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%) -

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"**. **NO 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.

```
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>
```