Operating Systems and Networks – Assignment 2

Network protocol

- Upon connection clients are prompted for a password.
- If the client-supplied password is incorrect, the client does not gain authorisation and the connection is terminated. If the client's IP address in the block list (forbidden.txt) then the connection will be refused & closed.
- Clients can request a list of files located in the client's current directory.
- Clients can request a list of files located in the server's current directory.
- Clients can retrieve a file from the server's current directory which is then stored in the current directory on the client machine.
- Clients can transfer a file from the client's current directory to the server's current directory.
- The connection to a client is closed when they quit.

This behaviour is implemented by the following request commands:

- lls
- rls
- put *name*   (where name is the name of the file to be transferred)
- get *name*   (where name is the name of the file to be transferred)
- exit

The response codes from the server are as follows:

- 001 PASSWD OK – the user has entered the correct password.
- 002 PASSWD WRONG – the user has entered the incorrect password.
- 003 REFUSED – the client's IP address is in the block list, the connection is refused.
- 011 FILE NOT FOUND – if the file does not exist.
- [size] – the file size of a file about to be transmitted as an positive integer.
- 111 FILESIZEOK – the file size has been received by the server
- 012 SENDFILE file – requests that the client should send the specified file (named by file) to the server.
- 013 RECIEVEFILE file – requests the client should receive a file from the server with the specified file name (file).
- 021 REMOTEFILELIST – indicates that the client will next receive a list of files from the server & should prepare to receive this data.
- 022 ENDOFFILELIST – indicates the end of a file list

The client has several build in response codes that are used to notify the server when events occur.

- 011 FILE NOT FOUND – if the file it is trying to send does not exist.
- [size] – the file size of a file about to be transmitted as an positive integer.
- 111 FILESIZEOK – the file size has been received by the client

The commands may give rise to different responses:

- In response to the password being input, the server will return 001 PASSWD OK if correct; and 002 PASSWD WRONG if incorrect.
- In response to the command rls the server will return 021 REMOTEFILELIST followed by a list of files delimited with new line characters ('\n') Once the whole list has been sent, the server will also send 022 ENDOFFILELIST to denote it has reached the end of the list.
- The lls command is handled exclusively by the client and lists local files.
- The exit command will cause the server to close the client socket upon which the client is connected. It will also cause the client to close the socket upon which it is connected.
- The get name command will cause the server to send the file size (as an integer) or, if the file does not exist on the server, the 011 FILE NOT FOUND response. If the file size has been received and the file does exist, the server will wait until the client has acknowledged this with the 111 FILESIZEOK command and will then start to send the file.
- The put command should cause the client to send the file size (as an integer) or, if the file does not exist locally, the 011 FILE NOT FOUND response. If the file size has been received and the file does exist, the client should wait until the server has acknowledged this with the 111 FILESIZEOK command and will then start to send the file.