

CS69003: Computer Systems Lab – I

autumn 2007

Assignment 7

Due: October 10, 2007

In this assignment, you have to write a client-server program using TCP/IP sockets so as to implement a file transfer operation. The client first connects to the server. It then executes a loop for obtaining files from the server. The basic syntax of the file transfer command goes like this:

```
get <remote_filename> <local_filename>
```

The client first checks whether a local file with the name *<local_filename>* exists. If so, the `get` command fails. This is needed to prevent accidental erasing of local files. If the local file does not exist, the client issues a request to the server thread to send the file *<remote_filename>*. The command sent to the server for this is the string “`get <remote_filename>`”.

The server, upon receiving a connection from a client, creates a new child process for subsequent communication with that particular client (the parent process goes back to wait for more clients). When this process receives a `get` command from the client, it first checks if a file with the name *<remote_filename>* exists or not. If a remote file with the name *<remote_filename>* does not exist, the server thread sends back a failure message to the client, which the client prints on the screen. Otherwise, the server sends the content of the remote file to the client which, in turn, saves the data sent by the server thread in a file with name *<local_filename>*. The user can get multiple files by sending the `get` command again and again. To terminate file transfer, the user enters the command

```
exit
```

to the client program. The client then sends an “`exit`” message to the server process. Both the client and the server processes exit after this.

Here is a sample execution of the client program. User’s inputs are shown in italics.

```
$ ./a.out
Client> get tree.jpg jungle.jpg
Error: remote file "tree.jpg" does not exist. Transfer fails.
Client> get woods.jpg jungle.jpg
Remote file "woods.jpg" is saved as "jungle.jpg". Transfer
successful.
Client> get woods2.jpg jungle.jpg
Error: local file "jungle.jpg" exists. Transfer fails.
Client> get crazyfrog.avi CF.avi
```

```
Remote file "crazyfrog.avi" is saved as "CF.avi". Transfer
successful.
Client> get "07CS6099-ass7.c" "myprog.c"
Remote file "07CS6099-ass7.c" is saved as "myprog.c". Transfer
successful.
Client> exit
Bye!
$
```

Submission

Name your client file `client.c` and your server file `server.c`. Tar all the programs into a single tar file `Assgn7.tar` and mail it to course email together with the subject line "Assignment 7 for 07CS60**".