COMPUTER NETWORK - Homework Assignment 1

IRC Robot - Due Date : **23:59, October 18**, 2017

1. Description

IRC is an application layer protocol that facilitates communication in the form of text. The chat process works on a client/server networking model.

This assignment is based on the knowledge of "Socket programming".
You need to "Connect" to socket and "Send / Receive" message to/from socket.

2. Directory Structure

Your program has to read **"config"** to get the information of IRC channel.

[Folder]	[config]
- config # IRC Configuration - main # Main program	CHAN='**#CN_Demo**'

3. Grading Policy

1. Implementation (80%)

(a) Connection to Channel & Automatic Introduction Message (30%)
(b) 'Repeat' Message (10%)
(c) Hexadecimal & Decimal Converter (15%)
(d) Valid IP Address Calculator (20%)
(e) Help (5%)

2. Report (10%) — (Format : docx/pdf)

Program structure, Challenge & Solution, Reflections about this homework ?

3. Demo (10%)

4. How to Submit the Assignment ?

Please **compress** all of your file into an archive. (Format : zip/rar)

EX: hw1_rxxxxxxxx.rar

Then email to ntu.cnta@gmail.com before due date.

Email subject: [CN2017] Homework1_studentID

Penalty for late submission is **"20% per day"**. **NOT accept after 23:59 October 20, 2017.**

5. What Should Your Robot Do ? (Language : c/c++/python)

(a) Connection to Channel & Automatic Introduction Message (30%) :

Using **"Socket" API** to connect to the IRC channel.

Once connection is successful, robot's name will be shown on the channel. Then, automatically send introduction message "Hello! I am robot." when robot enters the channel.

```
10:50 -!- ROBOT [~robot@voip3.csie.ntu.edu.tw] has joined #CN2017
10:50 < ROBOT> Hello! I am robot.
```

(b) 'Repeat' Message (10%) : "@repeat"

```
10:52 <@client1> @repeat hello world!
10:52 < ROBOT> hello world!
```

(c) Hexadecimal & Decimal Converter (15%) : "@convert"

Input: Hexadecimal -> Output: Decimal
Input: Decimal -> Output: Hexadecimal

```
10:54 <@client1> @convert 0x19
10:54 < ROBOT> 25
10:54 <@client1> @convert 666
10:54 < ROBOT> 0x29a
```

(d) Valid IP Address Calculator (20%) : "@ip"

Given an input string that the length is no longer than 20.
Print the number of valid IPv4 addresses and each valid IPv4 address.
The order of listed valid IPv4 address doesn't matter.

```
10:55 <@client1> @ip 12345
10:55 < ROBOT> 4
10:55 < ROBOT> 1.2.3.45
10:55 < ROBOT> 1.2.34.5
10:55 < ROBOT> 1.23.4.5
10:55 < ROBOT> 12.3.4.5
```

(e) Help (5%):"@help"

```
10:56 <@client1> @help
10:56 < ROBOT> @repeat <Message>
10:56 < ROBOT> @convert <Number>
10:56 < ROBOT> @ip <String>
```

- P.S. External library is not allowed.