Sample Client-Server Programs and Networking Resources

Sample Programs

We have provided sample TCP client and server programs that you can download and execute (see links at the bottom). This will provide you with a working example of a simple application and will be useful when you start developing your assignment. As the name suggests this is an ECHO program, in which the server echoes back the data, after converting it to Uppercase (i.e. capital letters) to the client.

NOTE: please read the programs before executing them to understand what they do.

C Programs

Usage after compiling and assuming that the executables are named TCPServer and TCPClient respectively (execute them in different xterm windows on the same host):

```
>TCPServer
>TCPClient HOSTNAME DATA
```

The HOSTNAME above refers to the hostname of the computer on which you are executing your TCPServer (e.g: tube01.cse.unsw.edu.au) and DATA represents any character string that you want to be echoed back from the server. (e.g., Networks)

If you encounter an error message that the port is already in use, change the server port number in both client and server programs (it is currently 1500), someone else may be running the same program at that time. Look for a comment that says /*change the above port number if required*/ to make this change.

Java Programs

Usage after compiling and assuming that the executables are named TCPServer and TCPClient respectively (execute them in different <g>xterm</g> windows on the same host):

```
>java TCPServer
>java TCPClient HOSTNAME DATA
```

The HOSTNAME above refers to the hostname of the computer on which you are executing your TCPServer (e.g: tube01.cse.unsw.edu.au) and DATA represents any character string that you want to be echoed back from the server. (e.g., Networks)

If you encounter an error message that the port is already in use, change the server port number in both client and server programs (it is currently 6789), someone else may be running the same program at that time. Look for a comment that says /*change the above port number if required*/ to make this change.

Python Programs

Usage after compiling and assuming that the executables are named TCPServer and TCPClient respectively (execute them in different xterm windows on the same host):

```
>python TCPServer
>python TCPClient HOSTNAME
```

The HOSTNAME above refers to the hostname of the computer on which you are executing your TCPServer (e.g: tube01.cse.unsw.edu.au). Once the client is running it will ask for user input. Type a string in lower case. The client should print the corresponding upper case string received from the server.

If you encounter an error message that the port is already in use, change the server port number in both client and server programs (it is currently 12000), someone else may be running the same program at that time. Look for a comment that says #change this port number if required.

Resources on socket programming

Here are some very useful resources:

C:

- Beej's Guide to Network Programming
- Sockets Tutorial
- Unix Sockets Tutorial
- TCP/IP Socket Programming in C

Java

- Sockets Programming in Java: A tutorial
- All about Sockets (by Sun)
- Java Networking Tutorial

Python

- Python Network Programming
- Socket Programming HOWTO
- Socket Programming in Python (IBM, PDF)

- Network Programming in Python

Makefile

- Tutorial
- Using make and writing Makefiles

Downloadable links:

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https://moodle.telt.unsw.edu.au/mod/folder/view.php?id=1636718