Write two C programs, one TCP-based server (server.c) and once client (client.c).

Server: The server will listen on port 4444 and will wait for a connection. At a time, the server can only accept one connection. When a client connects to the server, the server sends "Hello, what is your name?" back to the client. On receiving the client's response, the server responds with a status code “200 OK” if the first alphabet in the name is a capital letter, else it sends “500 ERROR”. After this initial step, the client will send ASCII text to the server. Once the client has completed transferring the data, the client will send a "." in a new line and that will indicate that the client has no more data to send. At this point, the server will respond back with "Thank you"+<person's name> message and terminate the connection. The server will quit once it receives “.” from the client. You will run the server.c and client.c on two terminals in your machine.

Client: Connects and waits for the server to send “Hello, what is your name?”. The client sends their name and waits for the server’s response. If the server sends “200 OK”, then the client responds with a few lines of text. Once the client does not have any more text to send, it sends a “.” in a new line. If the server sends “500 ERROR”, then the client directly sends “.”

All quotes “” above must be removed during the communication.

Example of the interaction on the server terminal:

S: Hello, what is your name?

C: Bob

S: 200 OK

C: Thank you for accepting the connection.

C: I have no messages for mail boxes in your server.

C: I am closing the connection now.

C: .

S: Thank you, Bob

Interaction at the client side:

S: Hello, what is your name?

C: Bob

S: 200 OK

C: Thank you for accepting the connection.

C: I have no messages for mail boxes in your server.

C: I am closing the connection now.

C: .

S: Thank you, Bob

Deliverables:

a) the client.c and server.c file. (1+1 mark for each file compiling properly and is properly commented)

b) the server is able to send the "Hello, what is your name?" message to the client (2 marks)

c) The client is able to send its name to the server and the server sends the response code. You must send your name (once in complete lower case and once in camel casing where the first alphabet is in uppercase and all others are in lower case) as the response to the server. (1.5+1.5 mark)

d) If the client gets 200 OK from the server, then it sends the message, else it throws an error message and sends "." to the server to terminate the connection. (1.5 + 1.5 marks)

e) The client can send continuous lines of messages to the server. (2 marks)

f) The server sends a "Thank you, <name>"" message on receiving CRLF.CRLF line (2 marks)

Screenshot of both the client and server for each of the above steps (1 ss == 1 server screenshot + 1 client ss) (1mark x (1 ss in (b)+ 2 ss in (c) +2 ss in (d)+1 ss in (e)+1 ss in (f)) = 7 marks)