CSCE 5580: Introduction to Computer Networks

Multi-Threaded Web Proxy

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REPORT

Aim: In this project, we will develop a web proxy. When our proxy receives an HTTP request for an object from a browser, it generates a new HTTP request for the same object and sends it to a remote server that is hosting the requested object. When the proxy receives the corresponding HTTP response with the object from the remote server, it creates a new HTTP response, including the object, and sends it to the client. The proxy will be multi-threaded, so it will be able to handle multiple requests at the same time.

Proxy Server: In computer networks, a **proxy server** is a server (a computer system or an application) that acts as an intermediary for requests from clients seeking resources from other servers. A client connects to the proxy server, requesting some service, such as a file, connection, web page, or other resource available from a different server and the proxy server evaluates the request as a way to simplify and control its complexity. Proxies were invented to add structure and encapsulation to distributed systems. Today, most proxies are **web proxies**, facilitating access to content on the World Wide Web and providing anonymity.

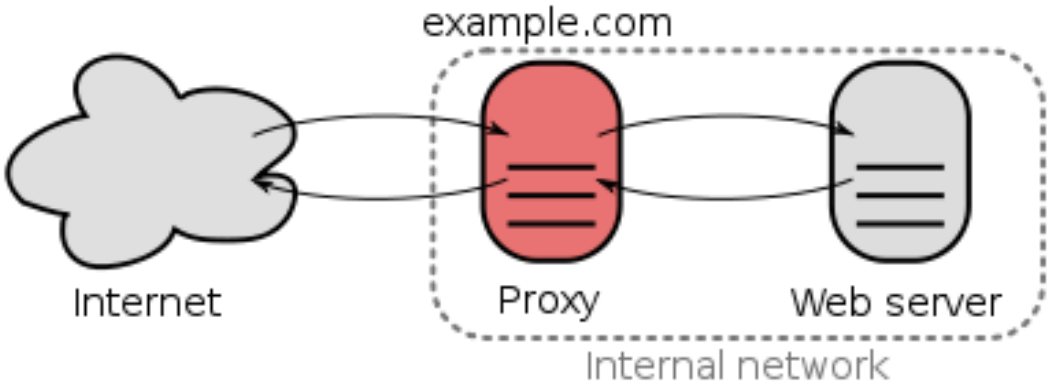

Fig 1: Proxy server

Our Web proxy design: In our web proxy we designed server using C language**.** This server is designed in such a way that it blocks the three given websites www.youtube.com, www.facebook.com, www.virus.com, and www.hulus.com. The related screenshots are shown below:

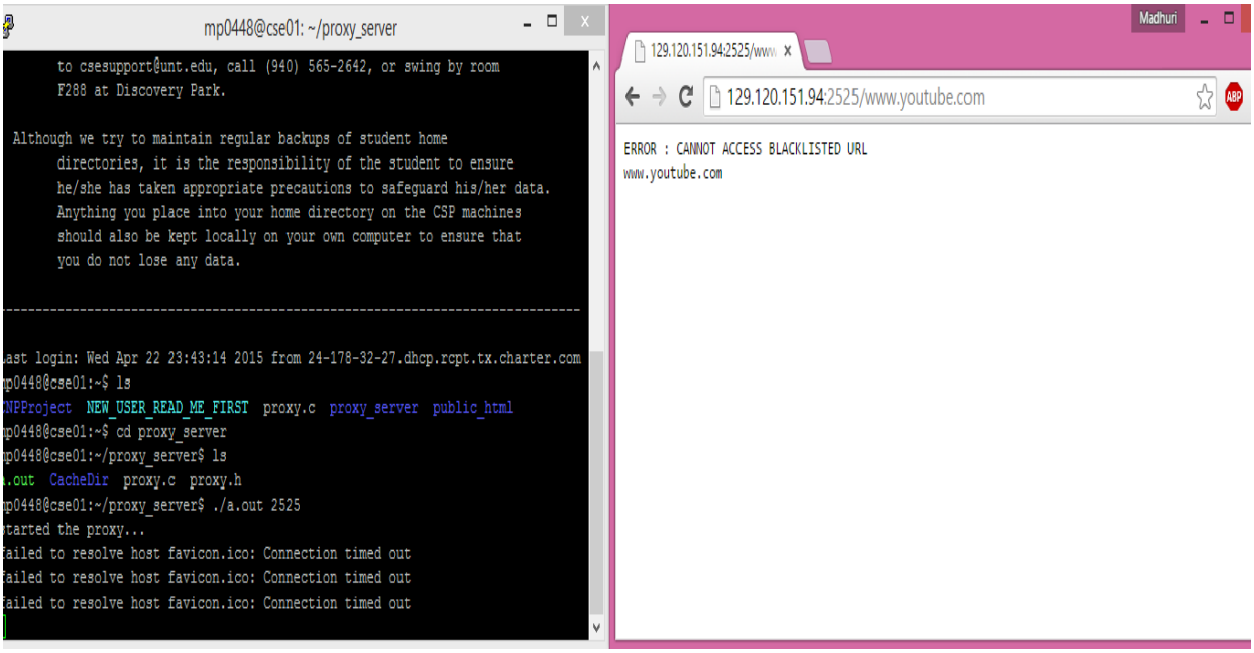

Fig 2: www.youtube.com blocked

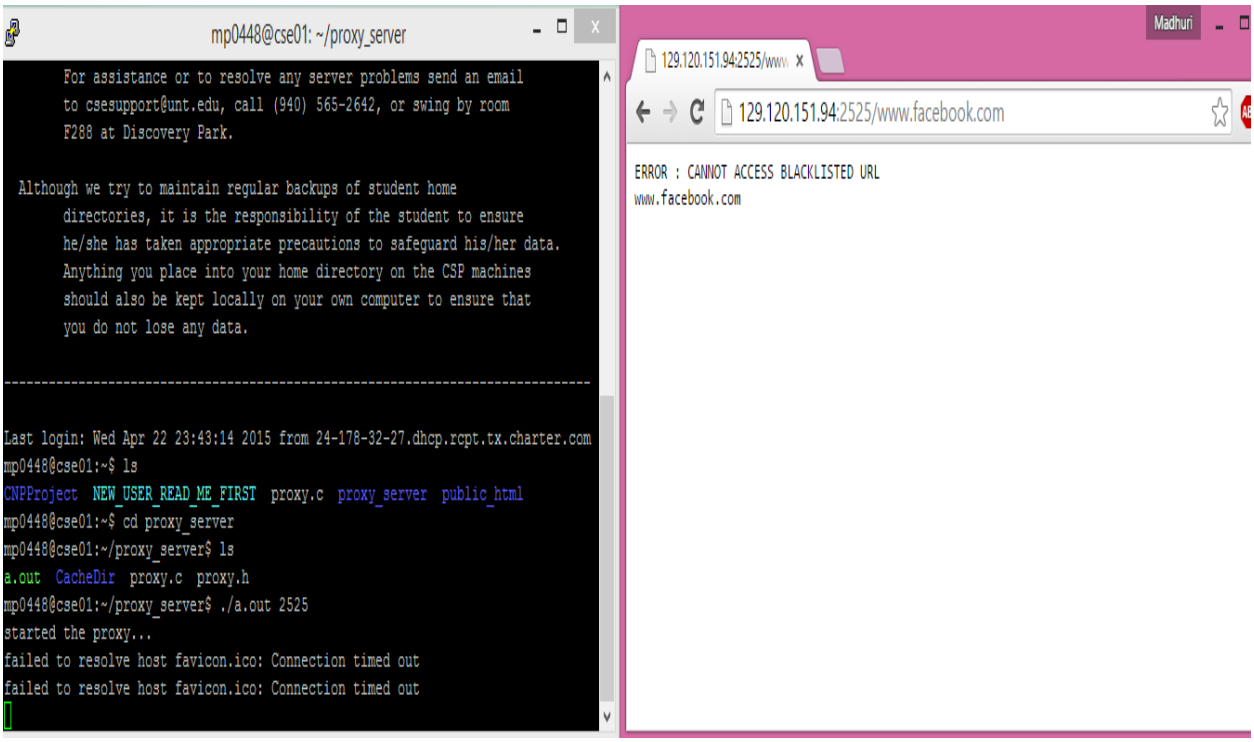

Fig 3: www.facebook.com blocked

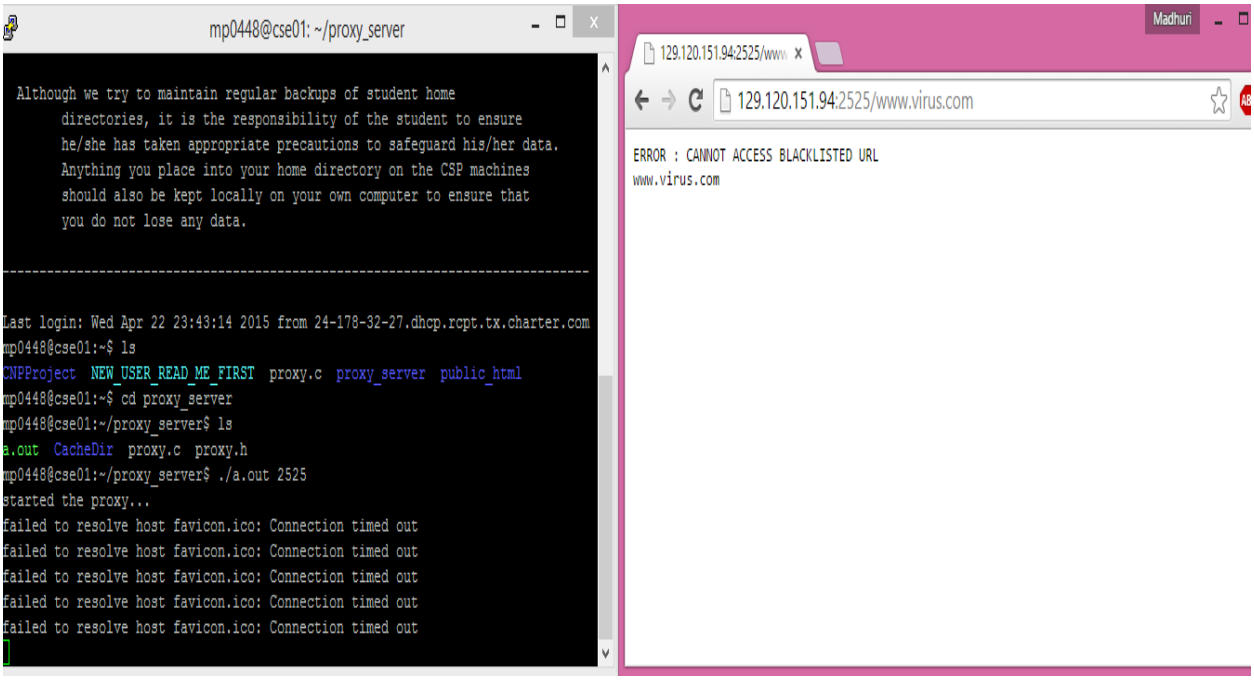

Fig 4: www.virus.com blocked

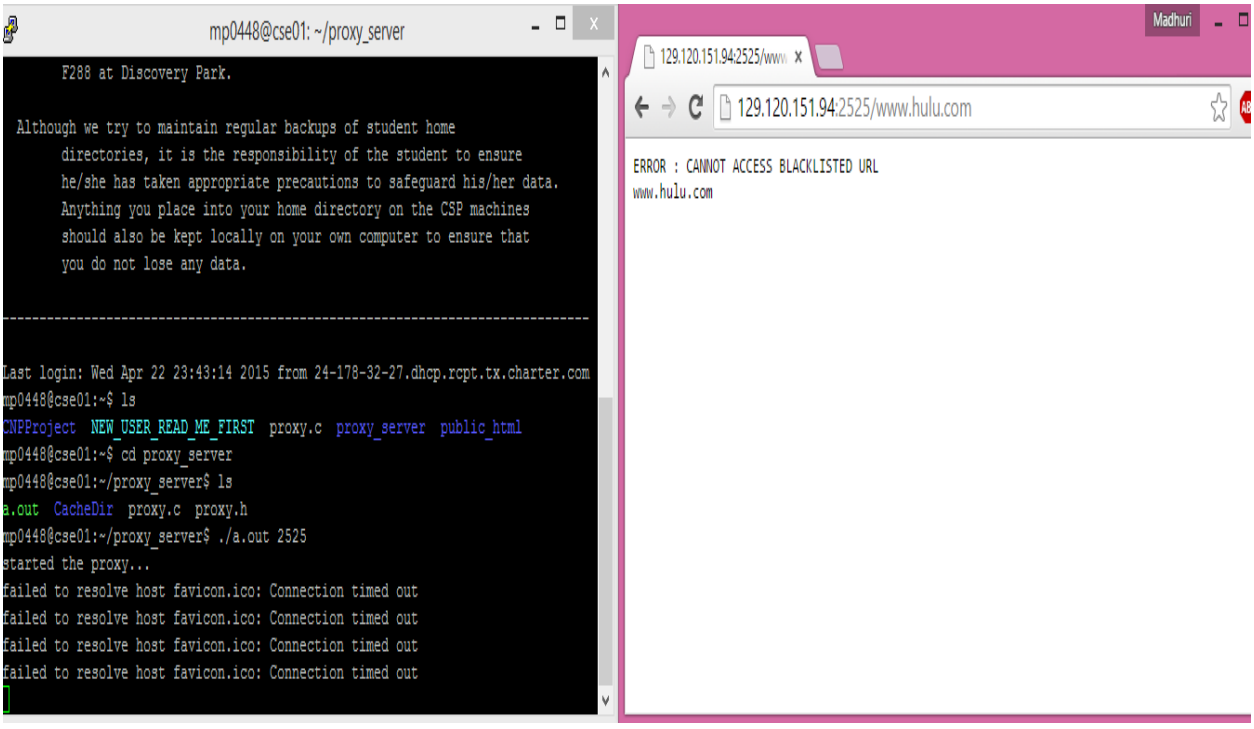

Fig 5: www.hulu.com blocked

We also blocked the given bad words list and the related screenshot is shown below:

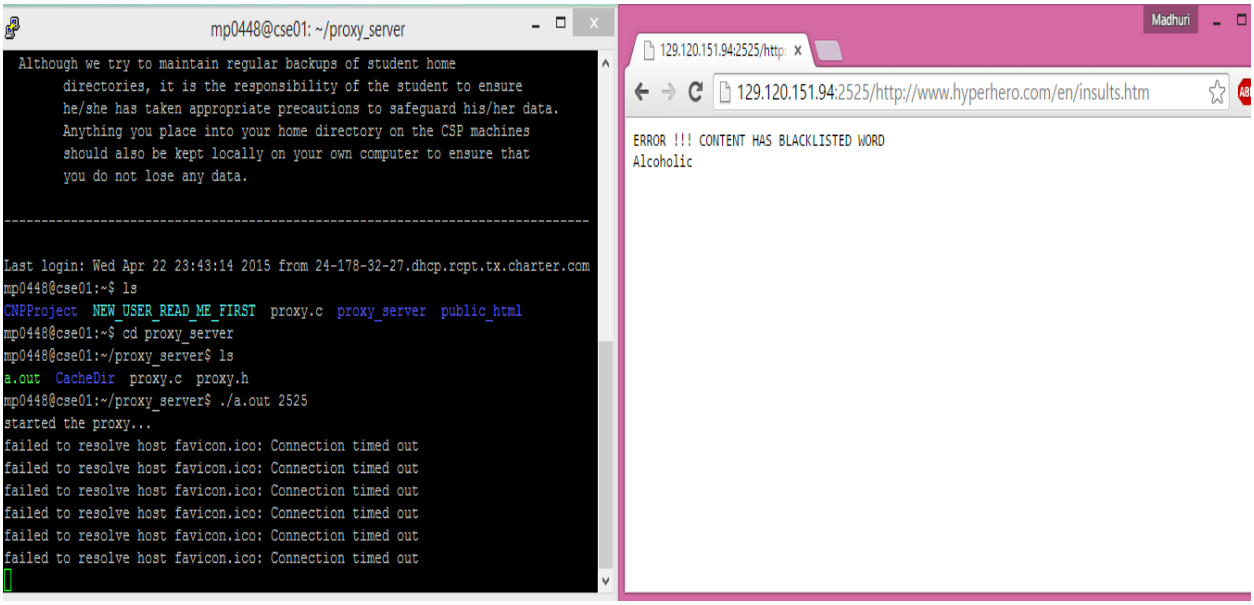

Fig 6: Bad words list blocked

We also designed our server with multi-thread facility which is show below:

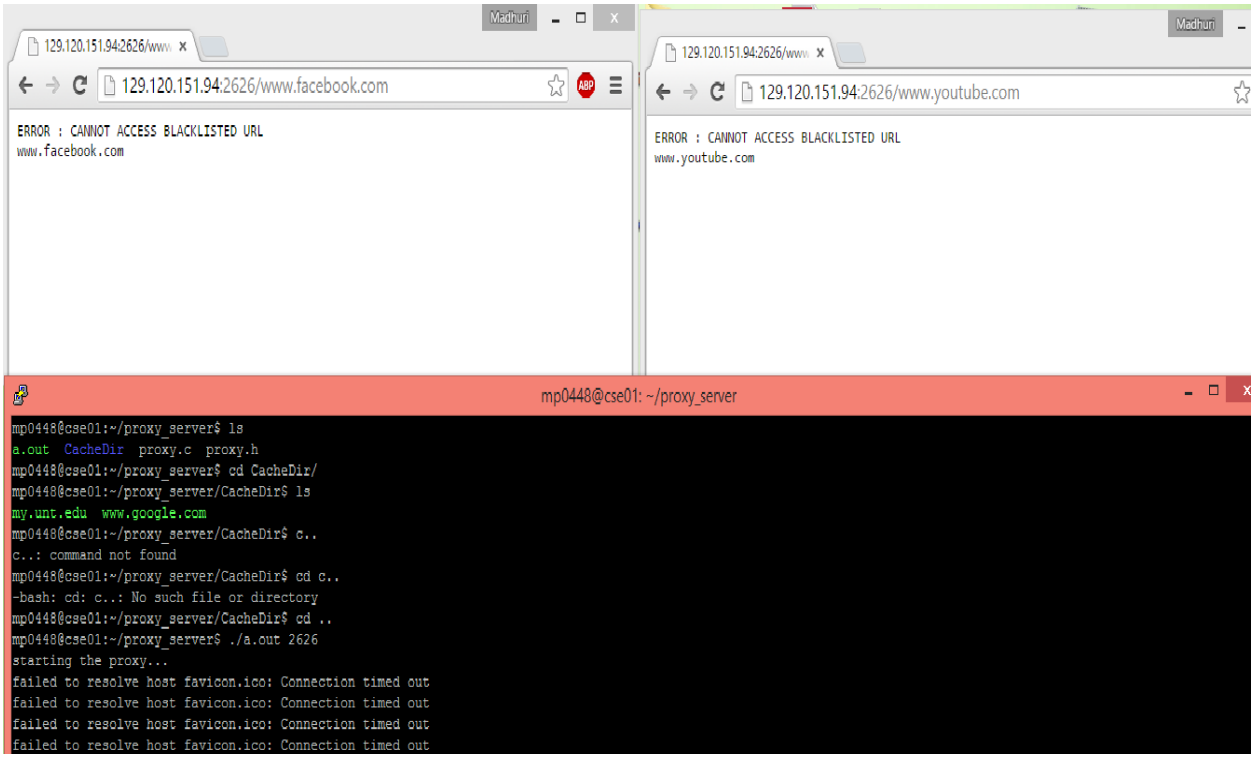

Fig 7: Multi-thread implementation

Below are the screen shots which show the files present in the proxy server and the cache directory of the server:

Fig 8: files present in the proxy server

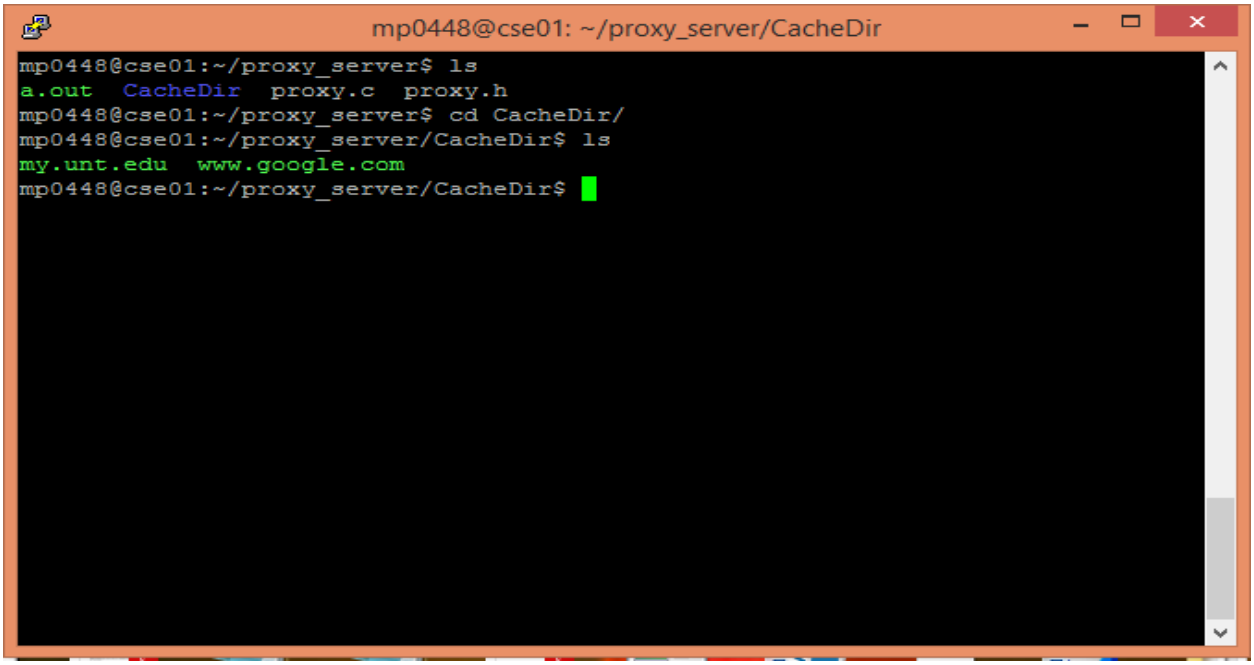

Fig 9: Cache directory in the proxy server

Conclusion: Thus, our design approach of proxy server for blocking some of the websites and blocking the bad words is successful and the related results are shown.

References:

[1] Computer Networking: A Top-Down Approach featuring Internet 6th edition, Kurose and Ross, Addison Wesley.

[2] UNIX Network Programming 3rd edition, Stevens, Fenner & Rudoff, Addison Wesley.

[3] https://www.cs.princeton.edu/courses/archive/spring07/cos461/web_proxy.html

[4] Rabinovich, Michael, and Oliver Spatscheck. Web caching and replication. Boston, USA: Addison-Wesley, 2002