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Description:

        The proxy server is capable of securely communicating HTTP 1.1 with HTTPS while handling GET and HEAD requests. Additionally, the proxy server can manage concurrent requests from various web clients, such as wget, curl, or a browser. HTTP request headers can be analyzed and forwarded to the web server destination. Once a response is received from the destination server, the proxy server relays it back to the web client. The access control file, stored as a list of forbidden sites by their domains or IP in a file, is utilized to restrict access to specific websites.

- To update the forbidden sites file, the proxy server reloads the lines of the access control file into a global buffer which holds all forbidden URLs upon receiving a 'Control-C' signal. This is implemented through the use of the sigaction() function which runs the function update_forbidden() whenever SIGINT is signaled.
- If a forbidden URL is discovered while the proxy is in the process of relaying the response to a web client, the connection to the web client is terminated.
- The proxy uses threading to handle listening for and relaying concurrent client requests.
- The function which updates the forbidden URLs buffer (update_forbidden()) uses a mutex lock so that threads will not read the buffer as it is being updated

Test cases
1) **Simple HEAD request**
   curl -x http://127.0.0.1:<proxy listening port>/ http://www.example.com -v -I

2) **Concurrent GET requests**
   First client
   curl -x http://127.0.0.1::<proxy listening port>/
   http://www.w3schools.com/w3images/mountains.jpg -v -o output1.jpg

   Second client
   curl -x http://127.0.0.1::<proxy listening port>/
   http://www.w3schools.com/w3images/mountains.jpg -v -o output2.jpg

3) **Forbidden sites updated causing abort**
   *- Forbidden sites file does not include **www.w3schools.com***
   - curl -x http://127.0.0.1::<proxy listening port>/
   http://www.w3schools.com/w3images/mountains.jpg -v -o output1.jpg
   *- Manually update forbidden sites file to include **www.w3schools.com** while connected*
   - Ctrl-C on proxy terminal
4) **Forbidden sites updated but does not abort**

- Forbidden sites file does not include www.w3schools.com

- curl -x http://127.0.0.1::<proxy listening port>/ http://www.w3schools.com/w3images/mountains.jpg -v -o output1.jpg

- Ctrl-C on proxy terminal (forbidden sites file still does not include www.w3schools.com)

5) **Unable to connect Timeout**

curl -x http://127.0.0.1::<proxy listening port>/ http://www.w3schools.com:8080/w3images/mountains.jpg -v -o output1.jpg

(using port 8080 for the outgoing connection causes a timeout)