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Summary:

To start off, I used the base code we saw in class for the echo server as the template for the code in my main() function. Then I created a function called handle_request_response() which is similar to the doit() function as it handles one request and response. In the handle_request_response() function I first read in the request line and headers using some code from tiny.c. Then I check the HTTP version of the request and if necessary set it to be HTTP/1.0. Then I parse the uri in order to get the information I need to forward the client's request. This function was a pain to make as it required a lot of string parsing in c. But, I was finally able to get it to work for urls with and without the socket number. This function returns the hostname, the path and the server port to access. Then I generated the request that my proxy sends to the server. In this function I first check if the rio_request buffer is empty and if so I simply add all of my own http headers. If not, then I read through the rio_request and replace some headers as instructed in the lab requirements and keep the rest of the message the same. This new request message with my edits is stored in generated_request. Next, I open the connection to the server and forward the request I just generated and then read the server's response. I also then write that response back to the client. Then I close the connections.

The hardest part of this lab was understanding how to properly format the GET requests and all of the functions for writing to and from sockets. The string parsing for the GET requests was especially difficult for me. However, it was super cool when I was finally able to get Firefox to use my proxy and actually display some websites.

Bonus:

Some sites have methods of blocking proxy servers this can be for many reasons such as wanting to better keep track of tracking data or simply not wanting to allow proxy use. Additionally, in Firefox there is automatic https redirection for several sites like Google and Bing. I assume this is because there are no http versions of the sites or Firefox wanting to default to https sites. These https sites would not run through my proxy.