound = 1, 10 (lower and upper bound for number guessing)

1.2.2 IRC Client Class

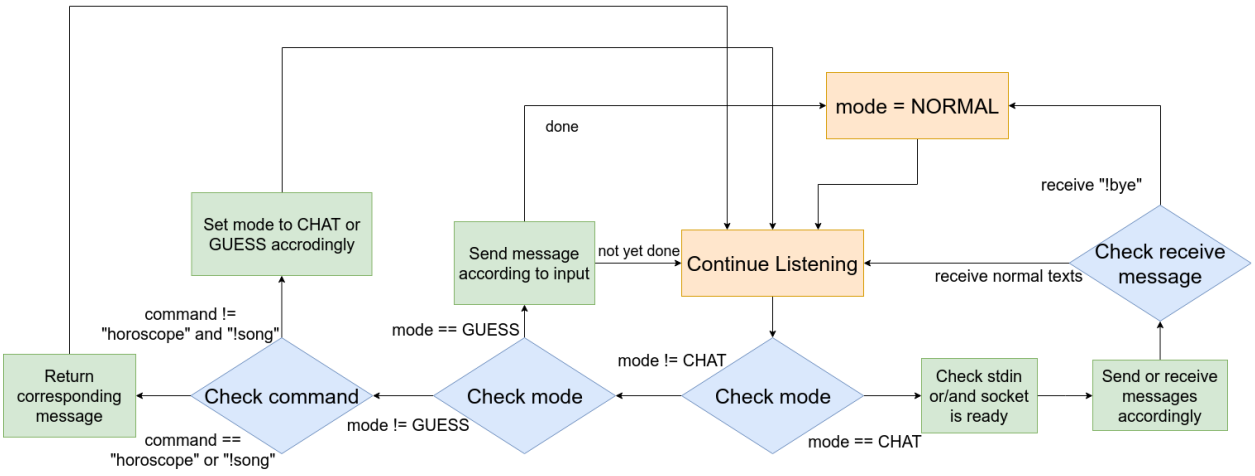
A class that represents the IRC client. Functions in this class includes:

- **___init___():** Initialize socket ($socket.socket(socket.AF\_INET, socket.SOCK\_STREAM)$).
- **connect(**$host, port$**):** Connect to a the $port$ of the $host$ ($socket.connect((host, port))$).
- **send(**$message$**):** Send the $message$ via the socket ($socket.send(msg.encode())$).
- **join(**$channel$**):** Join the $channel$ ($send('JOIN'.format(channel\_name)')$).
- **get():** Receive message from socket ($socket.recv(1024).decode('utf-8')$).
- **user(**$user\_name, host\_name, server\_name, real\_name, nick\_name$**):** Set the names and nick name.
- **is_ping(**$text$**):** Return $True$ if $text$ is $PING$, else $False$.
- **priv_msg(**$channel, message$**):** Send a PRIVMSG $message$ to $channel$. ($send('PRIVMSG:'.format(channel, msg))$).

1.2.3 Global Functions

- **get_soup(**url**):** Get the BeautifulSoup of url.
- **get_daily_horoscope(**$horoscope$**):** Get the daily horoscope of $horoscope$ by web crawling.
- **get_song_url(**$song\_name$**):** Get the url of $song\_name$ by web crawling.

1.3 Program Flow



2 Challenges & Solutions

2.1 Unable to connect to Freenode by personal hotspot

The first I tried to connect to Freenode by Irssi, I used my personal hotspot to access the Internet, since the public wifi (NTU, ntu-peap) is unstable at my location. However, I found that Irssi can't successfully authenticate my connection. After several tries, I decided to change a location and use ntu-peap. Then, everything worked as expected.

2.2 No response

Other client has no response to my message no matter what I sent. After browsing on-line, I found that I forgot to add an EOL in my message.

2.3 Cannot determine the type of commands

I want to use "str.endswith" to detect the type of commands. Thus, I need to remove the trailing newline characters at the end of the received messages.

2.4 Simultaneously receiving and typing text

To realize the "!chat" command, I use the linux "select" command via python, so that the program can simultaneously receiving and typing text. Also, I have to print the backspace character "\b" to erase the "> " when text was received.

3 Reflections

This is a very interesting assignments because it realizes the procedure of chatting online, which is heavily used nowadays after the appearance of social networks, such as Facebook, Line. Additionally, I think it would be more interesting if students can work in group to implement a more sophisticated chatting system.