CNT4713 U01 – Project 1

Overview:

Understand TCP socket programing by developing a simplified FTP server that works with the Windows built-in FTP client. You must create your own TCP sockets, and cannot use any existing FTP library. You may write your program on Windows, Linux, or Mac OS, and use Python, Java, or C++/C as the programming language. This is an independent project.

Instructions:

Start the FTP server by typing the command:

```
myftpserver port-number
```

so that the server will be running at the local computer and listening at the given "`port-number`". The current directory where the server program is started will be the FTP root directory.

After the server starts, it should provide the following services for a user connects using the Windows built-in FTP client (start by typing "ftp" in the Windows command line terminal).

Client command	Server service
`user` and `password`	Allow the client to login if the provided "`user`" and "`password`" are the same string, and set the working directory of the client as the root directory.
`mkdir remote-path`	Create a new directory in the server, where "`remote-path`" gives the relative path.
`cd remote-path`	Change the working directory of the client on the server to "`remote-path`".
`pwd`	Return the working directory of the client.
`get remote-file`	Send the file named "`remote-file`" from the server to the client.
`put local-file`	Receive the file named "`local-file`" from the client to the server, and save it in the working directory with the same file name.
`delete remote-file`	Delete the file named "`remote-file`" from the server.
`quit`	Disconnect the FTP client.

If the server encounters an error when executing the client command, it should send an error notification to the client. Refer to the RFC for appropriate response messages. For example, when the client provides the wrong user name or password, the server should return “`530 Login incorrect.`”; when the client requests to create a directory that already exists, the server should return “`550 Create directory operation failed.`”.

References:

Windows built-in FTP client commands, http://www.nsftools.com/tips/MSFTP.htm
FTP RFC, http://www.ietf.org/rfc/rfc959.txt

Submission Guide:

Submit a readme.txt file, the source code file, and a Makefile if you have one. Please include the following information in the readme.txt file.

Student name and ID: xxx
Operating system: Windows/Linux/Mac OS
Programing language: Python/Java/C++/C
Compiling instructions: xxx
Running instructions: xxx

The code must be well-documented.

Grading Criteria:

Item	Percentage
Successful compilation	10%
`login`	10%
`pwd`	10%
`mkdir`	10%
`cd`	10%
`get`	15%
`put`	15%
`delete`	10%
`quit`	10%
Handling of multiple parallel connections (i.e. the server can serve multiple FTP clients at the same time)	Extra 15%

Plagiarism will be reported to the university for academic dishonesty.