serialize protocol

Name: Li Liu ID: ll2

from client -> server:

whole message size + type number + all other message

4 bytes 4 bytes

server will firstly receive 4 bytes about the whole message size, and then receive all left bytes. if there is a string, I will put it at the end of the message, so I don't need to record the length of the string.

from server -> client:

whole message size + errno + all other message

4 bytes 4 bytes

client will also firstly receive 4 bytes about the whole message size, and then receive all left bytes. Errno will come with the next 4 bytes.

About the tree:

every node of the tree will form a data structure like:

node_name + '/0' + number of sub nodes

1 byte 4 bytes

I will first count the numbers of nodes using DFS, so I can malloc memory to store. then I will iterate the tree by level by using a Queue implemented by me. I put /0 after every name string, so I can use strlen in client to get the string length.

The serialized process like the picture below:

first

/ | \ —> serialized info : first/0 3 second/0 0 third/0 0 fourth/0 0

second third fourth

Then we will use the serialized info to re build the tree also using a Queue.