

# Computer Network Homework:

## 網路程式作業: 聊天室程式

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- 系統環境

在 windows 中執行 cygwin。

Cygwin 是 Windows 下可以執行 bash、dash、csh 的一個方法，即在 Windows 下可以使用 Linux 終端機的指令。

- 編譯方法

首先要先安裝 cygwin

x86 安裝

<https://mega.co.nz/#!5hAjFJCQ!mNeSVB!PjHSCFfQmu3Zj4DWmh1SEJMub6YdL8ShmFio>

x64 安裝

<https://mega.co.nz/#!VxxxSlqb!B-swbxvGckfvM4DEkOQ3AsKAiPL3YZCw!hPSF6H-QY>

下載後補上附檔名 .zip

解壓縮後執行 cygwin\_install 資料夾內的 setup-x86.exe(x86)或

setup-x86\_64.exe(x64)

[Choose A Download Source] 選擇 [Install from Local Directory]

Root Directory 不變

[Local Package Directory] 選擇此安裝檔所在的資料夾 [cygwin\_install]

[Select Packages] 將 [Devel] 的狀態改為 "Install"

詳情請見附件 cygwin 安裝說明.pdf

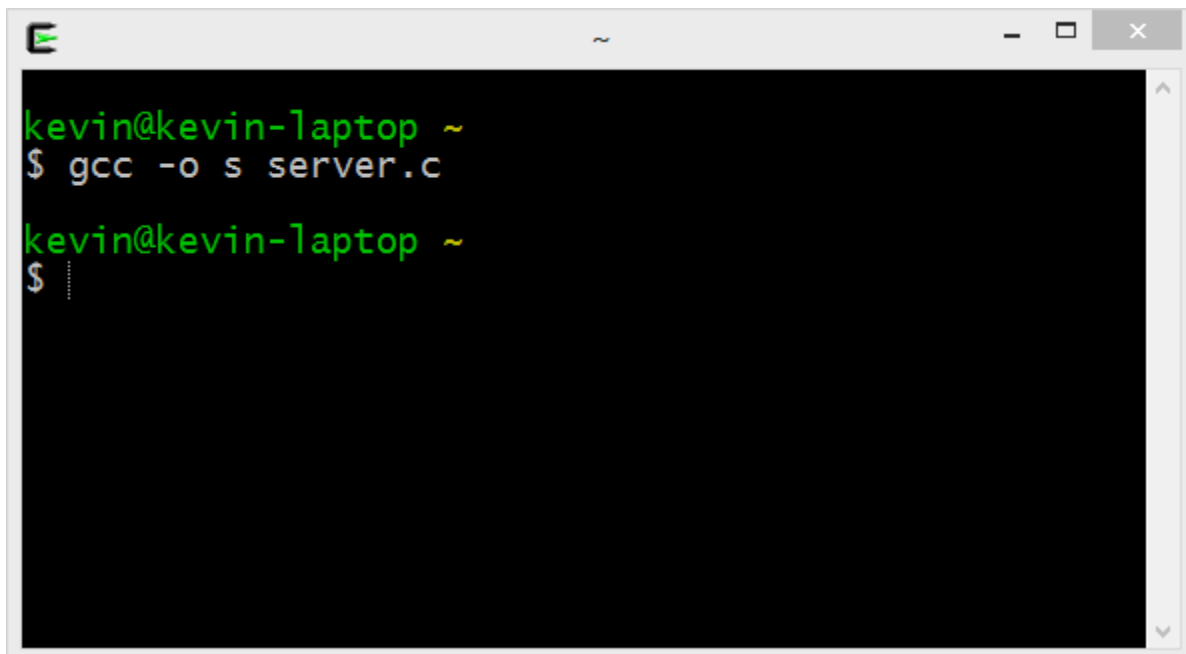
再來，執行 cygwin，將 server.c 與 client.c 還有 test.jpg 放入

C:\cygwin\home\使用者名字 資料夾中

在 cygwin 中打入指令

gcc -o 〔自己取的 server.exe 檔名〕 server.c

《代表去編譯 server.c 這個程式。》

A screenshot of a Cygwin terminal window. The window has a title bar with a green icon, a tilde (~) symbol, and standard window controls (minimize, maximize, close). The terminal background is black with green text. The prompt is 'kevin@kevin-laptop ~'. The first command entered is '\$ gcc -o s server.c'. The second prompt is 'kevin@kevin-laptop ~' and the command '\$' is entered, followed by a vertical ellipsis '...' indicating the command is still being processed or the output is being scrolled.

再來開一個新的 cygwin

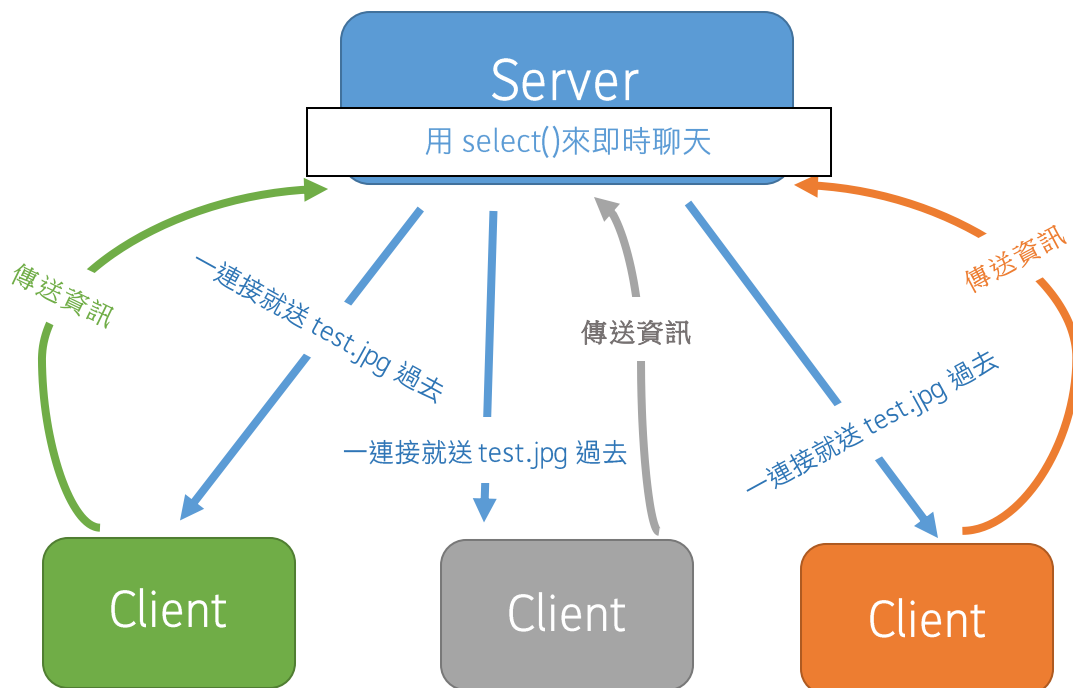
gcc -o 〔自己取的 client.exe 檔名〕 client.c

《代表去編譯 client.c 這個程式。》

```
kevin@kevin-laptop ~  
$ gcc -o c client.c  
client.c: In function 'Receive':  
client.c:129:19: warning: passing argument 1 of 'poll' f  
rom incompatible pointer type  
    wait_time = poll(ufds,1,500);  
                      ^  
In file included from client.c:12:0:  
/usr/include/sys/poll.h:43:12: note: expected 'struct po  
llfd *' but argument is of type 'struct pollfd *'  
extern int poll __P ((struct pollfd *fds, nfds_t nfds,  
int timeout));  
                  ^  
  
kevin@kevin-laptop ~  
$ |
```

《那些字是警告，不是錯誤》

- 程式流程圖

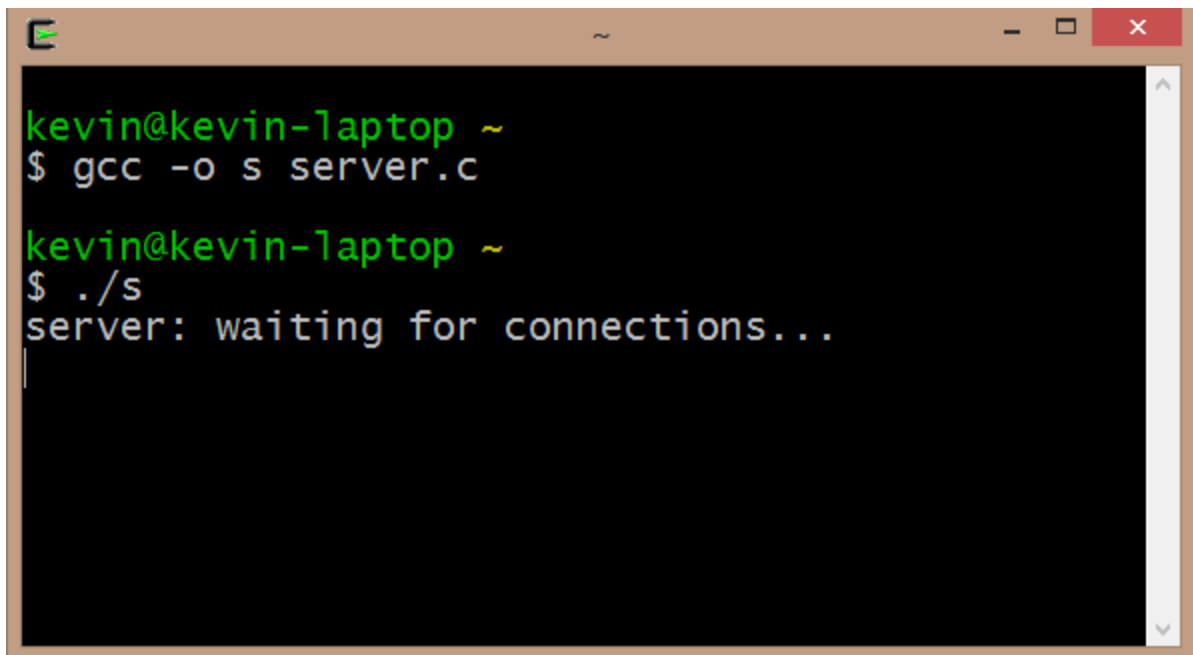


- 使用說明

- Server 端

在 cygwin 中打

`./ 〔自己取的 server.exe 檔名〕.exe`



```
kevin@kevin-laptop ~  
$ gcc -o s server.c  
  
kevin@kevin-laptop ~  
$ ./s  
server: waiting for connections...
```

就會等待連接

- Client 端

在 cygwin 中打

`./ 〔自己取的 server.exe 檔名〕.exe localhost`

或

`./ 〔自己取的 server.exe 檔名〕.exe 【ip 位址 ipv6】`

```
kevin@kevin-laptop ~
$ ./c localhost
pic recv.
client: connecting to ::1
what your name?
|
```

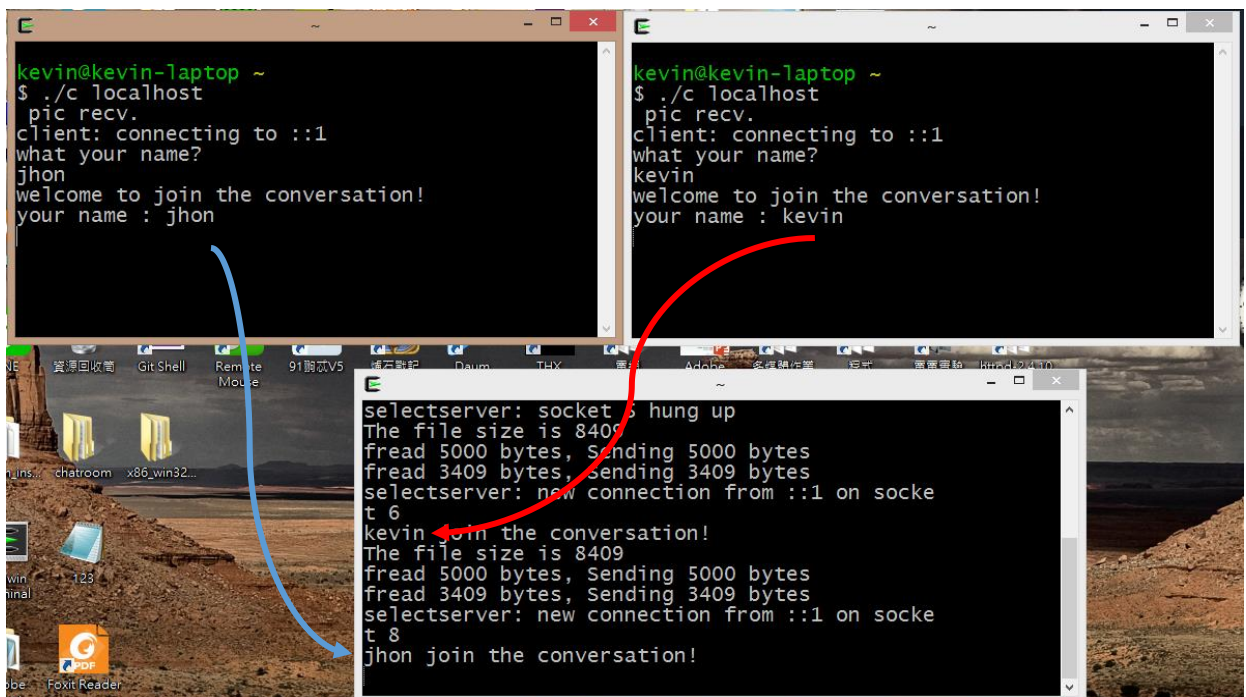
pic recv 代表有收到圖片《在 cygwin 有一個 get.jpg》

接著輸入名字

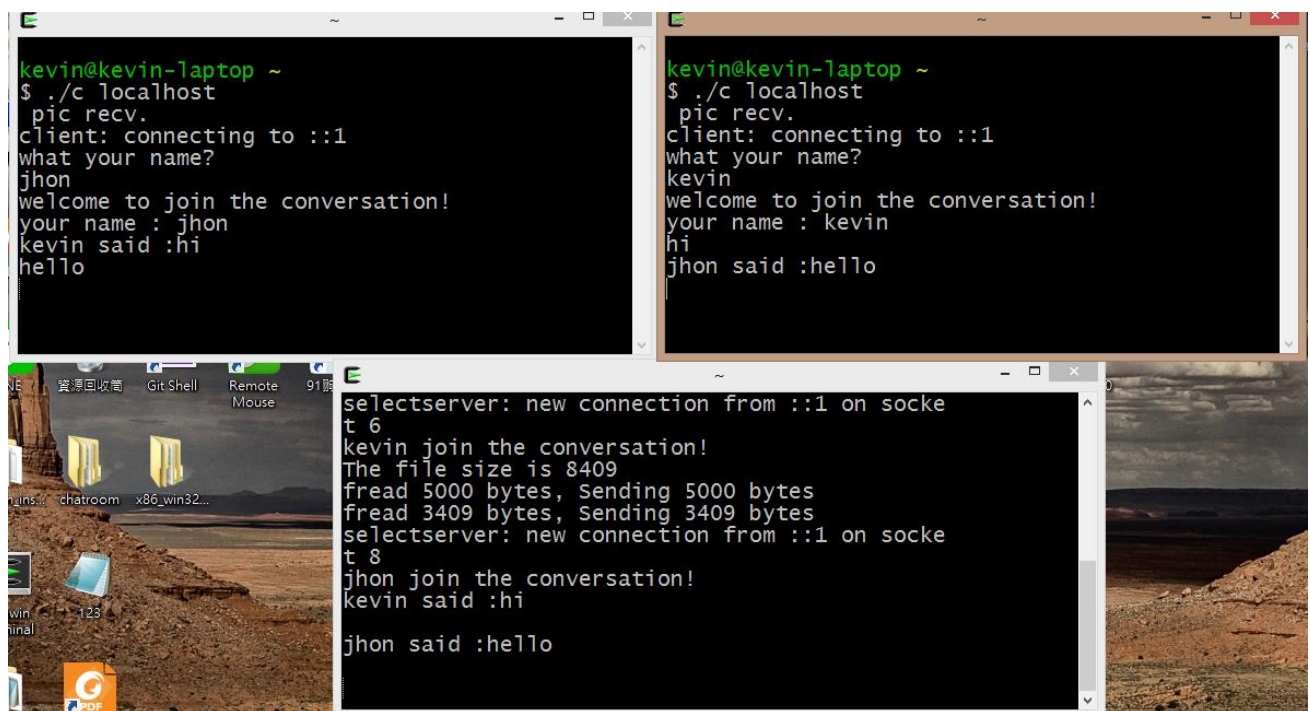
- 執行結果

可以多人連接

再開一個 cygwin 也打./c localhost



開始聊天！！！！



```
kevin@kevin-laptop ~  
$ ./c localhost  
pic recv.  
client: connecting to ::1  
what your name?  
jhon  
welcome to join the conversation!  
your name : jhon  
kevin said :hi  
hello
```

```
kevin@kevin-laptop ~  
$ ./c localhost  
pic recv.  
client: connecting to ::1  
what your name?  
kevin  
welcome to join the conversation!  
your name : kevin  
hi  
jhon said :hello
```

```
selectserver: new connection from ::1 on socke  
t 6  
kevin join the conversation!  
The file size is 8409  
fread 5000 bytes, Sending 5000 bytes  
fread 3409 bytes, Sending 3409 bytes  
selectserver: new connection from ::1 on socke  
t 8  
jhon join the conversation!  
kevin said :hi  
  
jhon said :hello
```

Server 與 client 端都可以看到完整對話。(server 端不能參與對話)