2017 Computer Network # HW1

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Program Structure

global variables

- `IRCSocket` : the socket connecting with IRC server
- `HOST` , `PORT` : IRC server's host & port
- `CHANNEL` : declared as an empty string, would be read from `./config` in `main()`

main function

Connect & Login

1. read `CHAN` from config
2. connect to IRC server
3. Login (`USER` , `NICK` , `JOIN` , and greet!)

While loop to recv messege

1. recv a block each time and decode it
2. if the messege contains `PING` , reply `PONG`
3. if the messege contains `PRIVMSG` , determine whether its:
    - a regular message: do nothing
    - `@help` : print the helping messege
    - `@repeat` : simply repeat the messege
    - `@convert` : call `convert()` function to handle it
    - `@ip` : call `ip()` function to handle it

convert

- `num` : the string of number to convert
- if `num` starts with `0x` , try to convert it to deximal
- otherwise, try to convert it to heximal
- if failed to convert, send privMsg `Invalid inputQAQ`

ip

- print `0` and return immediately if the length of string is invalid
- 3 layers of for loop to place the 3 "dots"
- use `socket.inet_aton()` to validate if the generated string is a valid ipv4 address

privMsg & sendMsg

- helper functions to handle encoding & IRC keywords

Challenge & Solution

PING-PONG

IRC will check whether the robot is alive or not.
Solution: Reply a `PONG` after recieving a `PING` every time.

throttled due to flooding

When sending many messege at one time, the IRC server may think the robot is attacking and close the connection.
Solution: TA says don't need to concern this :P

find() v.s. startwith()

At first, I used the `find()` function to search for keywords. However, the 4 commands, `@help`, `@repeat`, `@convert`, `@ip`, should appear at the start of a messege.
Solution: Use `startwith()` instead of `find()`.

excess flood

Sometimes, my program crash before joining the channel. The error messege shows `excess flood`, then thousands of newline appear. I have to keyboard-interrupt it.
Solution: After changing the buffer size from 4096 to 1024, this problem do not appear anymore. However, the reason why is still unknown OAQ (my code works but I don't know why)